

DEMOGRAPHIC DIVERSITY AND ECONOMIC CHANGE IN APPALACHIA

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Executive Summary
Demographic Diversity and Economic Change in Appalachia

By
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This report provides a picture of demographic diversity and economic change in Appalachia from 1980 through 1996. The 399 largely rural counties of the Appalachian Region extend roughly 1,200 miles from southeastern New York to northeast Mississippi.¹ In 1996, the Region included nearly 22 million people from 399 counties in 13 different states. Two-hundred-and-ninety of Appalachia's counties were classified as non-metropolitan in 1993, the remaining 109 were metropolitan.

The analysis centers on spatial differences in several key dimensions of well-being: population distribution and composition; population change and migration; education, family structure, income and poverty; and employment and labor force characteristics and projections. To portray the spatial diversity in Appalachia the analysis uses three different classifications of counties: the three Appalachian Sub-regions; the distribution of counties along the Rural-Urban Continuum (the so-called Beale County Code); and the Appalachian Regional Commission's 1998 Distressed County Code.

Chapter 2 describes the changing spatial distribution of the population in Appalachia, focusing on age, race, ethnicity and whether persons are foreign born. While the population of Appalachia grew from 1980 to 1996, it did not keep pace with population growth nationwide, so Appalachia's share of the U.S. population declined from 9.9 percent in 1980 to 8.2 percent in 1996. The absolute numbers of people living in Appalachia increased over this sixteen year period, however, from 20,366,372 to 21,783,778, or an increase of 7.0 percent.

Within the Appalachian Region in 1980, half of Appalachian residents lived in the Northern Sub-region which is made up of 144 counties, with 10.4 percent in the Central (85 counties) and 39.4 percent residing in the Southern Sub-region (170 counties). By 1996, just over 44 percent of residents of Appalachia lived in the South, while the percentages in the North and Central Sub-regions declined to 46.2 and 9.6 percent, respectively.

Only 10.2 percent of Appalachia's population lived in the most economically distressed counties, while well over half lived in counties that are considered Transitional — counties that have a mixture of high and low values on key economic indicators. The remaining population, about 24 percent, live in the Competitive and Attainment Counties. Over the sixteen years examined, the population declined in Distressed Counties and Transitional-1 (or at-risk counties), and grew in the other three economic classifications.

¹ The report does not examine the changes that have occurred in the seven counties added to the Region in 1998.

Appalachia has shared in the “aging” of the population, both through elder’s aging in place, but also as a result of out-migration of younger persons. Some parts of Appalachia have become transformed through the in-migration of minority populations and immigration from abroad.

Age Composition of the Appalachia Region Looking at the region as a whole, the youngest age groups are a declining share of the population and the older age groups are increasing. There also is a loss in the share of those of early working and middle age. This is especially true in the Northern and Central Sub-regions of Appalachia. Most notable is the decline in those at the youngest ages from 1980 to 1996 as a percentage of the population. The findings show that the Appalachian population is older than that of the U.S. as a whole. In every age group from 45-49 and up (with the exception of ages 80-84) the Appalachian population percentage is greater than that for the U.S. For every age group from 0-4 to 40-44 years (except 15-19 years) the Appalachian population percentage is smaller than the U.S. population percentage.

Examining the percentages of the population in different age groups, the North Sub-region has the highest percentage age 65 and over, 16.2 percent, and the South Sub-region the lowest — 13.1 percent. Combined with overall population growth in the South Sub-region this suggests increasing school enrollments as the Sub-region continues to grow. At the sub-regional level, the Central Sub-region stands out with 25.2 percent of the population under age 18, and the highest percentage of people currently school age (5 to 17), 19.1 percent (higher than that US average of 18.74).

High concentrations of elders resulting from retirement in-migration are identified as retirement destinations are in northeastern Pennsylvania, northeast West Virginia, and a concentrated block in southwest North Carolina, northeast Georgia, a string of counties through Tennessee and two in South Carolina. The dependency ratio (the number of persons under 18 and over 64 divided by the number of persons ages 18 to 64) for the entire region is comparable to the dependency ratio for the U.S. (0.63).

Race and Ethnic Composition of Appalachia. The percentage of non-Hispanic Whites in Appalachia dropped to just above 90 percent, compared to the U.S. as a whole, which had dropped to 73.1 percent by 1996. Blacks comprised 7.7 percent of the Appalachian population in 1996, an increase from 6.95 percent in 1980, while Hispanics in the Region increased from 0.6 to 0.9 percent from 1980 to 1996. Over the same period, the percentage of Blacks in the U.S. increased from 11.54 to 12.04, while Hispanics comprised 10.67 percent of the population in 1996, up from 6.45 percent in 1980. Appalachian Blacks are highly concentrated in the Southern Sub-region. In 1996, of the 1,675,990 Blacks in Appalachia, 75.65 percent of Blacks lived in counties in the Southern Sub-region, compared with 44.12 percent of the Appalachian population. Hispanics are a very small part of the Appalachian population. In 1980, there were only 122,016 Hispanics in Appalachia, by 1996 this number had increased by 68 percent to 205,156. Hispanics were most concentrated in Georgia, South Carolina, North Carolina, the southern tier of New York, northwest

Pennsylvania and metropolitan counties. Only 286,381 Appalachian residents reported being foreign born on the 1990 Census, just 1.38 percent of the population. Counties with the highest concentrations of foreign born are largely in New York and Pennsylvania, with smaller areas on the South Carolina-North Carolina border near Asheville.

Chapter 3 analyzes the demographic trends in population growth and decline in Appalachia, as well as the demographic components of population change — migration, fertility, and mortality. Population growth and annual net migration rates within the Appalachian Region has been mainly dominated by counties in the South Sub-region. Population growth throughout the Region has been highest, on average, in fringe metropolitan counties and non-metropolitan counties adjacent to metropolitan areas and 137 metropolitan adjacent counties. Similarly, during the 1990s, Competitive and Attainment Counties witnessed the highest growth rates and highest net migration rates. Taken together, population growth and net migration has been highest in counties in the South sub-region, especially those counties in northern Georgia surrounding Atlanta, and other large metropolitan areas in Alabama, Tennessee, North Carolina.

The age- and education-specific net migration rates from 1985 to 1990 suggest that the region as a whole is gaining persons under age 75, but the gains are greatest among those nearing retirement age. Across Sub-regions and Distressed County Codes there is a great deal of variability with the more economically distressed areas losing young adults and those with college educations, and the economically more prosperous areas gaining people in every age group and educational group, but especially young adults and those with college educations.

Chapter 4 describes recent trends and growing geographic diversity in the human and social capital of Appalachian residents and communities, as measured by changing levels of education and family structure. While the Region has experienced substantial increases in education over the past several decades, parts of the Region remain plagued by the out-migration of the youth they educate.

Changes in Educational Attainment. The Region overall experienced a substantial increase during the 1980-90 period in the educational attainment of its population. Although nearly one-third of Appalachia residents aged 25 or older in 1990, were high school dropouts, this represents a significant decline from 1980, when 42 percent had not completed high school. Between 1980 and 1990, the percentage of the Appalachian population with some college or more increased from about 22 percent to over 33 percent, a gain of nearly 50 percent. Yet, gaps persist as over 20 percent of the U.S. population has a college degree, compared with only 14 percent in Appalachia.

The rapid declines in the proportion of the population with less than a high school degree are due to replacement of older and least educated residents by younger, more educated

residents. Striking declines in the percentage of the low-educated persons (i.e., those lacking a high school degree) were observed in each of the three Appalachian Sub-regions.

There is a high concentration of population with low education in Central Appalachia. Kentucky contains the top seven counties with low education, with percentages ranging from 64.54 percent to 59.59 percent. Counties with high percentages of college graduates tended to be the locations of colleges or universities. The percentage of population with less than a high school degree was highest in the four most rural types. Not surprisingly, these rural counties also had the lowest percentages of their population with a college education.

Educational attainment in Appalachian Counties are inextricably linked to county economic distress (Table 4.8). In the Region's most economically distressed counties, 45 percent of the population had less than a high school education, compared with 21 percent in the Attainment Counties. Conversely, only 8.54 percent of the population was highly educated in the Distressed Counties. Nearly one-fourth were college graduates in the Attainment Counties.

Changes in Appalachian Families. While family households have declined as a percentage of all households, single-parent-headed families have increased. This pattern has also been observed for the United States as whole, where 24.6 percent of all households were represented by the traditional nuclear family in 1998. The story is different for Hispanics living in Appalachia as the percentage of Hispanic married couple households with children exceeded that of both whites and blacks in 1990. More significantly, the percentage of married couple families with children, unlike other racial/ethnic groups, increased rather than decreased from 1980 to 1990. The highest percentages of female-headed households with children in 1990 are found in the Deep South. In fact, 8 of the 10 Appalachian counties with the highest percentages of female-headed families with children were found in Mississippi.

Perhaps the most significant difference is that a disproportionate share of households containing children are located in the most economically distressed counties. In 1990, roughly 38 percent of the households in the Distressed Counties included children. This compares with almost 32 percent among the Attainment Counties. While Distressed Counties contain a disproportionate share of married couple families with children, these counties also are home to a disproportionate share of single-parent households.

Changes in Poverty, Family Income, and Income Inequality. Between 1979 and 1989, median family income (in 1989 dollars) in Appalachia declined slightly from \$30,069 to \$29,728. For the United States, median family income experienced only modest increases over the 1979 to 1989 period. In Appalachia, stagnation in real family income during the 1980s occurred in concert with increasing income inequality, a conclusion indicated by the rise in the family poverty rate from 9.77 percent to 11.94 percent between 1979 and 1989. During this period, the U.S. poverty rate for families increased from 9.2 percent to 10.3

percent. The rise in measures of average household income inequality across counties within the Region was virtually identical to the United States.

Central Appalachia has experienced significantly higher rates of poverty and lower median family income than North and South Appalachia. Poverty rates are roughly twice as high in Central Appalachia than in the rest of Appalachia and the nation. More troubling is the fact that Central Appalachia also experienced large absolute and relative declines in median family income during the 1980s.

More significantly, the income gap between the least and most distressed counties thus widened between 1979 and 1989, from \$11,523 to \$17,237. The poverty gap, measured by the absolute difference in poverty rates between the least and most distressed counties, similarly increased from 10.22 in 1979 to 16.38 in 1989.

Changes in Appalachian Crime Rates. Overall, crime in Appalachia is low compared to US averages, typically around 60-70 percent of the national levels. Like the nation, the general regional trend appears to be that crime rates have increased (with exceptions for individual crimes). Not all individual index crimes increased: murder rates dropped in the ARC by 32 percent, and among property crimes, burglary dropped by 17 percent and auto theft by 4 percent. While crime is low compared to the nation as a whole there are considerable variations within the region and between different types of crime.

Chapter 5 analyzes the labor force participation and unemployment rates, and the size of the labor force, and the occupational distribution of men and women in 1980 and 1990 based on data from the U.S. Census of Population. The chapter also analyzes the industrial structure in 1980, 1990 and 1996.

Labor force participation is measured by the number of persons who are employed and unemployed divided by the number of persons ages 16 and over. In 1980, 74.7 percent of men in the U.S. participated in the labor force, compared with 71.4 percent of men in Appalachia— a 3.3 percentage point gap. By 1990, this difference had widened to a 6.3 point difference. Appalachian women's labor force participation rose by 6.8 points to 50.8 from 1980 to 1990, but Appalachian women's labor force participation remained 5.9 percentage points below that for U.S. women which stood at 56.7 percent.

There is a general pattern of declining labor force participation for men and women from the most metropolitan to the most rural counties. Without question, the highest participation is found among men and women in the top three metro classifications. As expected, the lowest participation is found in the Distressed Counties where 60.3 percent of men and 38.8 percent of women are in the labor force. The highest participation rates are in the Competitive Counties, rather than in the Attainment Counties.

Unemployment. In both 1980 and 1990, Appalachia's total unemployment rate exceeded that of the U.S. In 1990, the U.S. unemployment rate was 6.3 percent, compared to 6.8 percent

for Appalachia. The unemployment rate was down in 1990 compared to 1980, and the decline was larger for the Appalachia than for the U.S. Trends in unemployment are inversely related to population size and metropolitan adjacency, although the pattern is less clear for men than women.

Consistent with this overall pattern of decline, white and Hispanic men's unemployment declined by 1.0 and 2.6 percentage points, respectively. Unemployment rose among Black men, however, from 12.5 to 12.9 percent. Among women, unemployment also declined for white and Hispanics, by 0.9 and 1.4 percentage points, respectively. Black women, like Black men, experienced a slight increase in unemployment over the decade, from 12.2 to 12.4 percent.

Industrial Composition of Employment. Compared to the U.S. the Appalachian Region has larger shares of jobs in mining, construction, manufacturing, retail trade, and state and local government employment. Most noteworthy, the Appalachian Region still had 17.65 percent of its jobs in manufacturing in 1996, while the U.S. had dropped to 12.63 percent of jobs in this industrial sector. The Region lags behind the U.S. in the percentage of jobs in services, which was responsible for 30.44 percent of jobs in the U.S. in 1996 but offered 25.96 percent of jobs in Appalachia in the same year. Appalachia was lower than the U.S. by two percentage points in the finance, insurance and real estate sector. In 1996, 828,368 jobs were located in Distressed Counties of Appalachia. Overall job growth in Distressed Counties was 10.7 percent, well below Appalachia's growth in jobs of 26.9 percent.

Occupational Structure of Appalachia. In the 1980-90 period, the occupational structure of Appalachia shifted from a heavier reliance on occupations associated with the manufacturing sector to occupations related to the service sector. By 1990, most workers were employed in technical and sales occupations (14.33 percent), followed by administrative support (14.15 percent), with precision production, craft and repair third with 13.45 percent of those employed in 1990. One of the most marked differences in occupations across counties in the Distressed County Codes is the concentration of technician and related support, administrative support, and professional specialty occupations in Attainment Counties. These counties exceed the U.S. share of employment in these occupations. Distressed Counties have their largest share of employment in precision production, craft and repair occupations.

Chapter 6. What is clear from these data is that the Appalachian Region essentially faces several key challenges: how to close the gap between rural and urban counties; how to foster improvements in well-being in poor counties and help rapidly growing areas monitor and manage their growth; and how to work with counties as diverse as those from the Northern Rust Belt, the formerly mining-dependent region, and the now-booming urban Sun Belt.

The variation in population size and density mean that counties across the Region face very different concerns related to leadership capacity, community development, growth, service provision, infrastructure needs, and the ability to finance services and meet the needs of

residents. In addition, age distributions can be an important indicator of different service needs and issues facing counties.

CHAPTER 1

APPALACHIA: PAST IS PROLOGUE?

INTRODUCTION

Appalachia — the name conjures up a mixture of images. In many areas Appalachia’s rugged natural beauty is its hallmark. Steep, forested mountains emptying into narrow valleys; the long line of the Blue Ridge Mountains snaking through low rolling hills covered with apple orchards, pasture, and cultivated fields; the ridge and valley system of the northern Appalachian Mountains, the red-clay fields and pine forests of the South are just some of the very diverse and beautiful natural landscapes found in Appalachia. Equally diverse is the human settlement. Isolated cabins, trailers and double-wides nestled deep in the shadows of the mountains, some still without electricity and indoor plumbing contrast with ‘country estates’ of lawyers, doctors and suburbanites; small towns with beautiful, well-maintained buildings constructed in the late 1700s counter main streets with boarded storefronts and abandoned schools and churches; old cotton and tobacco plantations and the legacy of slavery and racial discrimination yield to booming suburbs sprawling to the horizon; large industrial cities where smokestacks once dominated – but now are still, and small town textile mills have been replaced by huge paper mills and chemical plants, and the newer service- and technology-based industries that bustle with activity. Some are located in cities, others in small towns or open fields.

This chapter was written by Daniel T. Lichter and Diane K. McLaughlin.

Appalachia's rugged landscape and her rich natural resources led to a dependence on those natural resources. Farming was, and still is, difficult in many places, but extremely productive, if not lucrative, in others.ⁱ The discovery of coal in the core of Appalachia resulted in another image of Appalachia—one of deforested mountains with their tops gouged away, or new mountains built from tailings from the underground mines. Before divided highways and semi-tractor trailers roared through the Region, railroads hugged the relatively level creek banks in order to haul away the Region's riches, both natural and human. In some areas, it is a legacy of company towns and absentee landlords removing the riches on and under the mountains, but giving little back to the communities whose natural resources and ability to farm were devastated, and in which the workers continued to live even after the decline of employment in coal or depletion of the resource.ⁱⁱ

The working conditions in early industry generated battles between owners and workers about working hours, safety and wages, often with outside intervention to quell the worker 'uprisings' and break the strikes against the steel workers in Homestead and the coal miners in West Virginia and Pennsylvania.ⁱⁱⁱ These struggles to improve wages and working conditions are an important part of Appalachia's history, but also of the history of the nation. Those of us who work forty hours a week owe much to these labor-movement pioneers. This image is in stark contrast to the portrayal of Appalachia's residents as unwilling or unable to question the power and authority of the absentee owners and the local power structure under their control. But some areas of Appalachia fit the stereotype of people cowed by their history and dependence on the coal company and unable to make their own decisions and work towards a better future.^{iv} It speaks to the history of a Region long at the mercy of boom

and bust cycles for timber, coal, agriculture and textiles. Even today this dependence on a few, often absentee, employers and the difficulty in breaking free of its consequences keeps some parts of Appalachia from attaining what most would consider acceptable standards of living for a significant part of the residents.

Throughout its history, the image of Appalachia's people has been one of a fiercely independent lot, who were strongly committed to family, and ultimately to the land they called home. Those who sought out the isolation of her mountains or the heat of her Southern lands and who survived, and in some cases prospered there, may have been unique in their willingness to settle an unforgiving land. This individual independence and commitment to family and working hard have been heralded as the greatest strengths of the Region. Others proclaim it to be an underlying factor in why some parts of the Region still lag far behind. The independence makes it difficult for people to work together to achieve broader, community goals; it causes people to resist programs that provide job training; and it makes understandable the resentment of government efforts to protect the natural beauty of the Region through national forest and park systems that take control of the resources out of local hands. Alternatively, many local residents resist changes that encourage economic growth if that growth comes at the expense of the lifestyle that they have known and any further destruction of the natural beauty and riches of their home.

As some of Appalachia's residents work hard to keep their declining communities alive, others strive to slow or stop the rapid economic and population growth that technological change, better highways, a desire to live in warmer climates, spatial industrial restructuring, and a global economy have wrought. In some places it is a case of "Be careful

what you wish for, you might get it.” This variability in topography, history and access to resources throughout the Region, in recent economic growth, and its causes and consequences are what creates the mixed images of Appalachia. It also is responsible for the great diversity in demographic and economic change experienced by the 399 counties designated as part of the Appalachian Region prior to October, 1998.

An Overview of the Appalachian Region

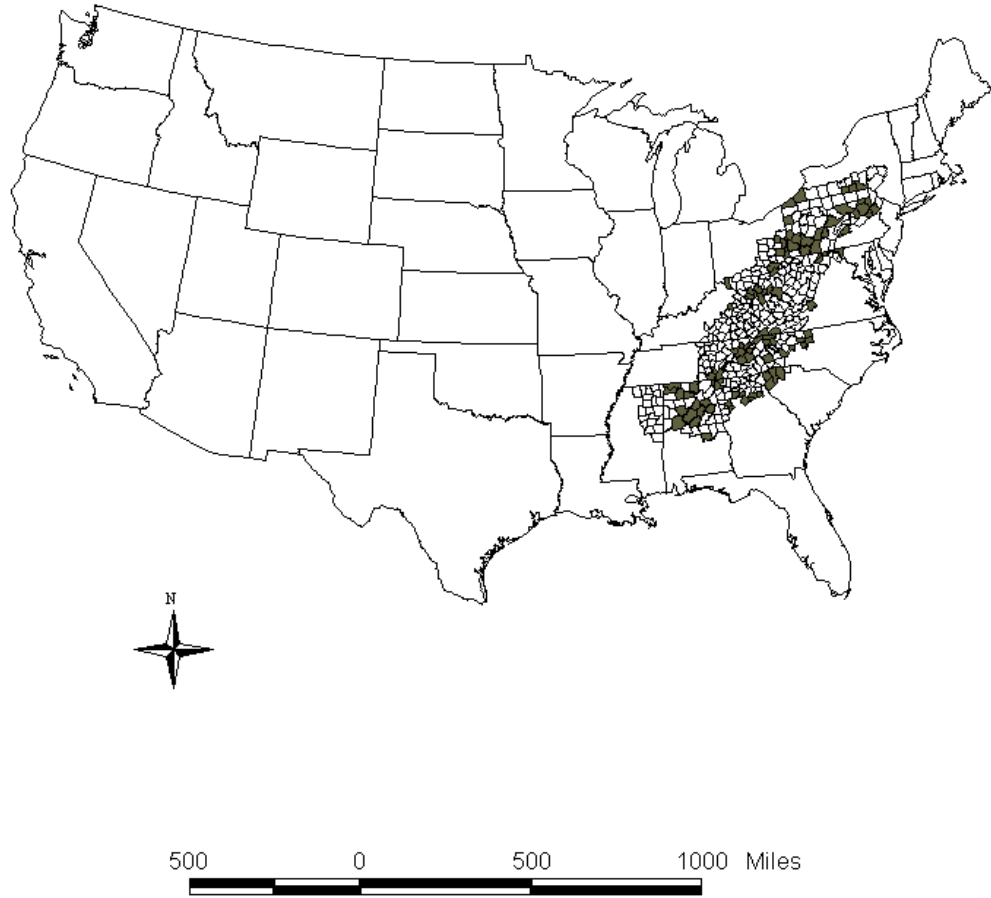
As in the past, a single image does not suffice to describe Appalachia. The Appalachian Regional Commission defines the Region in geographic terms. Prior to October, 1998, the Region was defined by Congress to include 399 counties. Seven new counties were added in that year. Because this report concentrates on providing a picture of demographic diversity and economic change from 1980 through 1996, it does not examine the changes that have occurred in the seven counties added to the Region in 1998. The 399 largely rural counties of the Appalachian Region extend roughly 1,200 miles from southeastern New York to northeast Mississippi (see Map 1.1). In 1996, it included roughly 22 million people from counties in 13 different states.

The counties in Appalachia range from metropolitan counties or counties that border the metropolitan areas of Atlanta, Birmingham, Knoxville, Cincinnati, Pittsburgh Greensboro, Chattanooga, and Roanoke (See Map 1.2) to isolated counties in the mountains of Kentucky, West Virginia and Virginia. The metropolitan areas in and bordering Appalachia are highlighted in Map 1.2. Two-hundred-and-ninety of Appalachia’s counties were classified as non-metropolitan in 1993, the remaining 109 were metropolitan.

Map 1.1
Appalachian Region Counties
in State and National Context



Map 1.2
Appalachian Region Metro Counties
in State and National Context



Appalachian counties are unusually diverse along many different dimensions — demographic, cultural, economic, and political. Appalachia defies easy generalizations. The Region has experienced greater divergence in its economic and social characteristics over the past decade or so, as evidenced by the rapid growth in counties surrounding Atlanta, Georgia, but continued and increasing poverty in eastern Kentucky, West Virginia and other core areas of the region. Some parts of Appalachia no longer fit the stereotype of an economically underdeveloped region. Other areas, however, have failed to keep pace with national growth or even urban Appalachian growth because of too few jobs and too few workers whose education and skills match today’s new jobs. The result is a growing gap between the economic “winners” and “losers” — an increasing spatial inequality — borne of uneven development and intransigent demographic and social conditions. While the Region overall has converged with the rest of the nation on many indicators of well-being (e.g., poverty rates, education levels, etc.), such averages hide tremendous economic and demographic disparities within and among counties that comprise Appalachia. This report highlights these diverse patterns of economic and human resource development.

Increasing diversity among Appalachian Counties requires a new and sustained effort to build capacity for the continuous monitoring of current trends. This is especially vital during the current period of rapid regional, national, and global economic and social change.^v Perhaps more than ever before, “at risk” people and communities in Appalachia can easily be hidden by the statistics of optimism, which often work against the implementation of targeted policies aimed at benefitting those most in need of assistance in Appalachia.

GROWING SPATIAL INEQUALITY?

National Geographic Balkanization

The past decade or so has ushered in a new era of increasing spatial inequality in America. The social and economic differentiation of geographic space in the United States is at once unprecedented and multifaceted. It is reflected in the balkanization of population and employment growth (e.g., bi-coastal growth), in increasing functional specialization between first-tier and other cities, in new spatial patterns of economic and ethnic differentiation *within* metropolitan regions and cities,^{vi} and in growing income and employment differences between thriving rural population growth centers (e.g., based on recreational development, other natural amenities or comparative advantages) and other persistently poor and economically depressed regions (e.g., the Mississippi Delta, the core of Appalachia, and the lower Rio Grande Valley).^{vii}

For some observers, current trends suggest a rather dim future of increasing spatial inequality and concentrated poverty and affluence. Douglas Massey^{viii} argues that “the advantages and disadvantages of one’s class position will be compounded and reinforced . . . by the geographic concentration of affluence and poverty” (p. 395), which will create a deeply divided social world. An increasing share of the poor in U.S. cities live in the very poorest neighborhoods. Moreover, the affluent became increasingly isolated from the non-poor. For the 10 largest U.S. cities, the typical affluent person lived in a neighborhood where 50 percent or more were also affluent in 1990, a figure up from 43 in 1980. The geographic isolation of the urban poor has raised concerns about growing social and cultural differentiation within the urban region (i.e., so-called “concentration” or “neighborhood”

effects). This new pattern of increasing economic inequality of urban space raises the question as to whether the poor and affluent in rural areas also are becoming increasingly spatially differentiated.

Although most scholars focus on *within*-city or urban poverty, the new spatial inequality also is revealed at several other levels of geographic aggregation. For example, there is increasing functional specialization of major cities in the United States,^{ix} which has exacerbated between-city inequalities.^x Discussions are usually couched in terms of “rust-belt” cities and “sun-belt” cities, and the obvious differences in industrial structure and lifestyles these labels imply. But we also now hear of “command and control centers” and “world cities.”^{xi} Such labels imply that economic standards of living may vary significantly across cities (of comparable size), and recent indications are that these economic differences may be particularly pronounced among minority populations.^{xii} More generally, the average within-county income inequality has increased in the United States, as well as the economic inequality between counties.^{xiii}

Growing spatial inequality also is apparent in Non-metropolitan and rural regions and communities. After decades of rural-urban convergence on many different social and economic dimensions (e.g., education, industrialization, median income), the 1980s brought a new divergence between Non-metropolitan and metropolitan areas.^{xiv} There also is growing evidence of increasing spatial differentiation and inequality within and between rural regions. This is reflected in concerns about “rural ghetto communities,” “pockets of poverty,” and “persistent low-income areas.”^{xv} Some rural communities, desperate for any kind of economic development, have become dumping grounds for urban refuse, prisons, and low-

level radioactive materials.^{xvi} Other rural areas, especially recreational and retirement settings, have continued to experience population and job growth.^{xvii} In fact, income inequality is greater among the Non-metropolitan than metropolitan population,^{xviii} and income inequality increased at a more rapid rate in Non-metropolitan than metropolitan areas during the past decade.^{xix}

Appalachian Diversity

Recent research on the new spatial inequality provides an important lesson for current and future research on the changing distribution of material hardship, poverty, and other social problems (e.g., crime, family instability, and illiteracy) in Appalachia. It suggests that the acceleration of within- and between-place inequality has changed the distribution of resource-rich and resource-poor communities in Appalachia. One implication, which we examine here, is that the livelihood strategies and well-being of Appalachian families reflect the economic constraints and opportunities of place—which have become more unequal over time. Those who live and work in economically-declining communities are likely to face increased risk of poverty and unemployment *independent* of their individual characteristics (such as education or job skills). Perhaps unique in Appalachia is that the majority of minorities live in the most prosperous counties and they are under-represented in the most economically distressed counties.

At the same time, a cautious interpretation is appropriate; most studies are based on data from 1990 and earlier. The 1990s have been a period of considerable change — a robust economy and low unemployment, changes in public policy (e.g., increases in the minimum wage, welfare reform, expansion of Medicaid eligibility), urban central city revitalization

(e.g., Pittsburgh, Cincinnati, etc.), and an end to rural economic stagnation in some areas, and rapid immigration of some national origin groups to specific destinations.^{xx} It is unclear whether our current understanding of Appalachia – based largely on old data – accurately describes the conditions faced by families and children in the 1990s. It also is unclear whether the rising tide of economic optimism applies to all geographic parts of the Appalachian Region.

Whether the Appalachian “winners” have lifted the economic fortunes of all of Appalachia’s residents — especially the most vulnerable — is open to debate. The past decade or so has witnessed an unprecedented increase in inequality across different segments of the U.S. population. Declines in poverty among the elderly have been counterbalanced by increases in poverty among children. The well-being of married couple families contrasts markedly with female-headed families, especially those with minor children, where poverty rates have remained at nearly 50 percent for at least three decades. The poor have fallen farther behind the nonpoor, a result of the downward slide in the ratio of the minimum wage to average wages, retrenchment in welfare eligibility and state benefit levels, and rising rates of “at risk” female-headed families in Non-metropolitan counties^{xxi} resulting from an increasing nonmarital fertility ratio, high divorce rates, and declining marriage.

The significant progress toward racial economic equality has slowed or even retreated during the past decade.^{xxii} The implication is clear: The prosperity in some Appalachian Sub-regions and communities may hide growing inequalities across different population subgroups, including those most vulnerable to economic globalization and industrial restructuring (e.g., the least skilled and least mobile). All groups have not

benefitted equally from the economic progress observed in the Appalachian Region. Just as recent national economic prosperity has not been felt in all communities, a vibrant local economy provides no assurance that the most vulnerable segments of the population have shared equally. Our report sheds light on changing conditions in the Appalachian Region.

FINDING THE SOLUTIONS

The seeds of Lyndon B. Johnson’s declaration of a “War on Poverty” in 1964 were sown by the abject poverty and human misery in Central Appalachia’s mining region extending from the Southern West Virginia coal fields to the Piedmont Plateau in Tennessee. Unfortunately, the isolation of rural Appalachia — geographically, economically, and culturally — from the rest of American society now often excludes the Region from much of the current national debate about the causes of economic and social deprivation, as well as its possible solutions. Through the 1980s and most of the 1990s, public policy debates increasingly shifted to large urban areas, where most of the nation’s poor people live and where a highly visible and spatially concentrated poor population corresponds with other highly visible social problems (e.g., crime, poor schools, and inadequate health care delivery systems).

Unfortunately, interest in Appalachia and other rural regions waned at precisely the time when divergent economic and social trends called for new and creative approaches for the Region. President Clinton recently visited persistently poor rural communities in the coal-fields of Kentucky as part of his program to increase private investment in untapped markets. This visit may help to refocus broader attention toward, and raise awareness of, the poverty that remains in rural America and the potential for helping these communities

through investments that not only provide returns to investors but benefit the communities and their residents, as well.

Public policy solutions to the Region's poverty often depend on whether it is regarded as a problem of "too few good workers" or a problem of "too few good jobs." One perspective emphasizes the lack of education, poor (or out-of-date) job skills, and low aspirations (e.g., a "culture of poverty") among Appalachia's residents. The other perspective emphasizes the absence of employment opportunities that pay a living family wage. Whereas one perspective emphasizes human resource development, the other emphasizes regional and community economic development. One emphasizes individual deficiencies and individual solutions; the other stresses structural conditions that require systematic or political solutions.

A balanced approach to the problem is needed, one recognizing the interdependency between good jobs and good workers. The reality is that the absence of a skilled workforce is a disincentive for economic development and capital investment in the region, while the lack of employment opportunities exacerbates out-migration of the mostly highly educated and younger residents and reduces the incentives for communities and people to make investments in education and training. Projects that develop job opportunities while helping local workers obtain the skills necessary to do the new jobs address both issues.

The problems facing Appalachia are heterogenous in their distribution across different population groups and geographic areas. They also are heterogenous in their causes and consequences. As such, the solutions to Appalachia's problems must necessarily be

multifaceted and appropriately directed to areas by the types of resources needed. This is true for Appalachia, just as it is for the nation as a whole.

One difficulty is that Appalachian problems (e.g. poverty, underemployment, unemployment, low education) are less spatially concentrated — hidden away in the isolated hollows of numerous mountains and in forgotten small towns across the Region — and therefore easier to ignore. Finding the right solutions therefore requires a redoubling of efforts to better understand current social, economic, and demographic conditions that prevent parts of the Region and its people from sharing fully in the nation’s resurgent economy, improved health and longevity, and unprecedented high standards of living. It also requires a new sensitivity to existing — or perhaps growing — spatial disparity in economic well-being and its causes among Appalachian communities and people.

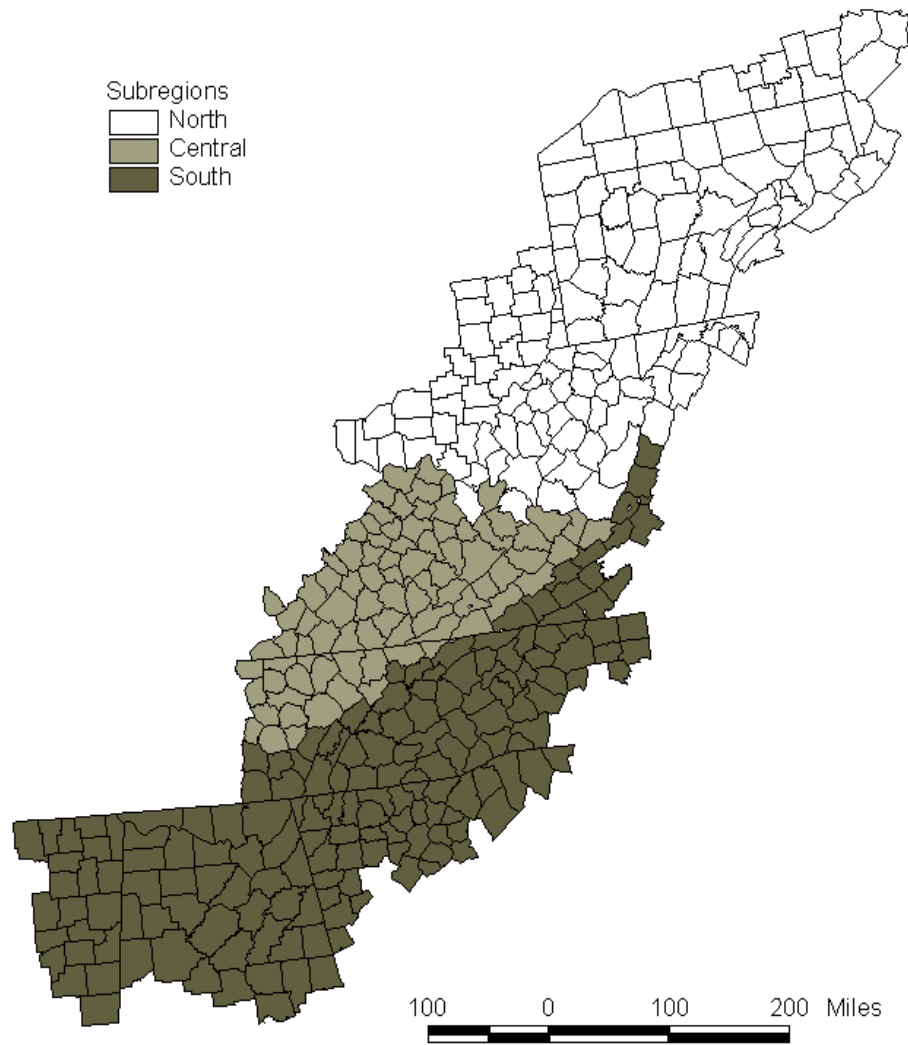
SCOPE OF THE STUDY

This report provides a descriptive, statistical portrait of the recent and changing material hardship and social and demographic conditions in the Appalachian Region. We place the spotlight on spatial diversity — on the large and often growing differences in the characteristics of residents and the well-being within and between counties and Sub-regions of Appalachia. While many communities emerged as “winners,” others have fallen farther behind over the recent past. Our analysis centers on spatial inequality along several key dimensions of well-being: population distribution and composition; population change and migration; education, family structure, income and poverty; and employment and labor force characteristics and projections. To portray the spatial diversity in Appalachia we utilize three different classifications of counties, each based on a different criteria. The three

classifications are the Appalachian Sub-regions—a geographic typology; Beale County Codes which are based on metropolitan designation, population size and adjacency to metropolitan counties; and the ARC’s 1998 Distressed County Codes—developed from information on poverty, unemployment and per capita income.

The Appalachian Sub-regions are geographic regions (See Map 1.3). The North Sub-region includes 144 Appalachian counties that span southern New York, 3/4 of Pennsylvania, southeastern Ohio, the Maryland counties between Pennsylvania and West Virginia, and much of West Virginia. The Central Sub-region contains 85 counties located in the parts of Appalachia often considered the core, or those counties most responsible for the initial interest in poverty in Appalachia. These are largely counties in the mountains and coal regions of eastern Kentucky, southern West Virginia, southwestern Virginia and parts of Tennessee. The Southern Sub-region captures 170 counties that extend from Virginia through North Carolina and eastern Tennessee, to the outskirts of Atlanta, and through northern Alabama, and northeastern Mississippi. Examining these Sub-regions will enable us to describe the geographic distinctions in Appalachia’s demographic and economic characteristics. This is particularly relevant given the emphases during the seventies on economic change in the “rust-belt” and “sun-belt” regions, the boom and bust cycles and technological change in the coal industry, and the regional consequences of capital mobility and NAFTA, and diversity within regions as well.^{xxiii}

Map 1.3 Appalachian Subregions



The second classification of counties that we feel is appropriate for comparing Appalachian Counties is the Beale Code Classifications of counties by metropolitan status, population size, and adjacency to metropolitan areas (See Table 1.1). Calvin Beale of the Economic Research Service at the USDA identified ten types of counties ranging from the

Table 1.1. Beale Code Definitions and Number of Appalachian Counties, 1993.

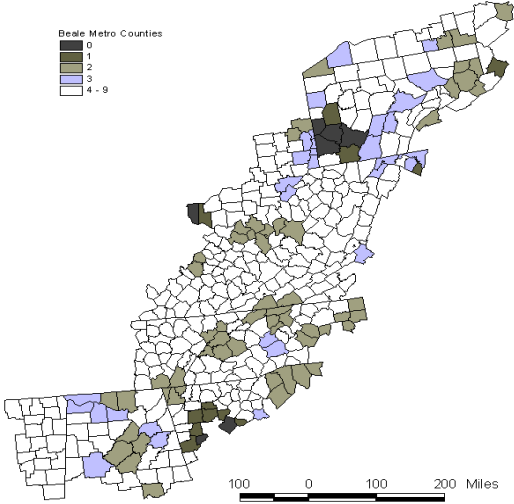
Code	Definition	# of Counties
<u>Metropolitan Counties</u>		
0	Central counties of metropolitan areas of 1 million population or more	7
1	Fringe counties of metropolitan areas of 1 million population or more	12
2	Counties in metropolitan areas of 250,000 - 1,000,000 population	59
3	Counties in metropolitan areas of less than 250,000 population	31
<u>Non-metropolitan Counties</u>		
4	Urban population of 20,000 or more, adjacent to a metropolitan area	19
5	Urban population of 20,000 or more, not adjacent to a metropolitan area	11
6	Urban population of 2,500 to 19,999, adjacent to a metropolitan area	78
7	Urban population of 2,500 to 19,999, not adjacent to a metropolitan area	77
8	Completely rural (no places with a population of 2,500 or more), adjacent to a metropolitan area	40
9	Completely rural (no places with a population of 2,500 or more), not adjacent to a metropolitan area	65

most metropolitan to the most rural. The Beale Codes were initially created in 1983 using 1980 data from the U.S. Census of Population and Housing. They were updated in 1993 using 1990 Census data. We use the 1993 Beale Codes so the information reflects the current county status. Beale Codes are an important categorization of counties because they allow a comparison of the characteristics of metropolitan and Non-metropolitan counties and also Non-metropolitan counties that are adjacent to metropolitan areas and those that are not. Discussion of new metropolitan growth areas in population redistribution^{xxiv} and of the importance of adjacency to metropolitan areas for growth in Non-metropolitan counties, combined with the historical decline of rural counties not adjacent to metropolitan counties, suggest that this typology will enable us to highlight these special types of counties.

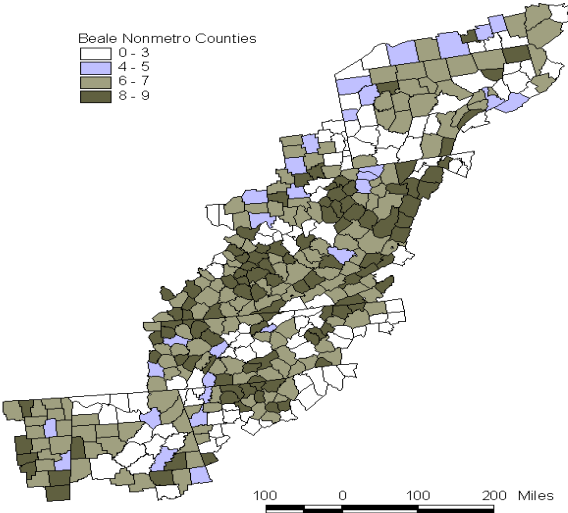
The counties with the four metropolitan codes distinguished are shown on Map 1.4. The six Non-metropolitan codes are shown for Appalachian Counties in Map 1.5. The adjacent and nonadjacent counties in the same urban population size group are combined in one category, with adjacency obvious as those counties that border metropolitan counties (the white areas on the map).

The final classification of counties we use is the ARC 1998 Distressed County Codes. This classification is prepared every year by the ARC and distinguishes counties based on average unemployment rates, per capita market income, and poverty rates. There are five county types identified: Distressed, Transitional 1, Transitional 2, Competitive, and Attainment Counties. The criteria used and the number of Appalachian Counties in each category are shown in Table 1.2. We use the 1998 classification, so we expect a strong relationship between these codes and the economic and employment characteristics of the

Map 1.4 Beale Codes for Metropolitan Counties



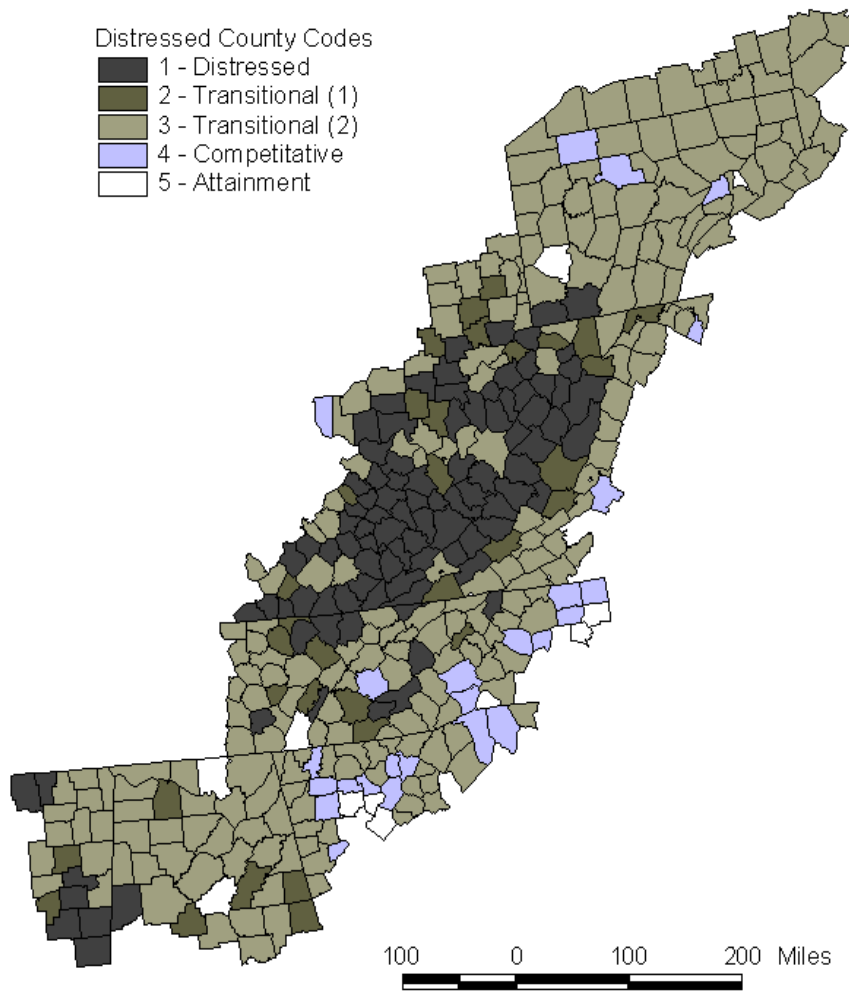
Map 1.5 Beale Codes for Nonmetropolitan Counties



counties. The comparison is useful, however, in revealing the educational and demographic differentials across counties in this classification and in further documenting the extent of variation in poverty and unemployment across the region. The spatial distribution of Appalachian counties by 1998 Distress Code is given in Map 1.6. Note the concentration of the Distressed Counties in the central, mountainous coal-regions of eastern Kentucky, southern and central West Virginia, southwestern Virginia and northeastern Tennessee. A small block of Distressed Counties also appears in Mississippi.

The relationship between the 1993 Beale Codes and the 1998 Distressed County Codes is shown in Table 1.3. The table shows, not surprisingly, that only two of the 97 Distressed Counties were metropolitan counties, and that the largest number of Distressed Counties (32) are completely rural counties not adjacent to metropolitan areas. Looked at from the perspective of Beale Codes, almost fifty percent of the completely rural counties, not adjacent to metropolitan areas were defined as Distressed. Only one of these counties is classified as high as the Competitive category. Nine of the eleven Attainment Counties are metropolitan.

Map 1.6 Distressed Counties



**Table 1.2. Criteria for Classification of Counties by Economic Level
(Distressed County Codes) for FY 1998 (from Appalachian Regional Commission)**

FY 1998 Economic Distress Code Level	No. of US Counties	No. of Appalachian Counties	Appalachia as % of U.S.	1993-95, 3-year ave. Unemployment rate		1994 per capita "market" income		1990 Census Poverty Rate	
Distressed (1)	405	97	24.0	9.3% or more (150% of U.S. 6.2%)	<i>and</i>	\$12,074 or less (67% of US \$18,201)	<i>and</i>	19.7% or more (150% of US 13.1%)	<i>OR</i> twice the US poverty rate and qualify for one other indicator
Transitional-1 (2)		33		All counties not in other classes. Individual indicators vary.					
Transitional (3)	2,035	233							
Competitive (4)	408	25	6.1	6.2% or less (100% of US)	<i>and</i>	\$14,417 - 18,020 (80% of US=14,417)	<i>and</i>	13.1% or less (100% of US)	
Attainment (5)	255	11	4.0	6.2% or less (100% of US)	<i>and</i>	\$18,021 or more (100% of US)	<i>and</i>	13.1% or less (100% of US)	
Total	3,103	399	12.9						

**Table 1.3. Cross classification of Appalachian Counties
by 1993 Beale Codes and 1998 Distressed County Codes.**

	Distressed	Transitional- 1	Transitional	Competitive	Attainment	Total
Beale						
Metropolitan Counties						
0			3	2	2	7
1	1		6	3	2	12
2	1	3	43	7	5	59
3		2	27	2		31
Subtotal	2	5	79	14	9	109
Non-metropolitan Counties						
4	2	1	15	1		19
5	1	2	8			11
6	18	7	46	6	1	78
7	28	9	38	2		77
8	14	2	22	1	1	40
9	32	7	25	1		65
Subtotal	95	28	154	11	2	290
Total	97	33	233	25	11	399

The relationship between the Sub-regions and the Distressed County Codes is identified in Table 1.4. As expected, none of the counties from the Central Sub-region fall in the Competitive or Attainment categories, and over sixty percent are Distressed. The counties in the North Sub-region are predominately in the Transitional Category, but a fairly high percentage are Distressed, 21.5 percent. Counties in the South Sub-region are more likely to be classified as Competitive or Attainment, but the majority fall in the Transitional category. Only 8.2 percent of these counties are Distressed.

Table 1.4. Cross-classification of Appalachian Region Counties by Sub-region and 1998 Distressed County Codes.

Distress Code	Sub-region			Total
	North	Central	South	
Distressed (1)	31	52	14	97
Transitional-1 (2)	13	9	11	33
Transitional (3)	93	24	116	233
Competitive (4)	5		20	25
Attainment (5)	2		9	11
Total	144	85	170	399

Throughout this report the unit of analysis is the county. The discussion of each topical area in Chapters 2 to 5 is arranged according to various geographical units or typologies of counties. First, our introduction to a topic includes aggregate data for the Appalachian Region, followed by Sub-regional breakdowns using the North, Central and South designations. The majority of the descriptive analysis presented here is organized around the 1998 Distressed County Code typology with some data also presented by 1993 Beale Codes.

In examining the demographic and economic differences across Appalachian Counties, we begin by describing the changing spatial distribution of the population in Appalachia, focusing on age, race, ethnicity and whether persons are foreign born (Chapter 2). Appalachia has shared in the “aging” of the population, both through elder’s aging in place, but also as a result of out-migration of younger persons. Some parts of Appalachia have become transformed through the in-migration of minority populations and immigration from abroad. The recent influx of new population groups into the Region and their full

incorporation into local job markets, schools, and community politics may increase inter-ethnic and inter-racial tensions now and in the future.

A basic overview of demographic trends in population growth and decline in Appalachia, as well as the demographic components of population change — migration, fertility, and mortality, are provided in Chapter 3. It is clear that many areas of Appalachia continue to have population growth, others have experienced a resurgence of population growth after decades of decline. Still other areas continue to lose their “best and brightest” to out-migration, which erodes the human resource base necessary for local leadership in community development and locally generating or attracting good jobs to their communities.

Chapter 4 centers on the human resource base — the “social capital” of Appalachian communities. While the Region has experienced substantial increases in education over the past several decades, parts of the Region remain plagued by the out-migration of the youth they educate. Those who remain behind are deeply committed to their families and homes or lack the resources, skills or confidence to strike out for uncertain economic opportunity elsewhere. A small group of others leave to complete educations and return to build a life in the communities in which they were raised. In any case, areas that have experienced a steady stream of out-migration of their more advantaged youth often are faced with a shortage of young people who can and are willing to step into community leadership roles. Over a number of years this results in a small core of people who have the interests and capability to lead the community, to work as volunteers, and to provide role models for the next generation of youth. This is the core of the loss of social capital that can occur in communities.

Related to this is the decline in the two-parent family. Appalachia has not been immune to sweeping changes in the family, especially the rise in single-parent families, which

have increased the proportion of women and children “at risk” of poverty. Single parents face the especially difficult task of supporting their families economically while meeting all of the other demands of family life. With the decline in ‘good jobs’ many two-parent families send both parents into the work force which decreases the time available for parents to become involved in community activities and to socialize their children into those roles. At the same time, more education and “strong families,” in the absence of good jobs, will not provide a solution to the Region’s social and economic problems.

Much of the Region has not escaped the continuing sectoral transformation of the national and global economy. The differing experiences of parts of Appalachia are described in Chapter 5. Many parts of Appalachia continue to rely heavily on low-wage, low-skill jobs in forestry, forestry products, and agriculture. While mining jobs are considered good jobs, technological change has enabled coal companies to maintain or increase levels of production while hiring fewer workers. This change, coupled with depletion of the resource and changes in global energy markets, have resulted in significant declines in employment in the coal industry in Appalachia.

Other areas have been adversely affected by international competition for manufacturing jobs, textiles, and for new product markets. For much of Appalachia, unemployment rates remain unacceptably high and persistent. The short-term picture, however, provides some reasons for optimism. The future demand for workers may, in the absence of changes in migration rates to and from the Region, exceed the supply of available workers. Many communities that have been dependent on extractive industries, especially coal and timber, are now moving towards diversifying their economies, with varying levels

of success. These diversification efforts, which tend to include an emphasis on helping local entrepreneurs, will leave the communities less reliant on a single industry and therefore less devastated when global forces and decisions of international corporations result in the loss of some local jobs.

If the past is prologue, our portrait of Appalachia provides a mixed view of the future. Improved standards of living in one part of Appalachia have been offset by continuing high poverty, unemployment, and low education in other parts. As a result, the political and economic interests of one part of the region may increasingly diverge from the concerns of other parts, if the momentum of recent demographic, social, and economic trends carries forward into the next century and becomes manifested in unprecedented spatial inequality in Appalachia.

ENDNOTES TO CHAPTER 1.

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CHAPTER 2 POPULATION DISTRIBUTION AND COMPOSITION

INTRODUCTION

Population distribution and composition have important implications for Appalachia from two perspectives. First, the distribution of population across Appalachian counties suggests important priorities about the allocation of resources. Typically, resources are targeted to particular areas either because of very high need (poverty, lack of infrastructure, unemployment) or because the area contains a lot of people. When these two reasons apply to the same areas, then resource allocation is simple. When areas of very high need contain a small part of the population base, then decisions to allocate scarce resources to these areas may be challenged because so few people would be helped. Because of this tension in targeting resources, and simply to increase understanding of how people are distributed across the Region, it is critical to examine the distribution of people across space, and across various types of counties, and to understand how that distribution is changing.

Population composition changes as a result of several demographic factors. Foremost among these are fertility, mortality, and migration. If fertility of the residents of an area exceeds mortality, then the population increases due to ‘natural’ increase. Migration is usually measured in the United States as the movement of people across county lines. A county gains population if the number of persons moving into the county exceeds the number who move out of the county over a given time-frame. In most counties, migration, which is discussed in detail in Chapter 3 is the main force behind changes in population composition. People move to and from particular counties in response to changes in economic opportunities, to meet family needs, or to attain a desired quality of life. Multiple

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factors tend to influence migration decisions — and the decision to stay in a given place. People and families tend to weight these factors differently depending on their goals and the value they place on each potential contributor to the migration decision. Thus, some people remain in places that others find untenable. But overall patterns tend to result in those who are younger and have higher educational levels moving towards areas with better economic opportunities, while older, retired persons gravitate toward areas with natural amenities and lower living costs, or toward family. Both the numbers and characteristics of people in each county are influenced by these processes.

Population composition provides information that can be very useful to policy makers. People with different characteristics often have very different needs and expectations regarding the types of jobs they would like to have, the type of place they would like to live, the services and infrastructure they expect to be offered by local governments, and the types of consumer services they would like to have within a reasonable distance. Knowing the age distribution of a county and what the expectations are for how that age distribution is changing can provide important information for planning.

High and increasing concentrations of elderly residents suggest quite different service needs (recreation, health care, transportation, in-home services) and ability to pay for those services, either through taxes or outright purchase. Communities with a high percentage of school age children face a different set of demands for services — for schooling, recreation and child care to meet the needs of parents and children. Having a high concentration of children may not expose a community to new problems if the percentage and numbers of children have not changed rapidly. Areas like Cherokee County, Georgia, however, face a

rapid increase in the absolute numbers of children which may or may not be reflected in changing percentages of children in the county since the entire population is growing as well. Overall growth (or decline) in the number of people in a county, combined with the percentage of people of different ages in the population, should provide a good indicator of potential areas that will need attention from policy makers at the local level.

The sections that follow begin by documenting population distribution across Appalachia and by Sub-region, Beale Codes and 1998 Distressed County Codes. We then turn to an examination of the age, race and ethnic composition of the Region, and to the distribution of particular race and ethnic groups, and the foreign born, across counties.

POPULATION DISTRIBUTION

We examine population distribution within the Appalachian Region by documenting population size and share shifts in the Region compared to the U.S. overall, and by documenting distributions across the Sub-regions in Appalachia, and by Beale Codes and 1998 ARC Distressed County Codes. Total population counts for 1980, 1990 and 1996 form the basis for the comparisons.

Population Distribution--U.S. and Sub-regions of Appalachia

The Appalachian Region covers 195.6 thousand square miles or 5.5 percent of the land area of the United States. Despite covering only 5.5 percent of the United States land area, almost ten percent of the U.S. population calls the Appalachian Region home (See Table 2.1). That percentage declined between 1980 and 1996 from 8.94 to 8.21 percent. The absolute numbers of people living in Appalachia increased over this sixteen year period,

however, from 20,366,372 to 21,783,778, or an increase of 7.0 percent. Appalachia simply did not grow as fast as other parts of the U.S. and so its share of the total population declined.

Table 2.1 Percentage of U.S. Population in Appalachia Region, 1980, 1990, 1996

Sub-region	Population	% of Region	% of U.S.
1980			
North	10,236,294	50.26	4.50
Central	2,115,118	10.39	0.93
South	8,014,960	39.35	3.52
Total	20,366,372	100.00	8.94
1990			
North	9,917,942	47.91	3.97
Central	2,015,406	9.74	0.81
South	8,768,533	42.36	3.51
Total	20,701,881	100.00	8.28
1996			
North	10,075,104	46.25	3.80
Central	2,097,899	9.63	0.79
South	9,610,775	44.12	3.62
Total	21,783,778	100.00	8.21

Note: Percentages may not total 100 due to rounding.

Within the Appalachian Region in 1980, half of Appalachian residents lived in the Northern Sub-region which is made up of 144 counties, with 10.4 percent in the Central (85

counties) and 39.4 percent residing in the Southern Sub-region (170 counties). By 1996, the shifting of population within the Appalachian Region is obvious. Just over 44 percent of residents of Appalachia lived in the South, while the percentages in the North and Central Sub-regions declined to 46.2 and 9.6 percent, respectively. The Northern Sub-region of Appalachia may still be home to the largest number of people, but it is likely to be surpassed by the South within the next decade if current patterns of population change persist.

Because of this growth in population, the population density (number of people per square mile) in Appalachia increased from 104.1 in 1980 to 111.4 in 1996 (Table 2.2). Population density for the U.S. overall increased from 64.1 to 75.0 over the same period. Population density figures for the Region and for the U.S. overall, clearly hide the variability in population density in local areas.

Population density suggests the relationship between the distribution of population

Table 2.2 Population Density in Appalachia and the United States, 1980, 1990, 1996

	Land Area (sq. miles)	Population Density 1980	Population Density 1990	Population Density 1996
North Appalachia	83,874	122.04	118.25	120.12
Central Appalachia	31,951	66.2	63.08	65.66
South Appalachia	79,777	100.47	109.91	120.47
Total Appalachia	195,601	104.12	105.84	111.37
United States	3,536,278	64.06	70.33	75.02

and land area within Appalachia. North Appalachia, with just over half of Appalachian residents in 1980, experienced a decline in population density from 1980 to 1996 from 122.0 to 120.1 persons per square mile. Population density in Central Appalachia dropped from 66.2 to 65.7. South Appalachia, on the other hand, experienced increasing population density from 100.5 in 1980 to 120.5 in 1996, consistent with increasing population. The factors underlying these changes in population distribution will be addressed in Chapter 3.

Population Distribution Across Beale Codes

In 1980, almost 58 percent of Appalachian residents lived in the 109 metropolitan counties (Beale Codes 0-3).^{xxv} By 1996, that percentage had increased only slightly to 58.45 percent (See Table 2.3). Over half of the metropolitan residents (or 28.9 percent of Appalachian residents) lived in metropolitan counties with metro areas in the 250,000 to 1,000,000 range in 1980. This share grew by 1996 to 29.45 percent. In 1996, 12.85 percent of Appalachian residents lived in metropolitan counties that were central counties of metro areas of 1 million or more population, essentially no change since 1980. An additional 12 percent of Appalachia's population resided in metro counties with less than 250,000 population, a small decline since 1980. Thus, there is little evidence of metropolitanization of the population in Appalachia from 1980 to 1996.

Just over 40 percent of Appalachia's population resides in Non-metropolitan counties (Beale Codes 4-9). In 1990, 13.8 percent lived in Non-metropolitan counties having urban places with populations of 2,500 to 19,999 and adjacent to a metro county. Another 11 percent lived in nonmetro counties with similar sized urban places (2,500 to 19,999) but not

Table 2.3 Percentage of Appalachia Population Across Beale Codes, 1980, 1990, 1996

Beale Region	1980		1990		1996	
	Population	Percent	Population	Percent	Population	Percent
Metropolitan Areas:						
0 - Central counties, metro area 1 million + pop.	2,613,853	12.83	2,671,664	12.91	2,798,185	12.85
1 - Fringe counties, metro area 1 million + pop.	623,701	3.06	743,606	3.59	886,108	4.07
2 - Counties in metro areas 250,000 - 1,000,000	5,886,237	28.90	6,087,955	29.41	6,415,393	29.45
3 - Counties in metro areas of less than 250,000 pop.	2,614,008	12.83	2,572,755	12.43	2,631,599	12.08
Non-Metropolitan Areas:						
4 - Urban pop. of 20,000 or more, adjacent to a metro area	1,530,119	7.51	1,518,392	7.33	1,564,620	7.18
5 - Urban pop. of 20,000 or more, not adjacent to a metro area	681,286	3.35	677,002	3.27	709,400	3.26
6 - Urban pop. of 2,500-19,999, adjacent to a metro area	2,761,791	13.56	2,834,343	13.69	3,012,602	13.83
7 - Urban pop. of 2,500-19,999, not adjacent to a metro area	2,350,873	11.54	2,301,557	11.12	2,400,384	11.02
8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area	513,293	2.52	531,092	2.57	573,544	2.63
9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area	791,211	3.88	763,515	3.69	791,943	3.64
Total	20,366,372	100.00	20,701,881	100.00	21,783,778	100.00

Note: Percentages may not total 100 due to rounding.

adjacent to metro areas. The smallest concentration of Appalachian population in 1996, 2.6 percent, was found in the 40 counties that were completely rural (no places with populations over 2,500) and adjacent to metropolitan counties. The 65 completely rural counties that are not adjacent to metropolitan areas contained 3.6 percent of Appalachia's population in 1996. Thus, almost 60 percent of Appalachia's population lives in the 27 percent of counties that are metropolitan, while only 6.2 percent of residents live in the 26 percent of counties that are completely rural.

Population Distribution Across ARC 1998 Distressed County Codes

The majority of Appalachia's population lives in counties in the middle of the 1998 Distressed County Classification Codes. Roughly 62 percent of the population, or 13,622,337 people, lived in Transitional-2 counties in 1996 (See Table 2.4). This is a slight decline from 1980 when 12,979,259, or 63.7 percent of people, called these 233 counties home. At the extremes of the Distressed County Codes, 10.2 percent lived in the Distressed Counties (97 counties) in 1996, a decline from 11.4 percent in 1980. The percentage of the population living in the Attainment Counties (11 counties) increased between 1980 and 1996 from 12.5 to 13.8 percent, respectively.

Thus, we see some shifting of the population towards the more economically prosperous counties, and there actually were population losses from 1980 to 1996 in the counties with the poorest economic conditions, as measured by the Distressed County Classification—a 3.9 percent loss of population from Distressed Counties. These shifts are consistent with expected patterns of migration, in particular the out-migration from more

rural and economically stressed counties as the young and some middle-aged displaced workers leave in search of better employment opportunities elsewhere.

Table 2.4 Percentage of Appalachia Population Across 1998 Distress Codes*, 1980, 1990, 1996

Distress Code	1980		1990		1996	
	Population	Percent	Population	Percent	Population	Percent
1 Distressed	2,318,406	11.38	2,171,466	10.49	2,227,161	10.22
2 Transitional-1	903,221	4.43	872,161	4.21	902,194	4.14
3 Transitional	12,979,259	63.73	13,058,514	63.08	13,622,337	62.53
4 Competitive	1,619,896	7.95	1,826,400	8.82	2,022,858	9.29
5 Attainment	2,545,590	12.50	2,773,340	13.40	3,009,228	13.81
Total	20,366,372	100.00	20,701,881	100.00	21,783,778	100.00

Note: Percentages may not total 100 due to rounding.

* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Population Density Across Beale Codes

The population density of counties classified by Beale Codes decreases as the counties become less urban and not adjacent to metropolitan counties. Population density values for 1980, 1990 and 1996 for counties by Beale Codes are shown in Table 2.5. The highest population density, 677.6 persons per square mile, occurred in central counties of metro areas in 1996 (Beale Code = 0). Counties in metro areas of 250,000 to 1,000,000 population had the next largest population density of 220.6. The lowest were in the completely rural counties, which had population densities in 1996 of 37.9 for rural counties adjacent to metro counties (Code=8), and 31.2 for nonadjacent rural counties (Code=9).

Table 2.5 Population Density in Appalachia by Beale Codes, 1980, 1990, 1996

<u>Beale Code</u>	<u>Land Area (sq. miles)</u>	<u>Population Density 1980</u>	<u>Population Density 1990</u>	<u>Population Density 1996</u>
Metropolitan Areas:				
0 - Central counties of metro areas of 1 million or more pop.	4,129	632.98	646.98	677.62
1 - Fringe counties of metro areas of 1 million or more pop.	5,144	121.25	144.56	172.27
2 - Counties in metro areas of 250,000 - 1,000,000 pop.	29,083	202.40	209.33	220.59
3 - Counties in metro areas of less than 250,000 pop.	17,782	147.01	144.69	147.99
Non-Metropolitan Areas:				
4 - Urban pop. of 20,000 or more, adjacent to a metro area	12,329	124.11	123.16	126.91
5 - Urban pop. of 20,000 or more, not adjacent to a metro area	4,710	144.64	143.73	150.61
6 - Urban pop. of 2,500-19,999, adjacent to a metro area	44,089	62.64	64.29	68.33
7 - Urban pop. of 2,500-19,999, not adjacent to a metro area	37,821	62.16	60.86	63.47
8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area	15,122	33.94	35.12	37.93
9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area	25,393	31.16	30.07	31.19

Population Density and ARC 1998 Distressed County Codes

The more interesting linkage is that between population density and 1998 Distressed County Codes for Appalachia. The Distressed Counties have the lowest population density, 53.2 people per square mile in 1996, while the Attainment Counties have by far the highest population density, 602. Population densities among the counties in the bottom three Distressed County Codes remained relatively stable from 1980 to 1996. The most well-off counties in Appalachia, the Competitive and Attainment Counties, had large increases in population density over the same period. From 1980 to 1996, population density for Competitive Counties increased from 145.4 to 181.6, while population density rose from 509.3 to 602 persons per square mile among Attainment Counties -- an 18.3 percent increase. These patterns further support the increasing concentration of population in the more economically prosperous counties in the Appalachian Region. It also suggests that low population density may hinder the ability of some counties to move out of distress.

Table 2.6 Population Density in Appalachia by 1998 Distress Codes, 1980, 1990, 1996

<u>Distress Code</u>	Land Area (sq. miles)	Population Density 1980	Population Density 1990	Population Density 1996
1 Distressed	41,867	55.38	51.87	53.20
2 Transitional-1	15,332	58.91	56.89	58.85
3 Transitional	122,262	106.16	106.81	111.42
4 Competitive	11,142	145.39	163.92	181.55
5 Attainment	4,998	509.27	554.84	602.03

Ten Largest and Smallest Appalachian Counties by Population Size

The distribution of people across Appalachian Counties varies tremendously. Appalachian Counties were ranked by population size and the top ten and bottom ten counties are listed in Table 2.7. These top ten counties in population size in the region held 21.6 percent of the Region's population, or about 4.7 million people in 1996. Four of the ten largest counties are associated with the Pennsylvania cities of Pittsburgh, Wilkes-Barre and Erie. The others are home to other cities or metropolitan areas scattered throughout the Region. The smallest ten counties are home to only 49,260 people or about 0.2 percent of the Appalachian population. These small population size counties also are distributed across the Region with three in Virginia, two each in Pennsylvania, Tennessee and Kentucky, and one in West Virginia.

The variation in population size and density mean that counties across the Region face very different concerns related to leadership capacity, community development, growth, service provision, infrastructure needs, and the ability to finance services and meet the needs of residents. This diversity in the size and density of the populations in counties in the Appalachian Region is only the beginning of a story that is replete with such variability in almost every characteristic examined. The diversity is especially problematic for those interested in understanding the dynamics of demographic, economic and social change with an eye toward developing policy and programs to help build the region as a whole, including those areas with the greatest need.

Table 2.7 Ten Most and Least Populous Counties in Appalachia, 1996

FIPS Code	County	State	Population
<u>Most Populous:</u>			
42003	Allegheny (Pittsburgh)	PA	1,296,037
01073	Jefferson (Birmingham)	AL	661,927
13135	Gwinnett (Atlanta)	GA	478,001
42129	Westmoreland (Pittsburgh)	PA	376,297
47093	Knox (Knoxville)	TN	364,566
45045	Greenville (Greenville)	SC	345,173
42079	Luzerne (Wilkes-Barre)	PA	321,309
47065	Hamilton (Chattanooga)	TN	295,373
37067	Forsyth (Winston-Salem)	NC	284,207
42049	Erie (Erie)	PA	280,570
<u>Least Populous:</u>			
51091	Highland	VA	2,543
47137	Pickett	TN	4,633
51045	Craig	VA	4,839
42053	Forest	PA	4,942
51017	Bath	VA	4,959
47175	VanBuren	TN	5,046
21189	Owsley	KY	5,481
21165	Menifee	KY	5,483
54105	Wirt	WV	5,589
42023	Cameron	PA	5,745

POPULATION COMPOSITION

In this section on population composition of Appalachia, we concentrate on the age structure, race and ethnicity, and the percentage of the population that is foreign born. The age structure of a county is an important indicator of the types of service needs and demands facing counties, as well as the ability of residents and local businesses to support dependents and to pay for such services through taxes. Just knowing the age structure may not be enough, however, other characteristics of the residents also influence expectations. For example, counties that have high concentrations of elders who have ‘aged-in-place’ versus counties with retirement in-migrants often experience quite different expectations on the part of residents, as well as differences in ability to pay for services. Counties adjacent to metropolitan areas also may serve as ‘bedroom’ communities with a large proportion of residents commuting to other counties to work but demanding services in the county in which they live.

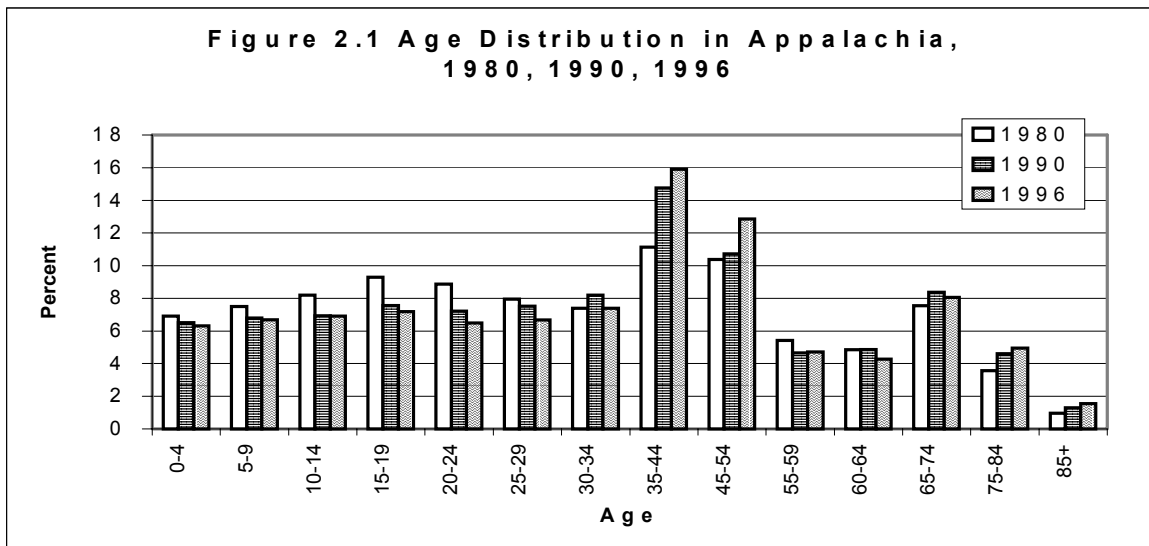
Despite the potential complexity, heavy concentrations of children or elderly suggest quite different needs of the population, while a shortage of working age people indicates potential problems in financing services locally, in fostering locally-owned businesses or attracting employers to help build local economies, or in ensuring long-term viability of the community. Availability of working age persons compared with the concentrations of elderly and children is used in calculating dependency ratios. These ratios show the portion of the population typically considered to be supporting those less able to care for themselves or not able to participate in the labor force. We will examine dependency ratios in a later section.

Except in the South, Appalachia is perceived as being fairly homogeneous with respect to race and ethnicity. Examining the distribution of Blacks, Hispanics, and foreign born

populations enables us to assess the extent of diversity in the populations of Appalachian Counties, and how the diversity has changed since 1980.

Age Composition of the Appalachia Region

The age distribution for Appalachia in 1980, 1990 and 1996 is shown in Figure 2.1. Most notable is the decline in those at the youngest ages from 1980 to 1996 as a percentage of the population. For every age group from 0-4 to 25-29 years, the 1996 bar is below the 1980



bar, and at the young adult ages (mid- to late-teens and early twenties) the gap is the greatest, almost a two percent drop. This type of shift contributes to the view that the population of Appalachia is aging, and that younger persons have been lost due to out-migration from the Region.

Another pattern of interest is aging of the birth cohorts that were ages 15-19 and 20-24 in 1980. Birth cohorts are people born in the same years, in this case, five-year periods. These cohorts, which comprised 19.2 percent of the Appalachian population in 1980, dropped to roughly 15.5 percent of the Appalachian population in 1996 when they were roughly ages 30-

34 and 35-39, suggesting out-migration of this cohort, or in-migration of persons of other ages. The idea of an aging population in Appalachia is further supported in the oldest age groups, where the 1996 line crosses above the 1980 bars at about ages 65 to 69 and remains higher through ages 85 plus. These older age groups are a larger percentage of the Appalachian population in 1996 than they were in 1990. Actual numbers of people and percentage of the population in each age group for these three years are shown in Table 2.8.

The next logical question is how does the Appalachian population distribution compare to that for the United States? The age distribution for the United States and Appalachia in 1996 is shown in Figure 2.2. The figure provides strong evidence that the Appalachian population is older than that of the U.S. as a whole. In every age group from 45-49 and up (with the exception of ages 80-84) the Appalachian population percentage is greater than that for the U.S. For every age group from 0-4 to 40-44 years (except 15-19 years) the Appalachian population percentage is smaller than the U.S. population percentage. Both distributions show the baby-boom (people in their late thirties and forties in 1996), the baby-bust and then the boomlet of baby-boomers' child-bearing (children and teens in 1996), but these trends are not as obvious in Appalachia. Appalachia's lower percentage of younger people is especially noticeable in the 0-4 and 5-9 year age groups.

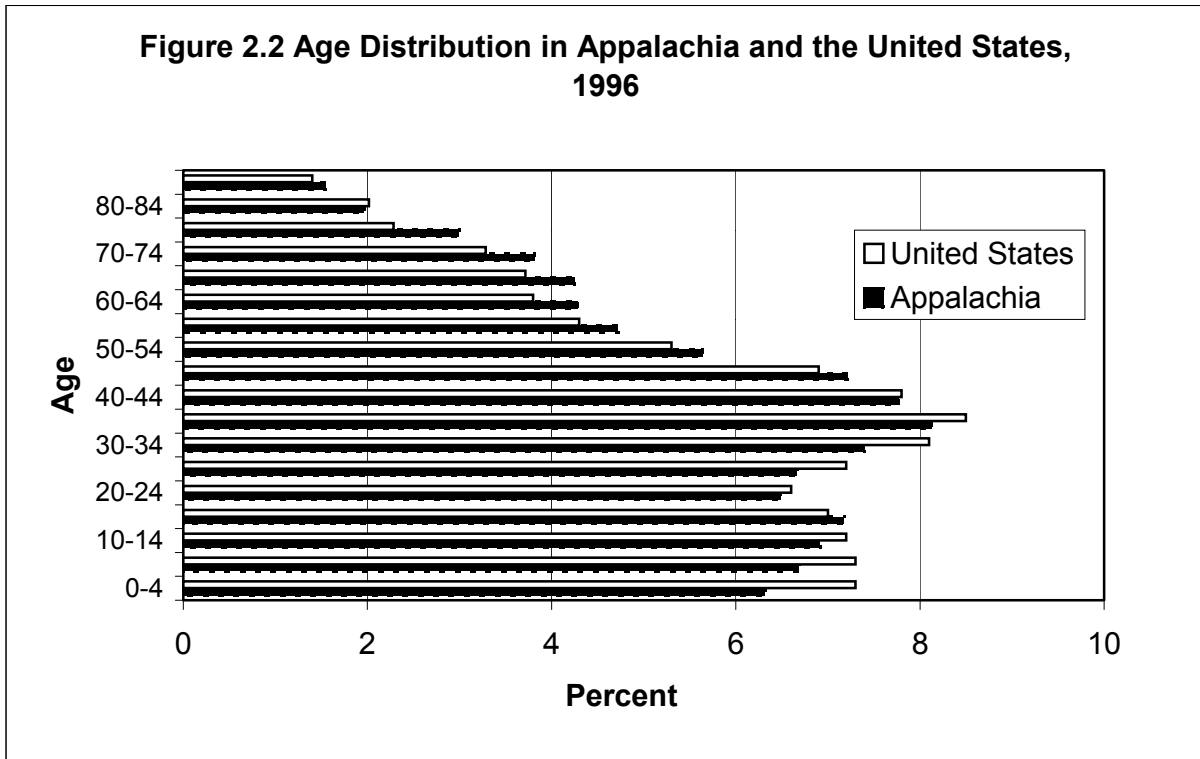
Table 2.8 Age Distribution (%) in Appalachia, 1980, 1990, 1996

	1980		1990		1996	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
0-4	1,409,196	6.92	1,346,745	6.51	1,376,401	6.32
5-9	1,527,812	7.50	1,406,681	6.79	1,456,975	6.69
10-14	1,669,037	8.20	1,433,718	6.93	1,507,109	6.92
15-19	1,894,282	9.30	1,565,777	7.56	1,563,782	7.18
20-24	1,807,588	8.88	1,493,632	7.22	1,413,596	6.49
25-29	1,618,883	7.95	1,557,101	7.52	1,452,450	6.67
30-34	1,507,319	7.40	1,696,259	8.19	1,612,395	7.40
35-39 ^a	1,181,250	5.80	1,591,738	7.69	1,771,059	8.13
40-44 ^a	1,085,528	5.33	1,463,059	7.07	1,692,787	7.77
45-49 ^a	1,132,370	5.56	1,190,605	5.75	1,572,107	7.22
50-54 ^a	979,622	4.81	1,029,246	4.97	1,229,011	5.64
55-59	1,104,469	5.42	964,949	4.66	1,028,206	4.72
60-64	987,535	4.85	1,006,436	4.86	932,554	4.28
65-69 ^a	851,314	4.18	962,054	4.65	925,465	4.25
70-74 ^a	684,310	3.36	772,840	3.73	830,908	3.81
75-79 ^a	450,097	2.21	588,886	2.84	652,951	3.00
80-84 ^a	279,019	1.37	364,645	1.76	428,159	1.97
85 and over	195,074	0.96	267,510	1.29	337,863	1.55
Total	20,364,706	100.00	20,701,881	100.00	21,783,778	100.00

Note: Percentages may not total 100 due to rounding.

^a For 1980, the Census Bureau used age categories 35-44, 45-54, 65-74, and 75-84 instead of 5 year age groups. Data presented here are estimated breakdowns of these categories.

Figure 2.2 Age Distribution in Appalachia and the United States, 1996



Spatial Distribution of Dependents in Appalachia

Persons considered dependent, or not of working age, are those under eighteen and over sixty-five. The percentage of the population in each county under 18 and age 65 and over are shown in Maps 2.1 and 2.2, respectively. Counties with the highest percentages of persons under 18 are located in southern New York and a few counties in northeastern Pennsylvania; along the West Virginia, North Carolina, Kentucky borders; in the suburbs of Atlanta; and in Alabama. Aging populations, or counties with high percentages of persons age 65 and over span much of western Pennsylvania (see Map 2.2) and through the anthracite

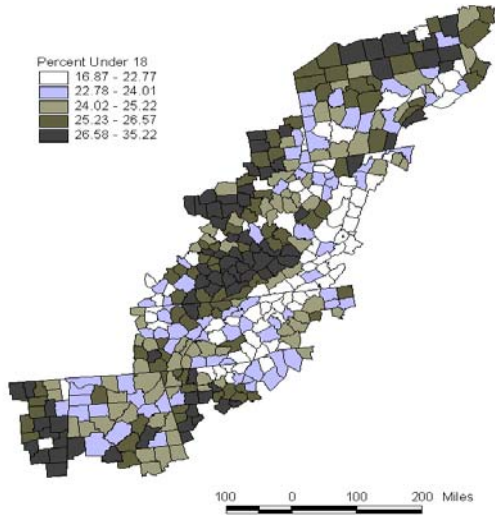
coal mining region and older industrial cities of Pennsylvania, along the West Virginia-Virginia border, western North Carolina and northeastern Georgia.

These high elderly population concentration counties essentially follow the Appalachian Mountains along and east of the Blue Ridge Parkway and down into western North Carolina. Most interesting is the high percentage elderly in western North Carolina that stops at the Tennessee state line. This particular concentration of elders in western North Carolina results from retirement in-migration. Other areas containing high proportions of elders are more likely to have resulted from people aging-in-place while youth migrated out of the area.

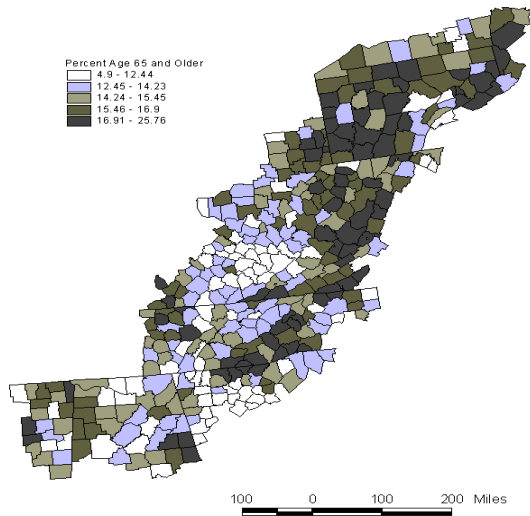
Age Composition by ARC Sub-region

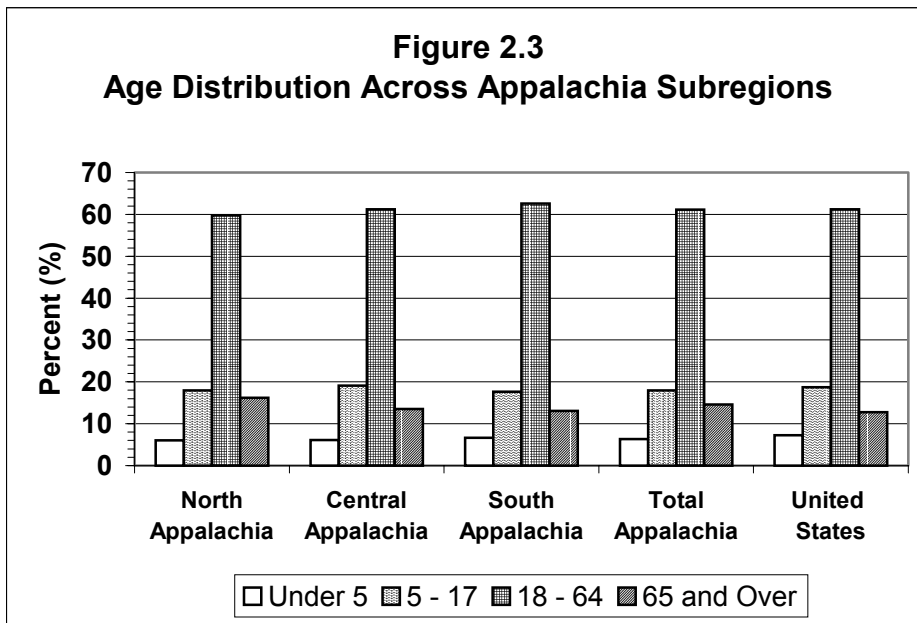
To simplify the discussion of age composition by Sub-regions in Appalachia, we have aggregated the data into four age groups, as shown in Figure 2.3. We show the percentage of the population under age 5, ages 5 to 17, ages 18 to 64 and ages 65 and over in 1996. These breakdowns allow us to easily discuss school age populations (5 to 17), working age persons (18 to 64), and the elderly (65 and over). The figure also shows the median age for each of the three Appalachian Sub-regions, for Appalachia as a whole, and for the United States. The actual percentages are in Table 2.9.

Map 2.1
Percent Under Age 18
(1996)



Map 2.2
Percent Age 65 and Over
(1996)





Beginning with the median age, which is the simplest indicator of overall age distribution, it is quite obvious that the U.S. has a lower median age than Appalachia, 35 years versus 36 years for Appalachia — a one year gap in median age. Looking at the Sub-regions within Appalachia, the North has the highest median age, 37 years, with the Central and South having median ages of 36 years.

Examining the percentages of the population in different age groups, the North Sub-region has the highest percentage age 65 and over, 16.2 percent, and the South Sub-region the

Table 2.9 Age Distribution in Appalachia and the United States, 1996

	Percent Less Than 5	Percent 5-17	Percent 18-64	Percent 65 and Over	Median Age
North Appalachia	6.07	17.93	59.77	16.23	37
Central Appalachia	6.13	19.10	61.24	13.53	35
South Appalachia	6.62	17.68	62.63	13.07	35
Total Appalachia	6.32	17.93	61.17	14.58	36
United States	7.29	18.74	61.20	12.77	35

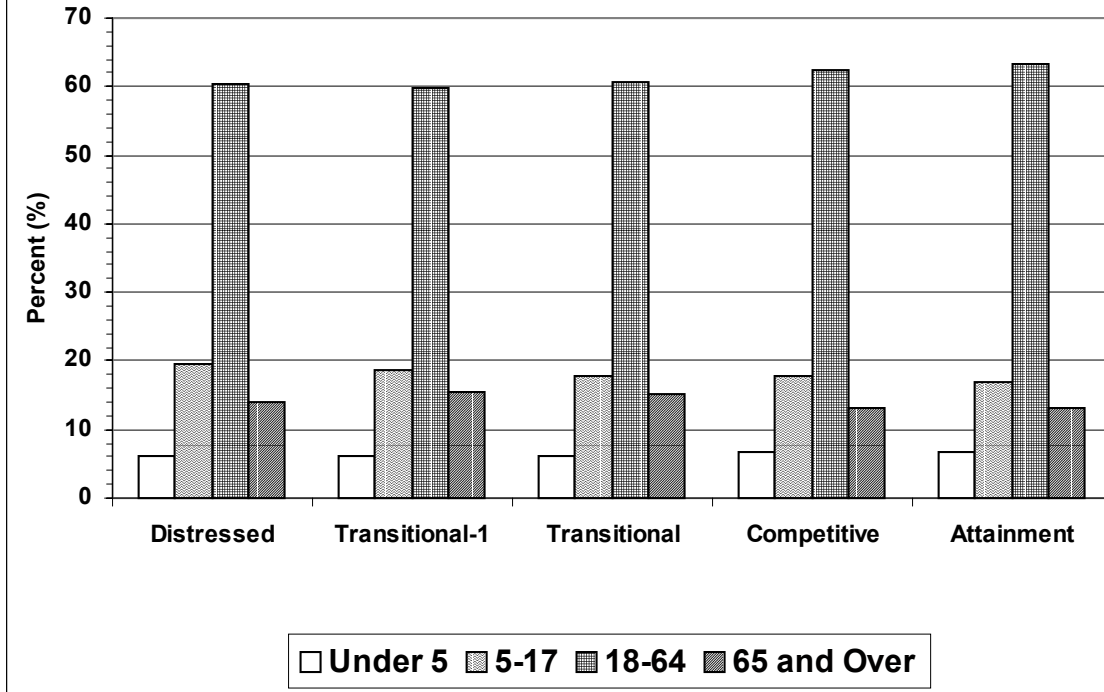
Note: Percentages may not total 100 due to rounding.

lowest — 13.1 percent. Interestingly, 25.2 percent of the population in the Central Sub-region is under age 18, the highest percentage among the Sub-regions. This Sub-region also has the highest percentage of people currently school age (5 to 17), 19.1 percent. This is higher than the 18.74 percent of people of school age in the U.S. overall. A larger number of school age children with relatively fewer adults suggests larger family sizes in the Central Sub-region of Appalachia and potential difficulty in funding elementary and secondary education. While the South Sub-region has 17.69 percent of its population of school age, it also has the highest percentage less than five (6.6 percent) suggesting potential growth in school age children over the next five years. Combined with overall population growth in the South Sub-region this suggests increasing school enrollments as the Sub-region continues to grow. Despite being highest of the Appalachian Sub-regions, the percentage under five in the South does not exceed that for the U.S. overall, where 7.29 percent of the population is under age five.

Age Composition Across ARC 1998 Distressed County Codes

The age distribution across 1998 Distressed County Codes is shown in Figure 2.4 and Table 2.10. Interestingly, the Distressed and Attainment Counties (codes 1 and 5) have the lowest median age, 35 years. The highest median age, 37 years, is found in Transitional-1 Counties. In general, the age structure becomes ‘younger’ moving from Transitional-1 to

Figure 2.4
Age Distribution Across Distress Rankings



Attainment Counties. The exception is the Distressed Counties. The Transitional-1 Counties have the highest percentage age 65 and over, 15.59 percent, and the lowest percentage under age five, 6.1 percent. The Distressed Counties, which have 13.91 percent of the population age 65 and over have the largest percentage of school age children — 19.56. The smallest school age percentage occurs in the Attainment Counties, where 16.9 percent of the population is school age. These counties have the largest under five group — 6.84 percent of the population is under five, indicating a future need for school and child care facilities.

Table 2.10 Age Distribution by 1998 ARC Distress Codes, 1996

<u>Distress Code</u>	Percent Less Than 5	Percent 5-17	Percent 18-64	Percent 65 and Over	Median Age
1 Distressed	6.19	19.56	60.34	13.91	35
2 Transitional-1	6.09	18.68	59.65	15.59	37
3 Transitional	6.19	17.84	60.79	15.17	36
4 Competitive	6.63	17.93	62.35	13.09	35
5 Attainment	6.84	16.91	63.16	13.09	35

Note: Percentages may not total 100 due to rounding.

Spatial Concentration of Elders in Appalachia

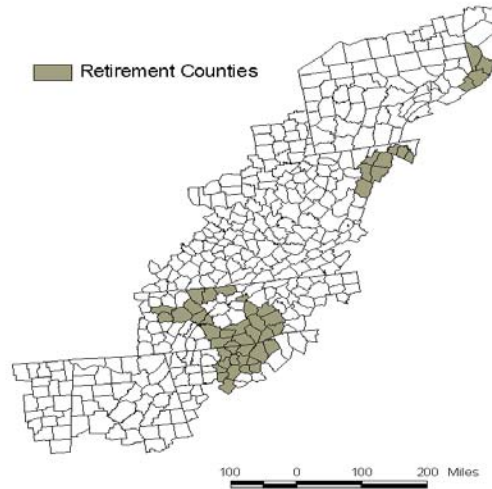
As indicated earlier, age distributions can be an important indicator of different service needs and issues facing counties. Those with high elderly populations may be facing demands for increased health care, home health services, transportation, and other facilities needed by an aging population. This can vary greatly, however, with the types of elderly in the county. High concentrations of elders resulting from retirement in-migration suggest a much different scenario than high concentrations of elders due to long-time residents aging in place. We don't have information on the reasons for the high concentrations of elders in these counties, but we can identify counties that have been designated as retirement destination counties by Charles Longino^{xxvi} or as retirement counties by the U.S. Department of Agriculture.^{xxvii} The Longino retirement counties are shown in Map 2.3. The Longino classification of retirement counties is preferred to that developed by USDA because it includes both metropolitan and Non-metropolitan counties. The counties in Appalachia that Longino has identified as

retirement destinations are in northeastern Pennsylvania, northeast West Virginia, and a concentrated block in southwest North Carolina, northeast Georgia, a string of counties through Tennessee and two in South Carolina.

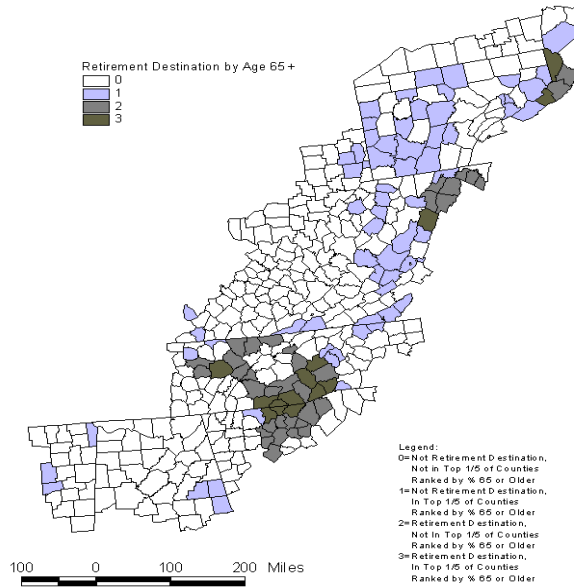
The counties in a four-way typology related to being retirement destination counties and in the top one-fifth of counties ranked by the percentage of the population age 65 and over are shown in Map 2.4. Distinguishing the counties in this way helps identify those counties that have concentrations of elders that may be the result of people aging in place or of retiree in-migration. As can be seen from the map, most Appalachian Counties are not retirement destination counties. Counties that are the lightest gray (Code 1) would be considered counties with aging-in-place elders. These counties are in the top 1/5 of counties on percentage age 65 and over but they are not retirement destination counties. The next darkest gray (code 2) counties are retirement destination counties but they are not in the top fifth of counties ranked by age 65 and over. These counties are most likely experiencing growth in population across the age range so the influx of elders for retirement is not obvious in the age composition.

The final code of counties (code 3) are retirement destination counties that also are in the top one-fifth of counties on percentage age 65 and over. Two of these counties are in Pennsylvania, one each in West Virginia and Tennessee, three in Georgia along the North Carolina border, and the remainder in western North Carolina. These counties are likely to have recently arrived elderly residents, often from metro settings, who have quite different sets of expectations from long time elders, and possibly from all long-time residents in these communities. The potential for conflict on goals and priorities for service provision and

Map 2.3
Retirement Destination Counties



Map 2.4
Retirement Destinations and Percent Age 65 or Older



economic growth activities among long-time residents and newcomers pose problems for all residents as they strive to build lifestyles they desire. Retirement in-migrants also contribute economically, and may contribute their skills and energy in a number of ways, to their new communities.

High proportions of school age children suggest very high demands for educational services, and possibly for health care targeted to immunizations and child-health issues, obstetrics, and child care. Counties with a combination of high proportions of children and elderly face a particularly unique situation in having heavy demands for services and facilities to meet the needs of both children and elders.

Dependency Ratios in Appalachia, Sub-regions and ARC 1998 Distressed County Codes

One question often asked is whether counties with large proportions of children or elderly dependents have the capability to support these ‘dependents.’ This includes the ability of the working age population to support those persons both in terms of family income but also the ability of the community to generate funds sufficient to meet their infrastructural and service needs. This can be assessed by comparing the size of the working age population with the number of dependents. We calculate the dependency ratio as the number of persons under 18 and over 64 divided by the number of persons ages 18 to 64.

The dependency ratio for Appalachia, and for the three Sub-regions for 1980, 1990, and 1996 are shown in Table 2.11. The dependency ratio is highest in North Appalachia in 1996 and has remained fairly steady since 1980. Central Appalachian Counties have seen a sharp decline in the dependency ratio, from 0.73 in 1980 to 0.63 in 1996, suggesting an increased capability to support dependents in the Sub-region. The South Sub-region showed a

Table 2.11 Dependency Ratios^a in Appalachia, 1980, 1990, 1996

	Dependency Ratio 1980	Dependency Ratio 1990	Dependency Ratio 1996
North Appalachia	0.67	0.66	0.67
Central Appalachia	0.73	0.65	0.63
South Appalachia	0.66	0.60	0.60
Total Appalachia	0.67	0.63	0.63

^a Dependency ratio calculated as persons under 18 and over 65 divided by persons between 18 and 64.

decline from 1980 to 1990, but then the dependency ratio seemed to stabilize at 0.60. The dependency ratio for the entire region is 0.63, which is comparable to the dependency ratio for the U.S. (0.63). Dependency ratios also are examined by 1998 Distressed County Codes. The lowest dependency ratio occurs among the Attainment Counties, where the ratio of dependents to working age individuals is 0.58 (see Table 2.12). The most distressed Transitional Counties (category 2) have the highest dependency ratio — 0.68. With the exception of these Transitional Counties, the dependency ratios decline as counties become more economically advantaged.

Spatial Distribution of the Population by Age

To give a sense of the variation in population distribution across counties in the Appalachian Region, Table 2.13 lists the ten counties with the population over 65 and the ten counties with the lowest percentage of the population over 65 — the ten oldest and least old counties in Appalachia in 1996. The ten counties with the highest percentage of the population under 18 and the ten counties with the lowest percentage under 18 — the ten youngest and least young counties in 1996 are in Table 2.14. These two tables do have some

Table 2.12 Dependency Ratios^a in Appalachia by 1998 Distress Codes*, 1980, 1990, 1996

<u>Distress Code</u>	<u>Dependency Ratio 1980</u>	<u>Dependency Ratio 1990</u>	<u>Dependency Ratio 1996</u>
1 Distressed	0.76	0.68	0.66
2 Transitional-1	0.74	0.69	0.68
3 Transitional	0.67	0.64	0.64
4 Competitive	0.65	0.60	0.60
5 Attainment	0.61	0.58	0.58

* * Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

^a Dependency ratio is persons under 18 and over 65 divided by persons between 18 and 64.

counties in common (least old counties and youngest counties should be similar, as would the oldest and least young), but there is not a one-to-one correspondence. Four of the ten oldest counties are in northeastern Pennsylvania and four are located in North Carolina. Of these oldest counties, four are identified by Longino and by the USDA as retirement destination counties. These are marked with three asterisks (***) in the tables. One county, Polk County, North Carolina, was identified as a retirement county only by the USDA. Five of the ten least-old counties are in Georgia near the Atlanta metropolitan area.

Five of the ten youngest counties are found in Kentucky, and three are located in Mississippi (Table 2.14). Three of the least young counties are in North Carolina and three and USDA as retirement counties, while three others met the criteria for being designated as retirement counties by USDA. are found in West Virginia. Two of these least young counties were identified by Longino as retirement counties.

Table 2.13 Ten Oldest and Least Old Counties in Appalachia, 1996

FIPS Code	County	State	Percent over 65
<u>Ten Oldest:</u>			
37149	Polk**	NC	25.76
13281	Towns***	GA	24.81
37113	Macon***	NC	23.55
37089	Henderson***	NC	22.79
42113	Sullivan	PA	21.68
37043	Clay***	NC	21.35
51091	Highland	VA	21.31
42069	Lackawanna	PA	20.64
42079	Luzerne	PA	20.64
42107	Schuylkill	PA	20.59
<u>Least Old:</u>			
13135	Gwinnett	GA	4.90
13097	Douglas	GA	7.23
13057	Cherokee	GA	7.28
13223	Paulding	GA	7.72
01117	Shelby	AL	7.82
13213	Murray	GA	8.60
21159	Martin	KY	8.94
28105	Oktibbeh	MS	8.98
39025	Clermont	OH	8.99
01089	Madison	AL	9.09

* Longino retirement county

** Retirement destination county (USDA typology)

***Both Longino and USDA retirement county

**Table 2.14 Ten Youngest and Least Young Counties
in Appalachia, 1996**

FIPS Code	County	State	Percent under 18
<u>Ten Youngest:</u>			
39075	Holmes	OH	35.22
28103	Noxubee	MS	32.62
21159	Martin	KY	30.55
28025	Clay	MS	29.77
21153	Magoffin	KY	29.68
36107	Tioga	NY	29.39
21131	Leslie	KY	29.33
21051	Clay	KY	29.32
21147	McCreary	KY	29.23
28009	Benton	MS	29.01
<u>Least Young:</u>			
13281	Towns***	GA	16.87
37189	Watauga**	NC	18.20
54061	Monongalia	WV	18.67
42027	Centre	PA	18.94
37149	Polk**	NC	19.66
21205	Rowan**	KY	20.12
37113	Macon***	NC	20.20
54011	Cabell	WV	20.31
54069	Ohio	WV	20.40
39009	Athens	OH	20.56

* Longino retirement county

** Retirement destination county (USDA typology)

***both Longino and USDA retirement county

Once again the diversity of Appalachia is revealed in these tables. Polk County, in North Carolina's western mountains had an elderly population that was 25.8 percent of the total county population, the highest in the Region. This compares to the county with the lowest percentage elderly, Gwinnett, Georgia, situated between Atlanta and Athens, which had only 4.9 percent of the population age 65 or over. In Holmes County, Ohio, which is midway between Cincinnati and Akron, 35.2 percent of the population was under age 18 in 1996 (Table 2.14). Only 16.9 percent of the population of Towns County, Georgia fell in that age group, the lowest in the Region. Towns County is situated on the Georgia-North Carolina border by Lake Chatuge.

This variation in age distribution provides additional evidence of the diversity of the counties in the Appalachian Region. Clearly, the needs and issues facing a county with 25 percent elderly population are much different than those experienced by a county with 35 percent of the population under eighteen. These demographic characteristics have important implications for future development and planning.

Race and Ethnic Composition of Appalachia

As a region, Appalachia is less diverse racially and ethnically than the United States. Only by 1996 had the percentage of non-Hispanic Whites in Appalachia dropped to just above 90 percent (see Figure 2.5; corresponding percentages are in Table 2.15). For the U.S. as a whole, the percentage of non-Hispanic Whites was just below 80 percent in 1980 and had dropped to 73.1 percent by 1996. Blacks comprised 7.7 percent of the Appalachian population in 1996, an increase from 6.95 percent in 1980, while Hispanics in the Region

increased from 0.6 to 0.9 percent from 1980 to 1996. Over the same period, the percentage of Blacks in the U.S. increased from 11.54 to 12.04, while Hispanics comprised 10.67 percent of the population in 1996, up from 6.45 percent in 1980. The Appalachian Region has a much less diverse population racially and ethnically than the U.S., but as with most other characteristics, the racial distribution of the population varies a great deal across counties in the region.

Distribution of Blacks in Appalachia and by Sub-region. One way to evaluate the variation in the racial composition is to examine how the Black population in the Appalachian Region is distributed across various geographies (ARC Sub-regions, or ARC 1998 Distressed County Codes). To begin, however, Table 2.15 shows the percentage of the total population that is Black in counties classified by Appalachian Sub-regions. As might be expected, the percentage Black is highest in the South Sub-region, with 13.2 percent of the

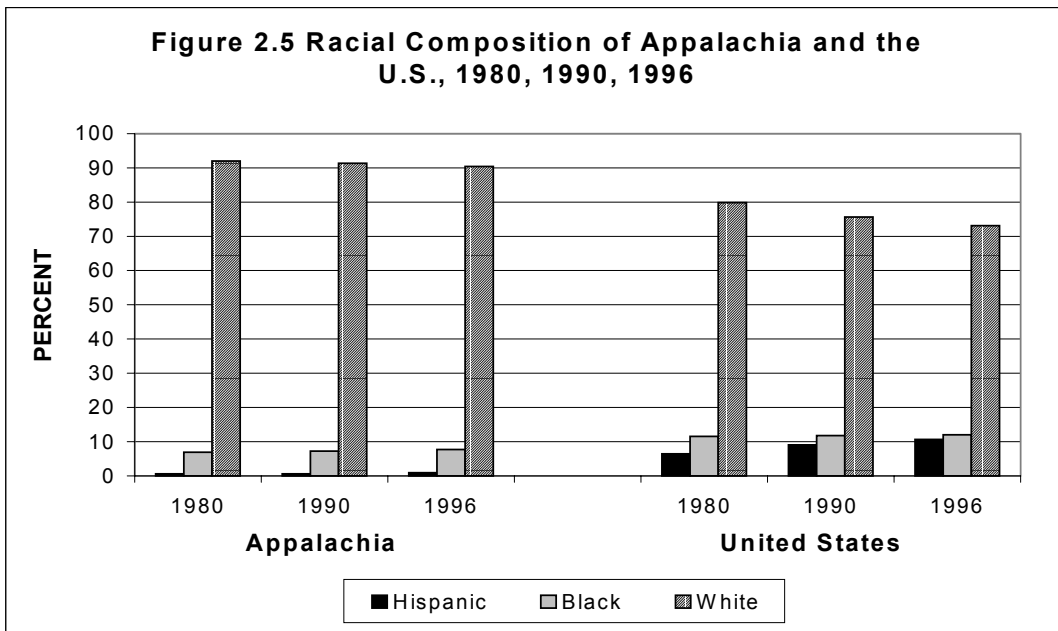


Table 2.15 White, Black, and Hispanic Populations in Appalachia and the United States, 1980, 1990, 1996

Region	1980		1990		1996	
	Population	Percent	Population	Percent	Population	Percent
North Appalachia						
White	9,819,332	95.93	9,460,174	95.38	9,541,761	94.71
Black	311,436	3.04	322,146	3.25	361,490	3.59
Hispanic	53,763	0.53	58,394	0.59	81,683	0.81
Central Appalachia						
White	2,041,734	96.53	1,956,095	97.06	2,031,128	96.82
Black	51,843	2.45	42,942	2.13	46,620	2.22
Hispanic	14,875	0.70	7,170	0.36	10,662	0.51
South Appalachia						
White	6,869,055	85.70	7,498,127	85.51	8,124,291	84.53
Black	1,052,803	13.14	1,129,934	12.89	1,267,880	13.19
Hispanic	53,378	0.67	60,261	0.69	112,811	1.17
Total Appalachia						
White	18,730,121	91.97	18,914,396	91.37	19,697,180	90.42
Black	1,416,082	6.95	1,495,022	7.22	1,675,990	7.69
Hispanic	122,016	0.60	125,825	0.61	205,156	0.94
United States ^a						
White	180,906,000	79.87	188,306,000	75.60	193,978,000	73.11
Black	26,142,000	11.54	29,275,000	11.79	31,912,000	12.04
Hispanic	14,609,000	6.45	22,354,000	9.05	28,269,000	10.67

Note: Percentages may not total 100 due to rounding.

^a U.S. figures rounded to the nearest thousand.

population classified as Black. Both the Central and North Sub-regions have a very small representation of Blacks, with only 0.51 and 0.81 percent Black in the counties in these Sub-

regions, respectively. Over time, from 1980 to 1996, there was little change in the percentage of the population Black across these Sub-regions. Only the North Sub-region had as much as a half percentage point increase in the county population that is Black.

The percentage of the Black population found in Appalachian Sub-regions for 1980, 1990 and 1996 is contained in Table 2.17. This is not the percentage of the population in a county type that is Black, but rather the percentage of Appalachian Blacks found in each county type -- how Blacks are distributed. There were 1,675,990 Blacks in Appalachia in 1996, an increase of 18.3 percent over the 1980 figure. This compares with a seven percent growth in population for the region as a whole from 1980 to 1996 (data from Table 2.15).

Table 2.16 Distribution of Black Population Across Appalachian Sub-regions, 1980, 1990 and 1996

Sub-region	1980		1990		1996	
	Population	Percent	Population	Percent	Population	Percent
Northern	311,436	21.99	322,146	21.55	361,490	21.57
Central	51,843	3.66	42,942	2.87	46,620	2.78
Southern	1,052,803	74.35	1,129,934	75.58	1,267,880	75.65
Total	1,416,082	100.00	1,495,022	100.00	1,675,990	100.00

Appalachian Blacks are highly concentrated in the Southern Sub-region. In 1996, 75.65 percent of Blacks lived in counties in the Southern Sub-region, compared with 44.12 percent of the Appalachian population (from Table 2.1). Blacks were least likely to live in the Central Sub-region. In 1996, only 2.78 percent of Blacks in Appalachia lived in this county type. By comparison, 9.63 percent of the total Appalachian population lived in the counties in

this Sub-region. The distribution of Blacks across Appalachia’s Sub-regions changed very little from 1980 to 1990.

Distribution of Blacks by ARC 1998 Distressed County Codes. Examining the distribution of Blacks across the 1998 Distressed County Codes (Table 2.17), we see that just over half of Blacks live in Transitional Counties (Distressed County Code 3), 53.54 percent. The numbers of Blacks increased in each of the Distressed County Code categories, even though the percentage of Blacks in some categories (the more economically disadvantaged) declined. As Table 2.17 shows the share of Blacks in the Distressed Counties declined from 8.27 percent in 1980 to 7.03 percent in 1996, while the percentage of Blacks in Attainment Counties increased from 22.43 percent in 1980 to 23.45 percent in 1996. Compared with the total Appalachian population, Blacks are more likely to reside in the counties that are economically better off. For example, only 13.8 percent of the 1996 Appalachian population lived in Attainment Counties, compared to 23.45 percent of Appalachian Blacks.

Table 2.17 Distribution of Black Population Across Distress Codes*, 1980, 1990, 1996

Distress Code	1980		1990		1996	
	Population	Percent	Population	Percent	Population	Percent
Distressed	117,155	8.27	111,270	7.44	117,759	7.03
Transitional-1	70,746	5.00	69,906	4.68	75,359	4.50
Transitional	764,373	53.98	800,698	53.56	897,285	53.54
Competitive	146,201	10.32	165,753	11.09	192,542	11.49
Attainment	317,607	22.43	347,395	23.24	393,045	23.45
Total	1,416,082	100.00	1,495,022	100.00	1,675,990	100.00

Note: Percentages may not total 100 due to rounding.

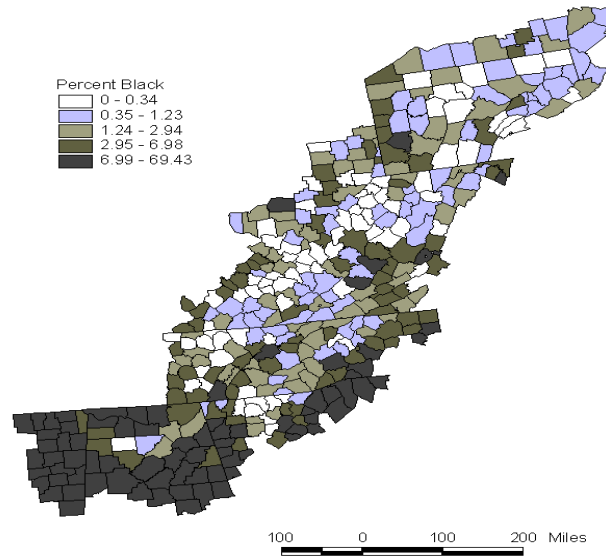
* * Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Spatial Distribution of Blacks Across Appalachia. The percentage that Blacks comprise of total county populations in 1996 is shown for each county in Map 2.5. As in the other maps, the categories include equal numbers of counties and so each contains twenty percent of the counties in the Region. This map shows the relatively limited spatial distribution of Blacks in the Appalachian Region, and the large number of counties with a very small percentage of the population Black. The counties with the highest percentages Black are concentrated in Mississippi and Alabama with some in northeast Georgia, northwest South Carolina, and a few in Virginia. The concentration of Blacks in counties that are adjacent to metropolitan areas can be observed in this map -- counties around Atlanta, Charlotte, and Roanoke, as can the concentrations in metropolitan counties in the region, such as Pittsburgh and Winston-Salem. The low percentages of Blacks are obvious through the central part of the Appalachian Region, and up into central Pennsylvania and the southern tier of New York.

To highlight the diversity in the distribution of Blacks across Appalachia, Panel A of Table 2.18 lists the ten counties in Appalachia with the highest percentage Black. Not surprisingly, eight of these counties are in Mississippi and the other two are in Alabama. Noxubee County, Mississippi has the highest concentration of Blacks in Appalachia with 69.43 percent of the county Black in 1996. As can be seen in Table 2.18, several of these counties have relatively small numbers of Blacks. As a group, these ten counties with the highest concentrations of Blacks are home to only 6.5 percent of the Blacks in Appalachia. Only three counties in Appalachia report no Blacks in 1996.

Because the percentage of Blacks may be quite high even when the number of Blacks in a county is relatively small, Panel B of Table 2.18 shows the ten counties in Appalachia with the largest number of Blacks. These counties clearly are the large urban counties or are adjacent to large cities. As a group, these ten counties contain 48.3 percent of Appalachia's Blacks. Jefferson County (Birmingham), Alabama is home to 241,378 Blacks, (followed by Allegheny County (Pittsburgh), Pennsylvania with 160,760 Blacks. The spatial distribution of Blacks in Appalachia and the variability of the percentage Black in Appalachian Counties reveal the diversity of the counties within the Region with respect to race.

Map 2.6
Percent Black
(1996)



Map 2.5
Percent Black (1996)

Table 2.18 Ten Counties in Appalachia with Highest Percentage and Highest Number of Black Persons (non-Hispanic), 1996

FIPS Code	County	State	Number Black	Percent Black
<u>Highest Percent Black:</u>				
28103	Noxubee	MS	8,619	69.43
28069	Kemper	MS	5,904	56.89
28025	Clay	MS	11,940	54.91
28093	Marshall	MS	16,809	52.15
28159	Winston	MS	8,385	43.13
01107	Pickens	AL	8,927	42.79
28009	Benton	MS	3,290	41.00
28017	Chickasaw	MS	7,370	40.23
28087	Lowndes	MS	23,808	38.90
01017	Chambers	AL	13,651	37.15
<u>Highest Number Black:</u>				
01073	Jefferson	AL	241,378	36.47
42003	Allegheny	PA	160,760	12.40
37067	Forsyth	NC	71,540	25.17
45045	Greenville	SC	63,829	18.49
47065	Hamilton	TN	59,476	20.14
01089	Madison	AL	56,706	20.98
45083	Spartanburg	SC	51,528	21.21
01125	Tuscaloosa	AL	43,616	27.47
47093	Knox	TN	34,091	9.35
13135	Gwinnett	GA	27,053	5.66

Distribution of Hispanics in Appalachia. Hispanics are a very small part of the Appalachian population. In 1980, there were only 122,016 Hispanics in Appalachia, by 1996 this number had increased by 68 percent to 205,156 (Table 2.19). Despite this increase, Hispanics still were only 0.94 percent of the Appalachian population in 1996. Hispanics show the most change in their distribution across the county types in the 1998 Distressed Counties Codes, compared with either Blacks or Whites. In 1980, 12.9 percent of Hispanics lived in the Distressed Counties. The number of Hispanics in these counties dropped by 36 percent from 15,722 in 1980 to 10,005 in 1996. By 1996, only 4.88 percent of Hispanics lived in the Distressed Counties. The Hispanic population in Transitional-1 Counties (code 2) also declined from 1980 to 1996. Most interesting is the influx of Hispanics to the Transitional, Competitive and Attainment Counties — the more economically prosperous counties. The number of Hispanics in these counties increased by 47.7, 245.9, and 178.1 percent, respectively, from 1980 to 1996. By 1996, 53.42 percent of Hispanics lived in the 233 Transitional Counties (code of 3); 16.65 percent and 22.78 percent resided in the Competitive and Attainment Counties, respectively.

Table 2.19 Distribution of Hispanic Population Across 1998 Distress Codes*, 1980, 1990, 1996

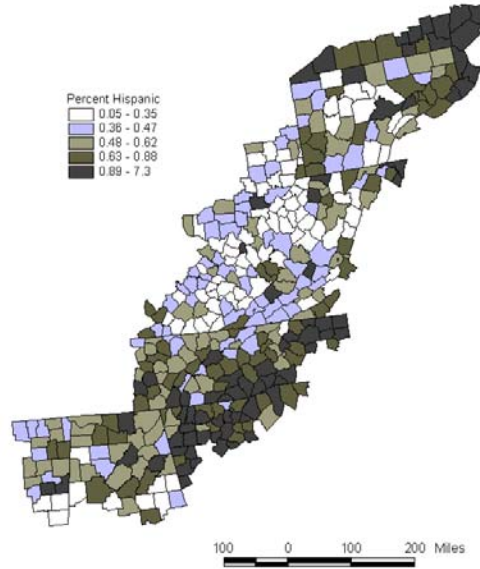
Distress Code	1980		1990		1996	
	Population	Percent	Population	Percent	Population	Percent
1 Distressed	15,722	12.89	6,329	5.03	10,005	4.88
2 Transitional	5,428	4.45	3,113	2.47	4,658	2.27
3 Transitional	74,184	60.80	73,406	58.34	109,589	53.42
4 Competitive	9,877	8.09	18,121	14.40	34,163	16.65
5 Attainment	16,805	13.77	24,856	19.75	46,741	22.78
Total	122,016	100.00	125,825	100.00	205,156	100.00

Note: Percentages may not total 100 due to rounding.

* * Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Spatial Distribution of Hispanics in Appalachia. The percentage of a county's population that is Hispanic in 1996 is shown in Map 2.6, with each category containing twenty percent of Appalachian Counties. The fairly limited spatial distribution of Hispanics in the region, and the large number of counties with few Hispanic residents can be seen. Surprisingly, there were no Appalachian Counties that had no Hispanic residents. Hispanics were most concentrated in Georgia, South Carolina, North Carolina, the southern tier of New York, northwest Pennsylvania and metropolitan counties. As with Blacks, there are few Hispanics in the central parts of Appalachia through eastern Kentucky, West Virginia, Ohio, and much of central Pennsylvania.

Map 2.7
Percent Hispanic
(1996)



Map 2.6
Percent Hispanic (1996)

To supplement the maps, the ten counties in Appalachia with the highest percentage of Hispanic population are given in Table 2.20 Panel A. Five of these counties are in Georgia, three in Pennsylvania, and two are located in New York. Hall County, Georgia, which contains part of Lake Sydney Lanier and the city of Gainesville, Georgia, has the highest percentage Hispanic at 7.3 percent. Overall, these top ten counties contain 23 percent of the Hispanic population in the Region. Panel B shows the ten counties with the largest number of Hispanics in the region. Gwinnett County, Georgia is home to 18,915 Hispanics, and Allegheny County, Pennsylvania has the second highest number of Hispanics, 10,907. Just over 33 percent of Appalachian Hispanics live in the ten counties with the largest number of Hispanics. The percentage growth in Hispanics in Appalachia has been very fast from 1980

to 1996, but the growth is from a very small base. In numbers, Hispanics are still a very small part of the Appalachian population. They are concentrated in metropolitan areas and the fastest growth in Hispanics occurred in these counties, as well.

The Foreign Born in Appalachia. Only 286,381 Appalachian residents reported being foreign born on the 1990 Census, just 1.38 percent of the population. The distribution of these foreign born residents for the United States, Appalachia and across Sub-regions in Appalachia is reported in Table 2.24. Most notable is the very small percentage of foreign born residents in Appalachia compared with the U.S. overall. Almost eight percent of the U.S. population is foreign born. Across Appalachian Sub-regions, foreign born are 1.7 percent of the population in North Appalachia and 1.24 percent of the South Appalachian population. The lowest percentage of foreign born is found in Central Appalachia. Since 1980, the number and percentage of foreign born in Appalachia have declined, while both the number and percentage of foreign born have risen in the U.S. overall.

Foreign Born by ARC 1998 Distressed County Codes. Like Hispanics, the foreign born are more likely to live in Appalachian Counties that are the least distressed. Almost 98 percent of foreign born live in counties with 1998 Distress Codes of 3 or higher, with 29.05 percent in Attainment Counties (Table 2.22). The majority of foreign born in Appalachia (58.36 percent) live in Transitional Counties.

**Table 2.20 Ten Counties in Appalachia with Highest
Percent and Number of Hispanic Persons (Any Race), 1996**

FIPS Code	County	State	Number Hispanic	Percent Hispanic
<u>Highest Percent Hispanic:</u>				
13139	Hall	GA	8,246	7.30
13313	Whitfield	GA	4,092	5.10
13135	Gwinnett	GA	18,915	3.96
42119	Union	PA	1,558	3.82
36013	Chautauqua	NY	5,215	3.70
42103	Pike	PA	1,165	3.05
42089	Monroe	PA	3,358	2.81
36109	Tompkins	NY	2,595	2.70
13187	Lumpkin	GA	411	2.38
13117	Forsyth	GA	1,576	2.28
<u>Highest Number Hispanic:</u>				
13135	Gwinnett	GA	18,915	3.96
42003	Allegheny	PA	10,907	0.84
13139	Hall	GA	8,246	7.30
36013	Chautauqua	NY	5,215	3.70
01089	Madison	AL	4,668	1.73
42049	Erie	PA	4,458	1.59
45045	Greenville	SC	4,440	1.29
13313	Whitfield	GA	4,092	5.10
01073	Jefferson	AL	3,749	0.57
37067	Forsyth	NC	3,717	1.31

Table 2.21 Foreign Born Population in Appalachia and the United States, 1980 and 1990

Region	1980		1990	
	Population	Percent	Population	Percent
North Appalachia	221,253	2.16	168,416	1.70
Central Appalachia	11,903	0.56	9,446	0.47
South Appalachia	73,433	0.92	108,519	1.24
Total Appalachia	306,589	1.51	286,381	1.38
United States ^a	14,080,000	6.20	19,767,000	7.90

^a U.S. figures rounded to the nearest thousand.

Spatial Distribution of Foreign Born in Appalachia. The top ten counties by percentage foreign born are shown in Table 2.23 Panel A. Tompkins County, New York, home of Cornell University, has the highest percentage foreign born, 8.5 percent. Three of the top ten counties are located in Pennsylvania, with two each in New York and Georgia. Several of these counties contain colleges or universities: Centre County, PA (Penn State University); Monongalia, WV (University of West Virginia); Madison, AL (University of Alabama-Huntsville); Athens, OH (Ohio University), suggesting that the high percentage of foreign born may result from graduate students attending the universities or faculty hired by the institutions.

The ten counties with the largest number of foreign born are given in Panel B of Table 2.23. Allegheny, County, Pennsylvania, which contains the City of Pittsburgh, has the largest number of foreign born in Appalachia, 42,005. The second highest is Gwinnett County, Georgia (a suburb of Atlanta) with 17,803. The tenth largest county, Luzerne County, PA, is

home to only 5,637 foreign born, so the numbers drop off quickly, even among the top counties. These foreign born may be a combination of persons who immigrated to the United States during the 1920s and 1930s, and recent immigrants from Mexico or Asia.

Table 2.22 Percentage of Foreign Born Across 1998 Distress Codes, 1990

Distress Code	Population	Percent
1 Distressed	2,138	0.77
2 Transitional-1	4,458	1.61
3 Transitional	162,017	58.36
4 Competitive	28,338	10.21
5 Attainment	80,648	29.05
Total	277,599	100.00

Note: Percentages may not total 100 due to rounding.

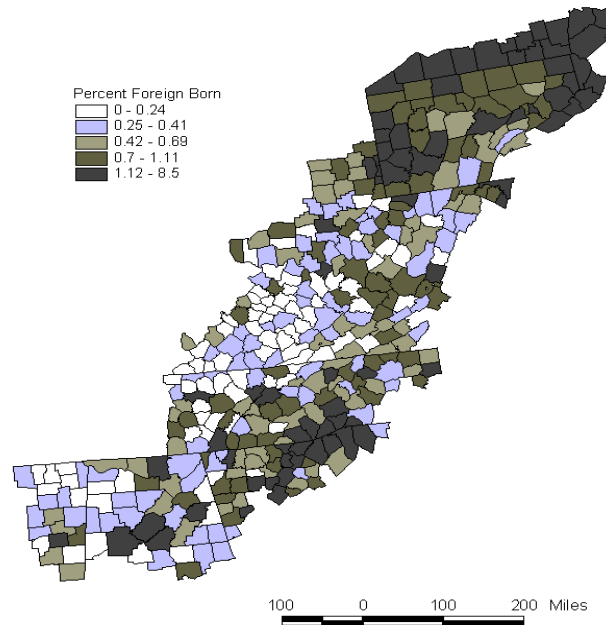
* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

The distribution of percentage foreign born across all Appalachian Counties is shown in Map 2.7. Counties with the highest concentrations of foreign born are largely in New York and Pennsylvania, with smaller areas on the South Carolina-North Carolina border near Asheville. These foreign born could be long time U.S. residents who emigrated to the United States and have retired near the Asheville area or recent immigrants who moved to these areas in search of employment. Foreign born tend to concentrate near metro areas and in counties that are home to universities.

**Table 2.23 Ten Counties in Appalachia with Highest
Percentage and Number Foreign Born, 1990**

FIPS Code	County	State	Number Foreign Born	Percent Foreign Born
<u>Highest Percent Foreign Born:</u>				
36109	Tompkins	NY	8,000	8.50
13135	Gwinnett	GA	17,803	5.04
42103	Pike	PA	1,289	4.61
13139	Hall	GA	4,386	4.60
42027	Centre	PA	5,477	4.42
36007	Broome	NY	9,105	4.29
42089	Monroe	PA	4,015	4.20
39009	Athens	OH	2,138	3.59
01089	Madison	AL	7,691	3.22
54061	Monongalia	WV	2,404	3.18
<u>Highest Number Foreign Born:</u>				
42003	Allegheny	PA	42,005	3.14
13135	Gwinnett	GA	17,803	5.04
36007	Broome	NY	9,105	4.29
36109	Tompkins	NY	8,000	8.50
01089	Madison	AL	7,691	3.22
01073	Jefferson	AL	7,525	1.15
47093	Knox	TN	5,898	1.76
45045	Greenville	SC	5,879	1.84
42129	Westmoreland	PA	5,643	1.52
42079	Luzerne	PA	5,637	1.72

Map 2.7 **Map 2.8**
Percent Foreign Born
(1990)



CONCLUSIONS

This chapter has focused on the population distribution and composition of Appalachia, with a special emphasis on the diversity across the Appalachian Region. We have observed large differences in the patterns of growth and decline in population and in age structure, and we have identified vast differences in the racial, ethnic, and foreign born composition of counties. While the population of Appalachia grew from 1980 to 1996, it did not keep pace with population growth nation-wide, so Appalachia's share of the U.S. population declined to 8.2 percent.

Examining the population distribution within Appalachia, we found that the majority of Appalachia's residents live in her metropolitan areas or the surrounding counties, and that very few lived in the completely rural counties. Only 10.2 percent of Appalachia's population lived in the most economically distressed counties, while well over half lived in counties that are considered Transitional — counties that have a mixture of high and low values on key economic indicators. The remaining population, about 24 percent, live in the Competitive and Attainment Counties. Over the sixteen years examined, the population declined in Distressed and Transitional-1 Counties, and grew in the other three Distressed County Code categories — the more economically prosperous counties. Examining Appalachian Sub-regions, the population declined from 1980 to 1996 in the Northern and Central Sub-regions, but grew in the Southern Sub-region. If these trends continue, the 170 counties of the Southern Sub-region will soon contain the majority of the Appalachian Region's population.

The combination of regions and counties within Appalachia that are growing and declining in population reveal the complexity facing local, state and federal governments as they attempt to develop policy to meet the needs of these very diverse settings. Clearly the issues and problems facing areas with population decline are much different from those experienced by counties with rapid population growth. But just knowing that population growth or decline is occurring is not enough information on which to base decision-making. It also is critical to know the age distribution of the population and how that is changing.

Looking at the region as a whole, the youngest age groups are a declining share of the population and the older age groups are increasing. There also is a loss (as a percentage of the total) of those of early working and middle age. This is especially true in the Northern and

Central Sub-regions of Appalachia. Such patterns are consistent with the out-migration of younger and better-educated persons from the Region, and with in-migration of elders to some attractive, amenity-rich areas. Such migration patterns, which will be examined further in Chapter 3, indicate that the loss of working age persons and the aging of the Appalachian population may result in reduced competitiveness in attracting and retaining jobs in some parts of the Region. Programs to facilitate upgrading of job skills and to identify and promote regional products with the potential to become exports could aid in keeping some of the struggling areas of Appalachia viable, while enhancing the strength of those counties already doing well. Strategies to retain young and better-educated persons in the Region, especially in those counties that have experienced loss of their youth, are very important to the long-run viability of these counties.

As with the other characteristics we examine, the variability in the age composition of counties across the Region is immense. Counties range from having high concentrations of school age children to being home to a large share of elders. Among those with large percentages of elders, some have faced out-migration of youth and the aging-in-place of long-time residents, while others experienced in-migration of retirees. Some counties not only have large shares of either elders or youth, but they also are experiencing rapid gains in elders or youth. Others are facing rapid growth in youth or elders, but their share of the population is not large. Counties with large concentrations of elders aging-in-place are likely to face increased demands for formal and informal health care services, and in-home services, coupled with reduced ability to pay for such services. The decline in the working age portion of the population suggests that the ability of local government to provide such resources

through local taxation will be limited. This would be especially true in those counties that have experienced increases in the dependency ratio (ratio of those under 18 and 65 and over to those ages 19 to 64), although the general decline in the dependency ratio suggests that this may not be a problem throughout the region.

In examining population change, it is important to consider not only the percentage of the population with different characteristics, but also how the various segments of the population are changing in absolute numbers. These changes in numbers and concentrations of various age groups place stress on existing services and facilities. This stress may result from under- or over-utilization, depending on the changes in population. Investments in infrastructure can help to alleviate the demands placed on local facilities (schools, water, sewer, roads) due to population growth, and they can aid in making areas with distressed economies and population decline more attractive for industrial or residential development. Again, this diversity makes it difficult to develop regional or even state policies that would benefit all parts of the Region. Flexibility needs to be included in regional and state programs to enable local areas to adapt the programs to meet local needs.

Finally, the Appalachian Region is not very diverse, racially or ethnically. Blacks are a small percentage of the total population (about eight percent) and they are concentrated in relatively few counties in the Region, many of which are metropolitan counties, or counties in the Southern Sub-region. Hispanics are a very small segment of the population, and while their percentage growth has been great over the past sixteen years, they remain few in number and a small percentage of the population. Hispanics, like Blacks, are found in or near

metropolitan areas, and a few counties are home to a large share of the Hispanic population in the Region.

Endnotes for Chapter 2

1. Beale Codes are based on classifications of counties by metropolitan status, population size, and for Non-metropolitan counties whether or not they are adjacent to metropolitan counties. Beale Codes were first developed by Calvin Beale at the Economic Research Service of the U.S. Department of Agriculture and are updated as new population data become available. These are 1993 Beale Code classifications.
2. Charles Longino developed a classification of all U.S. counties based on retirement in-migration. The details can be found in Longino, Charles F. 1995. *Retirement Migration in America*. Houston: Vacation Publications.
3. The Economic Research Service of the U.S. Department of Agriculture developed typologies of Non-metropolitan counties in 1983 and again in 1995. One of the county types identified was retirement destination counties. These were counties that had the population in the county age 60 and over increase by 15 percent or more from 1970 to 1980 (or from 1980 to 1990). The 1983 Policy Impact Codes are described in Peggy J. Ross and Bernal L. Green. 1985. *Procedures for Developing a Policy-Oriented Classification of Non-metropolitan Counties*. Staff Report No. AGES850308. Economic Research Service, USDA, September 1985.

This chapter was written by Stephen A. Matthews.

CHAPTER 3

POPULATION CHANGE AND NET MIGRATION IN APPALACHIA

INTRODUCTION

The population of the Appalachian Region had grown from 17.8 million in 1960 to approximately 21.7 million by 1996. However, population growth has not been constant within Appalachia and such aggregate analysis masks considerable spatial and temporal variation. For example, the rates of population increase for the Appalachian Region as a whole have waxed and waned since the Appalachian Regional Commission was formed. The 399 counties that make up the Appalachian Region (in Fiscal Year 1998) experienced a small percentage increase (2.8 percent) in population for the ten-year period 1960-1970, followed by a decade of rapid growth with an 11.1 percent increase for 1970-1980.^{xxviii} Between 1980 and 1996, temporal variability has again been the “pattern” with small increases (1.6 percent) during the 1980s contrasting with a five percent increase over the six years 1990-1996.

This chapter focuses on population dynamics during the period 1980-1996. The aggregate population change data for Appalachia is presented first. This is followed by population change data that has been decomposed into two main components: *natural increase* (births minus deaths) and *net migration* (in-migrants minus out-migrants). Furthermore, the overall natural increase and net migration figures are summarized based on annual and multi-year breakdowns for each of the Appalachian states and the

This chapter was written by Stephen A. Matthews.

Northern, Central and Southern Sub-regions. In addition, population change and net migration data are presented by the 1998 ARC Distressed County Codes (Appendix A to this chapter contains population change and net migration data by U.S. Department of Agriculture, Beale Codes - see Chapter 1).

In summary,

- Population growth and annual net migration rates within the Appalachian Region have been mainly dominated by counties in the South Sub-region. This reflects national trends which between 1980-1996 resulted in significant population growth in and movement to Southern and Western states.
- During the 1990s, the ARC designated Competitive and Attainment Counties (found predominantly in Georgia and the Carolinas) witnessed the highest growth rates and highest net in-migration rates.
- Population growth throughout the Region has been highest in fringe metropolitan counties (though note there are only 12 fringe counties in the ARC - see Table 1.1) and Non-metropolitan counties adjacent to metropolitan areas.

Taken together, population growth and net migration have been highest in counties in the South Sub-region, and especially in those counties that are fringe or adjacent metropolitan counties, and that are Competitive or Attainment Counties - that is, those counties in northern Georgia surrounding Atlanta, and other large and mid-sized metropolitan areas in Alabama (Birmingham, Huntsville), Tennessee (Chattanooga), North Carolina (Asheville and Winston-Salem) and South Carolina (Spartanburg).

AGGREGATE TRENDS IN APPALACHIA

During the ten year period 1980-1990 the population of the Appalachian Region increased by 371,838 (See Table 3.1). The natural increase in population (i.e. the excess of births over deaths) of 782,279 during the 1980s offset the large net out-migration from the Region of over 410,000 people. In more recent years (1990-1996), the Appalachian Region has seen a migration turnaround with approximately two-thirds of the Region's population growth driven by net in-migration.

Table 3.1. Components of Population Change in Appalachia, 1981-1996

	Natural Increase	Net Migration	Total Change
1980-1990	782,279	(410,441)	371,838
1990-1996	350,826	668,895	1,019,721
1980-1996	1,133,105	258,454	1,391,559

*Numbers are based on U.S. Census estimates of fertility, mortality and migration.

The annual net population change (total change) for the region as a whole for each year between 1980 and 1996 is shown in Table 3.2. With the exception of the first year of the data series, annual total population change within the Appalachian Region during the early and mid 1980s was fairly modest, and for two years 1984-1985 and 1985-1986 population size actually decreased. Between 1986-1987 and 1992-1993 annual total population change increased each year to a high of just over 200,000 per year in 1992-1993. By the end of the study period, total population increase was approximately 150,000 per year (in 1995-1996). Overall, the Appalachian Region grew by over one

million residents in the six years 1990-1996 (see aggregations in Table 3.1), with most of this increase due to natural increase or the excess of births over deaths.

The annual total population changes was decomposed into natural increase (births minus deaths) and net migration totals (see Figure 3.1 and Table 3.2). Annual absolute population growth as a result of natural increase fell gradually during the 1980s from a high of 118,895 persons in 1980-1981 to the lowest recorded increase of 21,427 persons in the year 1990-1991. During the 1990s the absolute natural increase per year within the Appalachian Region has fallen from 82,178 (1991-92) to 54,481 (1995-1996). Fertility and mortality rates for 1996 are presented in Appendix B at the end of the chapter.

Figure 3.1
Components of Population Change in Appalachia,
1980-1996

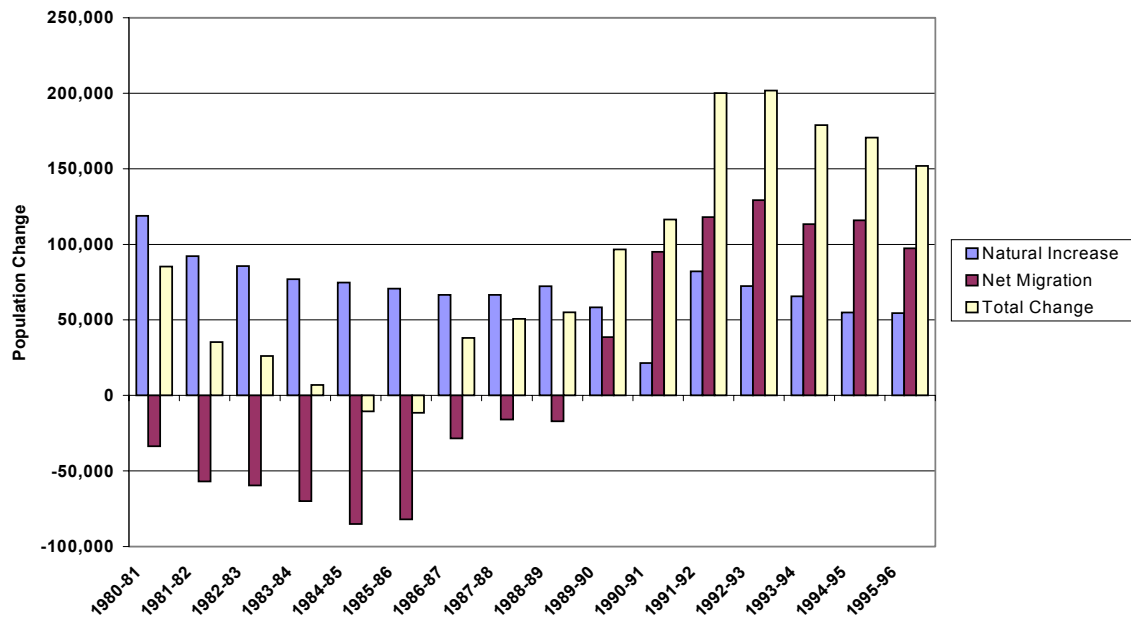


Table 3.2 Components of Population Change in Appalachia, 1981-1996

	<u>Natural Increase</u>	<u>Net Migration</u>	<u>Total Change</u>
1980-81	118,895	-33,663	85,232
1981-82	92,180	-56,961	35,219
1982-83	85,526	-59,505	26,021
1983-84	76,897	-70,043	6,854
1984-85	74,668	-85,114	-10,446
1985-86	70,681	-82,110	-11,429
1986-87	66,472	-28,434	38,038
1987-88	66,550	-15,960	50,590
1988-89	72,192	-17,144	55,048
1989-90	58,218	38,493	96,711
1990-91	21,427	95,015	116,442
1991-92	82,178	117,972	200,150
1992-93	72,396	129,315	201,711
1993-94	65,531	113,411	178,942
1994-95	54,813	115,802	170,615
1995-96	54,481	97,380	151,861

The Appalachian Region experienced net migration losses every year between 1980-1981 and 1988-89. Absolute annual net migration losses increased during the early 1980s, reaching their peak between 1984-1986 at over 82,000 per year. Absolute net migration losses decreased rapidly between 1986-1989 with the first reported net migration losses decreased rapidly between 1986-1989 with the first reported net migration gain (of 38,493) in over a decade reported in the year 1989-1990. Since that date, six successive years of absolute net migration in excess of 95,000 per year have

been observed. There was an absolute net in-migration of 129,315 people to the Appalachian Region in the peak year of 1992-1993.

The annual population growth rates (this is total population change or the combination of natural increase and net migration) and county net migration rates for the Appalachian Region and for the United States over the same time period, 1980-1996 are reported in Table 3.3. The Appalachian Region annual population growth rates were very low (less than 0.5 percent) throughout the 1980s (including the two years of small negative growth between 1984-1986). During the 1990s, annual population growth rates for the region as a whole have been higher (between 0.67 percent and 0.93 percent). However, in all years the Appalachian Region growth rates have lagged those of the U.S. Between 1990-1994, Appalachian rates averaged between 80-90 percent of the U.S. rates.

Throughout the 1980s the county net migration rates for the Appalachian Region were negative while the U.S. average hovered around 0.20 percent. The out-migration from many parts of Appalachia is largely attributable to the deindustrialization that took place in Northern Appalachia during the 1970s and 1980s, as well as the decline in coal prices and change to more capital intensive technology to extract coal which severely affected employment and income in the mining areas of the Central Sub-region (see Chapter 1). More refined Sub-regional breakdowns confirming these broad geographical patterns are presented in the next section. Within the Appalachian Region, the lowest county net migration rates (-0.41 per year) were reported between 1984-1986, the only

Table 3.3 Annual Population Growth Rate (%) and Net County Migration Rate (%) in Appalachia and the United States, 1981-1996

	Appalachia		United States	
	<u>Growth Rate</u>	<u>Migration Rate</u>	<u>Growth Rate</u>	<u>Migration Rate</u>
1980-81	0.42	-0.17	1.29	0.39
1981-82	0.17	-0.28	0.96	0.23
1982-83	0.13	-0.29	0.92	0.20
1983-84	0.03	-0.34	0.87	0.17
1984-85	-0.05	-0.41	0.89	0.19
1985-86	-0.06	-0.40	0.93	0.23
1986-87	0.19	-0.14	0.90	0.20
1987-88	0.25	-0.08	0.91	0.20
1988-89	0.27	-0.08	0.95	0.21
1989-90	0.47	0.19	1.04	0.47
1990-91	0.84	0.46	1.09	0.29
1991-92	0.91	0.56	1.15	0.39
1992-93	0.93	0.61	1.09	0.39
1993-94	0.82	0.53	1.00	0.34
1994-95	0.76	0.54	0.97	0.34
1995-96	0.67	0.45	0.91	0.32

years during the study period when the Appalachian Region's total population fell. Since 1989-90, the first year of this study in which Appalachia reported net in-migration, U.S. county net migration rates have risen to an average of 0.35 percent. The Appalachian Region has seen not just positive county net migration rates, but rates as high as 0.61

percent (1992-1993) and the lowest rate of 0.45 percent (1995-1996), both of which are significantly higher than the U.S. average for those years.

Population Growth Rates for Appalachian Sub-regions

But how do these population growth and county net migration rates vary by Sub-region within the Appalachian Region? This breakdown is provided by Sub-regions in Table 3.4 and Figure 3.2.

**Figure 3.2
Annual Population Growth Rates
for Appalachia, Subregions, and US, 1980-1996**

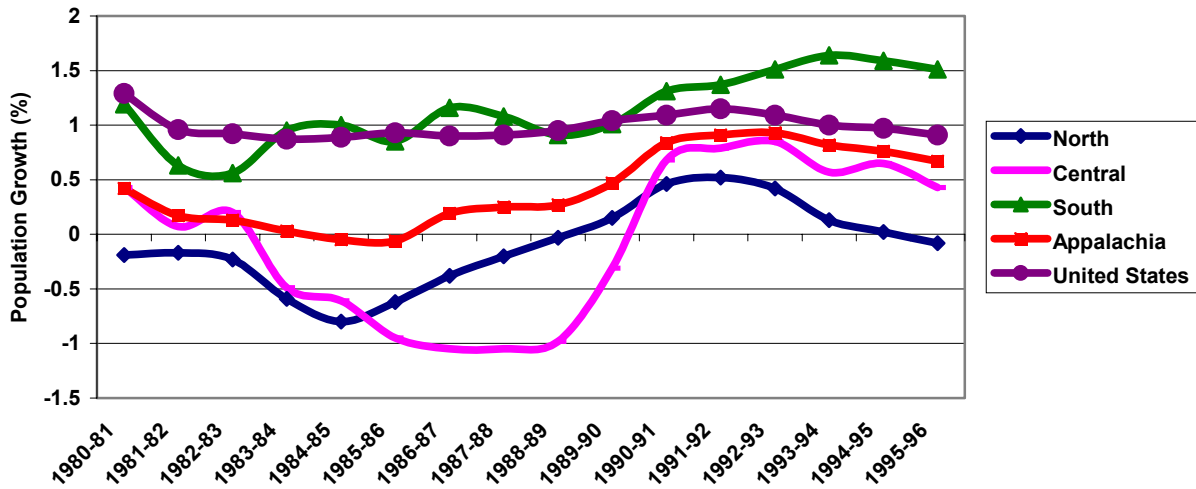


Table 3.4 Annual Population Growth Rate (%) and Net County Migration Rate (%) in Appalachia Sub-regions, 1981-1996

	Growth Rate			Migration Rate		
	<u>North</u>	<u>Central</u>	<u>South</u>	<u>North</u>	<u>Central</u>	<u>South</u>
1980-81	-0.19	0.43	1.19	-0.62	-0.34	0.46
1981-82	-0.17	0.07	0.63	-0.53	-0.50	0.09
1982-83	-0.23	0.20	0.56	-0.56	-0.32	0.05
1983-84	-0.59	-0.49	0.95	-0.87	-0.93	0.46
1984-85	-0.80	-0.61	1.00	-1.06	-1.00	0.52
1985-86	-0.62	-0.95	0.85	-0.86	-1.28	0.38
1986-87	-0.38	-1.05	1.16	-0.59	-1.34	0.70
1987-88	-0.20	-1.05	1.08	-0.39	-1.31	0.59
1988-89	-0.03	-0.98	0.91	-0.25	-1.26	0.39
1989-90	0.15	-0.31	1.01	-0.03	-0.55	0.60
1990-91	0.46	0.68	1.31	0.22	0.32	0.76
1991-92	0.52	0.79	1.37	0.31	0.48	0.86
1992-93	0.42	0.85	1.51	0.23	0.57	1.05
1993-94	0.13	0.57	1.64	0.04	0.37	1.10
1994-95	0.02	0.65	1.59	-0.05	0.46	1.19
1995-96	-0.08	0.43	1.51	-0.14	0.24	1.12

The North Sub-region - still suffering from the disruptive economic effects of deindustrialization - experienced negative population growth for the nine years from 1980 to 1989, and had a short period of modest growth (0.42-0.52 percent) in the early 1990s. This is consistent with the beginning of the economic recovery experienced by the nation overall and suggested some recovery within the Sub-region as the shift was

made to greater reliance on high-tech, services and retail trade industries. The North Sub-region closed out the study period with negative growth or population decline, however. In all years, population growth rates in the North Sub-region lagged the Appalachian Region average (compare with Table 3.3.).

The Central Sub-region experienced slightly above average Appalachian Region population growth rates in 1980-81 and 1982-1983 but otherwise has been below average. The Central Sub-region witnessed widely fluctuating growth rates. During the mid-to-late 1980s growth was the lowest in Central Appalachia at around -1.0 percent per year, but during the 1990s this Sub-region reported positive growth rates as high as 0.85 percent per year (1992-1993) which are closer to the overall average for the Appalachian Region. Again, these patterns are consistent with the severe economic disruption experienced in this Sub-region during the 1980s because of the reliance on extractive industries such as mining and logging.

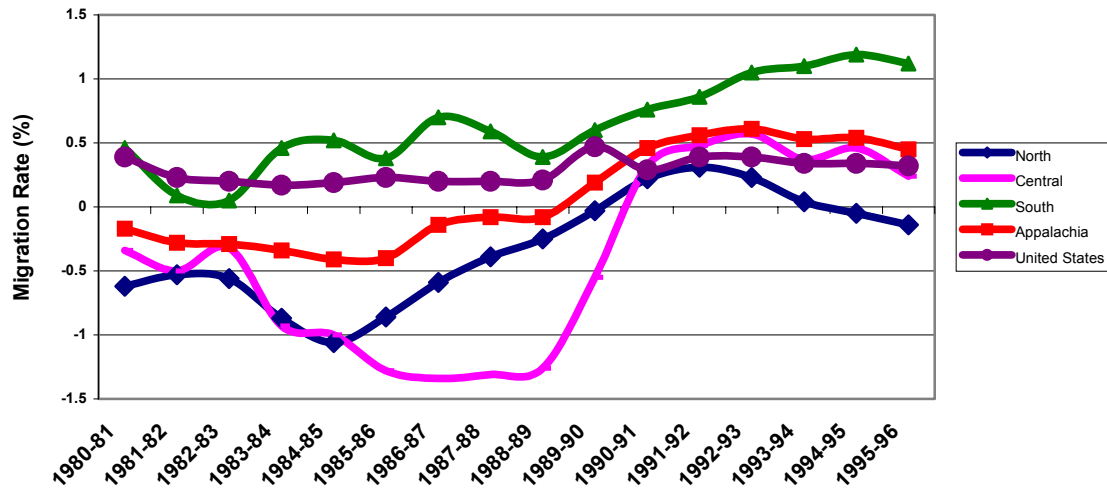
The positive growth in the mid-1990s suggests that the growth of smaller metropolitan areas and small cities in Non-metropolitan counties observed nationally,^{xxix} may also be occurring in some parts of the Central Sub-region. The completion of major highway upgrades through southwest Virginia and West Virginia have made some of the more isolated counties more accessible, possibly increasing their attractiveness to small manufacturing or high technology plants, as well as to families seeking a small-town lifestyle. These patterns reflect a national trend during the 1990s of net in-migration to Non-metropolitan areas as jobs become available and lifestyle preferences play-out.^{xxx}

Population growth in the Southern Sub-region has exceeded the Appalachian Region average in each of the sixteen years. Moreover, the growth rates for the South compare favorably with the U.S. averages. While population growth rates in the South Sub-region lagged U.S. averages in the early 1980s by 1986-1987 (especially bad years for Central Appalachia) they exceeded the national average, and throughout the 1990s have been in excess of 1.5 times the national average. The growth of the Sunbelt and of the Atlanta area, in particular, tend to drive this population increase in the Southern Sub-region. Research on employment in the Sunbelt suggests that not all parts of the Southern Sub-region are taking part in the rapid growth experienced near metropolitan areas.^{xxxix}

Net Migration Rates by Appalachian Sub-region

Regional fortunes, as measured in the county net migration rate (Table 3.4 and Figure 3.3), parallel the findings for population growth rates. Out-migration during the 1980s was a phenomenon found in both the North and Central Sub-regions of the Appalachian Region, but not the South Sub-region. The North and Central Sub-regions experienced negative county net migration throughout the 1980s, with annual rates as low as -1.06 percent in the North and -1.34 percent in the Central Sub-regions. During the 1990s the Central Sub-region saw county net migration rates higher than the national average (in 1992-1993 68 percent higher) but below the Appalachian Region average. Appalachian Region county net migration average is driven upwards by the South Sub-region which recorded a positive rate in all sixteen years, and since 1983-1984, at rates in excess of the U.S. average (3.5 times the average in 1994-95 and 1995-1996).

Figure 3.3
Annual Net Migration Rates
for Appalachia, Subregions and US, 1980-1996



State Level Population Growth and Net Migration Rates

State level summaries (based on counties in the ARC Region) for population growth and county net migration rates for the periods 1980-1989 and 1990-1996 are shown in Table 3.5. Regarding population growth, one cannot help being drawn to figures reported for Georgia: very high during the 1980s and sustained growth during the 1990s (34 percent and 21.44 percent respectively). Population growth in the Carolinas also was high and sustained. Again, the North-Central-South Sub-region pattern is striking, with negative growth during the 1980s found only in North and Central States. Five states show negative growth, with West Virginia reporting a -7.36 population growth rate. During the 1990s, population growth rates have generally increased with

only the New York counties within the Appalachian Region reporting negative population growth or decline.

Table 3.5 Annual Population Growth Rate (%) and Net County Migration Rate (%) in Appalachia by State, 1980-1989 and 1990-1996

	1980-1989		1990-1996	
	<u>Growth Rate</u>	<u>Migration Rate</u>	<u>Growth Rate</u>	<u>Migration Rate</u>
Alabama	3.70	-1.12	6.01	3.16
Georgia	34.00	25.28	21.44	17.82
Kentucky	-2.80	-7.44	4.72	2.09
Maryland	1.23	-0.80	2.13	1.74
Mississippi	2.20	-3.96	4.36	1.09
North Carolina	6.84	3.76	7.72	6.53
New York	0.06	-3.92	-0.72	-2.31
Ohio	-0.32	-4.79	4.92	2.92
Pennsylvania	-3.86	-5.63	0.81	0.40
South Carolina	10.80	5.20	7.63	5.69
Tennessee	3.19	-0.25	8.02	6.49
Virginia	-5.39	-7.40	1.47	0.81
West Virginia	-7.36	-9.96	1.86	0.40

States in the Southern Sub-region have higher population growth rates. The top five in rank order are Georgia, Tennessee, North Carolina, South Carolina, and Alabama. Georgia's annual growth rate during the 1980s of 34 percent reflects phenomenal growth that stresses infrastructure, and this growth continued at roughly 21 percent annually from

1990 to 1996. Those states that grew fastest during the 1980s slowed down during the 1990s, while those that had slower growth or decline during the 1980s recovered somewhat during the 1990s. New York was the exception, it had approximately zero annual growth during the 1980s and this turned into annual decline in the 1990s.

Not surprisingly, the county net migration rate data tell a similar story. Georgia and the Carolinas are the only states where the county net migration rate for counties in the Appalachian Region was positive during the 1980s. Other Southern states witnessed small negative growth (especially Tennessee and Alabama) but Central Appalachia was hardest hit with the highest net out-migration reported in West Virginia, Kentucky and Virginia. During the 1990s, New York was the only state to report a negative net migration rate

(-2.31) or net out-migration, and the top five states with positive county net migration rates or net in-migration in rank order were Georgia, North Carolina, Tennessee, South Carolina, and Alabama.

Some of the general trends at the state level are also revealed in Table 3.6 which reports, for the period 1990-1996, the ten Appalachian Region counties with the highest and lowest absolute population growth and the ten Appalachian Region counties with the high in-migration adjacent to metropolitan areas both inside and outside the Appalachian highest and lowest population growth rates. With regard to the absolute growth, the top seven counties can be found in Georgia, Alabama, and Tennessee, while those experiencing least growth, actually population loss, are from Pennsylvania, New York, West Virginia and Ohio.

All but one of the least growth counties in Table 3.6 contain an old industrial city. These cities are listed in the table in parentheses after the county name. These patterns are consistent with the decline of older industrialized cities in the Northern

Table 3.6 Ten Counties with Most and Least Population Growth in Appalachia, 1990-1996

FIPS Code	County	State	Growth
<u>Most Growth:</u>			
13135	Gwinnett	GA	121,405
01089	Madison	AL	30,165
13057	Cherokee	GA	30,106
01117	Shelby	AL	30,037
47093	Knox	TN	27,957
13117	Forsyth	GA	24,361
45045	Greenville	SC	23,637
42089	Monroe	PA	22,789
13223	Paulding	GA	22,044
39025	Clermont	OH	18,615
<u>Least Growth:</u>			
42003	Allegheny (Pittsburgh)	PA	-39,827
36007	Broome (Binghamton)	NY	-10,583
42079	Luzerne (Wilkes-Barre)	PA	-7,201
42069	Lackawanna (Scranton)	PA	-5,720
42021	Cambria (Johnstown)	PA	-4,434
54047	McDowell	WV	-3,460
39081	Jefferson (Steubenville-Wier-ton)	OH	-3,053
01015	Kanawha (Charleston)	WV	-2,369
36015	Chemung (Elmira)	NY	-2,011

Table 3.7 Ten Counties with Highest and Lowest Population Growth Rate in Appalachia, 1990-1996

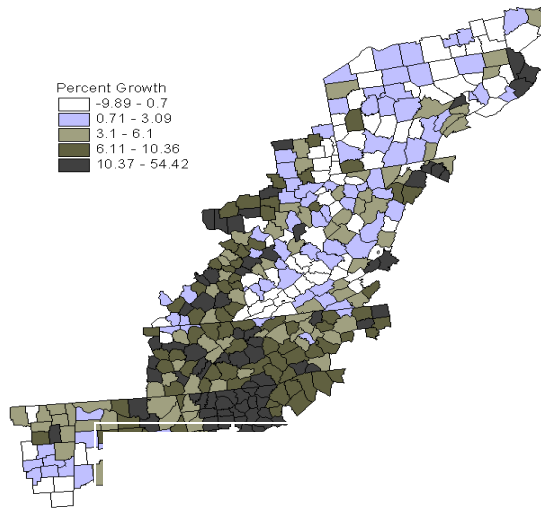
FIPS Code	County	State	Growth Rate (%)
Highest Growth Rate:			
13117	Forsyth	GA	54.42
13223	Paulding	GA	52.45
13085	Dawson	GA	36.39
13135	Gwinnett	GA	34.05
42103	Pike	PA	33.19
13057	Cherokee	GA	32.94
01117	Shelby	AL	30.00
13123	Gilmer	GA	25.44
13013	Barrow	GA	24.47
13291	Union	GA	23.62
Lowest Growth Rate:			
54047	McDowell	WV	-9.89
54021	Gilmer	WV	-5.73
36007	Broome	NY	-4.99
21013	Bell	KY	-4.05
51027	Buchanan	VA	-3.90
51005	Alleghany	VA	-3.83
39081	Jefferson	OH	-3.81
51091	Highland	VA	-3.45
54109	Wyoming	WV	-3.33
21095	Harlan	KY	-3.06

and Central Sub-regions, the decline in coal employment, and the rapid growth near Atlanta and other Southern metropolitan areas. Retirement in-migration also boosts the net migration of some Southern states.

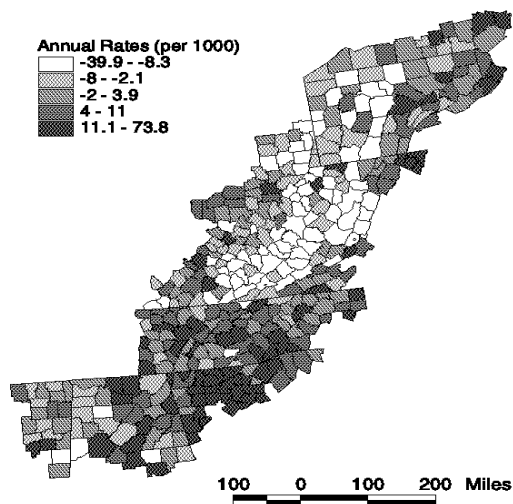
When looking at population growth rates (see Table 3.7), the dominance of Georgia, and the growth of counties near Atlanta, is evident. Eight of the top ten counties with the highest population growth rates are found in Georgia, and all but one of these are close to Atlanta and in the Atlanta metropolitan areas. Forsyth County and Paulding County grew by over 50 percent between 1990 and 1996. These counties grew by over 20,000 persons in those six years, so they were not especially small counties to begin with. North and Central Sub-region counties dominate the list of those counties that grew least, with McDowell County, West Virginia reporting a negative growth rate of -9.89 percent over the 1990-1996 period. Those counties with negative growth rates tend to be either in coal producing areas of West Virginia, Virginia or Kentucky or home to cities (e.g. Broome, Jefferson and Highlander Counties).

Population growth rates between 1990-1996 at the county level for the Appalachian Region are illustrated in Map 3.1. Similarly, annual net migration rates for Appalachian Region counties between 1985-1990 are shown in Map 3.2, with more recent years (1990-96) shown in Map 3.3. These maps confirm spatial patterns consistent with both the higher population growth rates in the South Sub-region and the high in-migration to counties in the South Sub-region. The maps reveal pockets of Regional growth in and near metropolitan areas (e.g., Cincinnati, Lexington, Huntsville, Birmingham, Atlanta, Chattanooga, Knoxville, Asheville, Greensboro, Hagerstown, Albany).

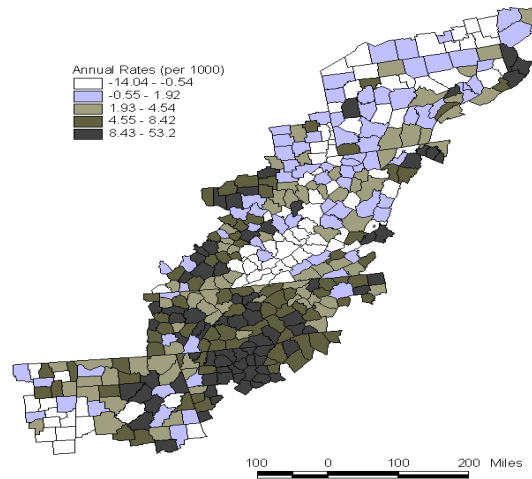
Map 3.1
Population Growth Rates
(1990 - 1996)



Map 3.2
Net Migration Rates (1985 - 1990)



Map 3.3
Net Migration
(1990 - 1996)



Annual Population Growth by 1998 Distressed County Codes

The population growth rates by 1998 ARC Distress Code (based on 1998 Distressed County Codes) for the period 1980-1996 are reported in Table 3.8 and Figure 3.4. Broadly speaking population growth rates were lowest (and often negative) throughout the 1980s among the Distressed and Transitional-1 Counties, and highest (and always positive) among the Competitive and Attainment Counties. While all Distress Code groupings experienced growth, especially during the early 1990s, only Competitive and Attainment Counties exceeded the U.S. average. Interestingly, the Competitive Counties experienced the highest annual population growth rates in all but one year, 1986-1987, with rates hovering between 1.2 percent and 1.5 percent through the 1980s and early

1990s. Between 1992-1996, the average annual population growth rate in Competitive Counties exceeded 1.7 percent (or 70 percent higher than the U.S. average).

Annual Net Migration Rates by 1998 Distressed County Codes

The most distressed counties (Distressed and Transitional) tend to report the lowest net migration rates, while the group of counties that are least distressed (Competitive and Attainment) report the highest net migration rates (see Table 3.9 and Figure 3.5). Moreover, not only did the group of counties that are most distressed report the lowest net migration rates they also reported net out-migration in each year during the decade of the 1980s, with a lowest reported rate of -1.64 in 1986-1987. While Transitional counties (Distress Codes 2 and 3) fair little better during the 1980s, by the early 1990s they experience net migration rates above the U.S. national average (though below Appalachian Region averages). Competitive and Attainment Counties reported net in migration throughout the period 1980-1996, with annual net migration rates for Competitive Counties during the mid-1990s exceeding 1.3 percent (or four times the U.S. average).

**Figure 3.4
Annual Population Growth Rates by Distress Codes 1980-1996**

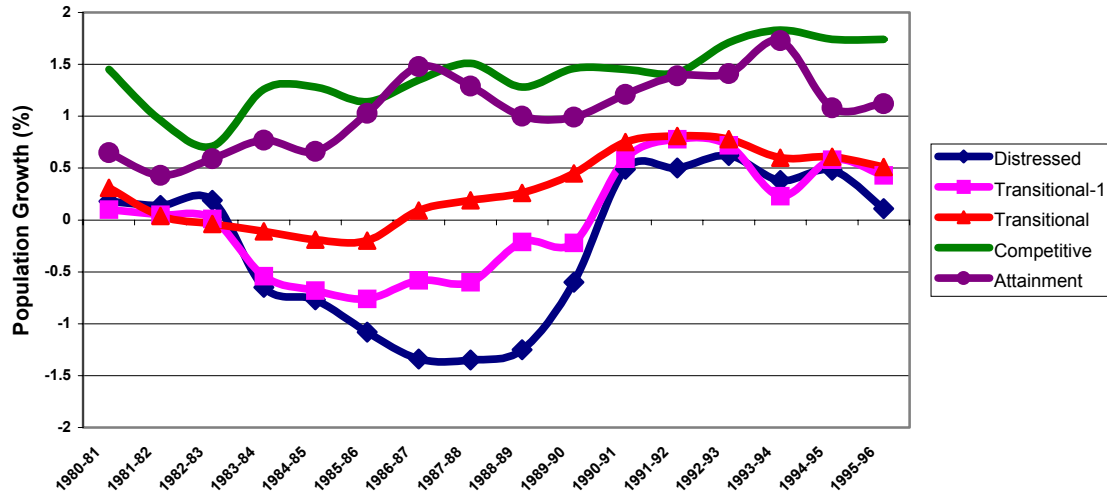


Table 3.8 Annual Population Growth Rate (%) across Distress Codes* in Appalachia, 1981-1996

	<u>Distressed</u>	<u>Transitional-1</u>	<u>Transitional</u>	<u>Competitive</u>	<u>Attainment</u>
1980-81	0.18	0.10	0.31	1.45	0.65
1981-82	0.14	0.05	0.04	0.96	0.43
1982-83	0.19	0.01	-0.04	0.71	0.59
1983-84	-0.65	-0.54	-0.11	1.26	0.77
1984-85	-0.77	-0.68	-0.19	1.28	0.66
1985-86	-1.08	-0.76	-0.20	1.14	1.03
1986-87	-1.34	-0.58	0.09	1.35	1.48
1987-88	-1.35	-0.60	0.19	1.51	1.29
1988-89	-1.25	-0.21	0.26	1.28	1.00
1989-90	-0.60	-0.22	0.45	1.46	0.99
1990-91	0.49	0.59	0.75	1.45	1.21
1991-92	0.50	0.78	0.81	1.42	1.39
1992-93	0.62	0.72	0.78	1.71	1.41
1993-94	0.38	0.23	0.60	1.83	1.73
1994-95	0.48	0.58	0.61	1.74	1.08
1995-96	0.11	0.43	0.51	1.74	1.12

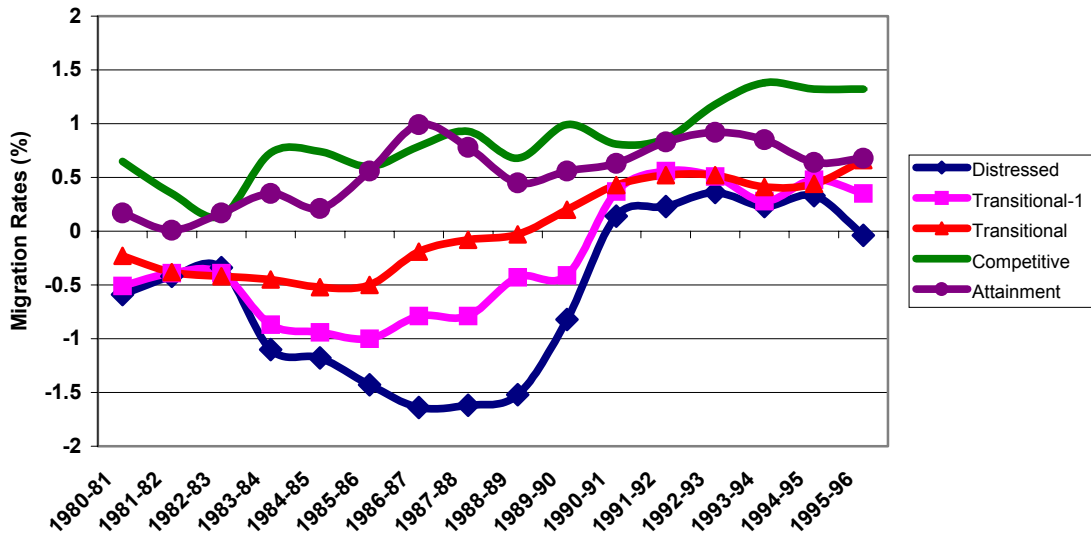
* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Table 3.9 Annual Net Migration Rate (%) across Distress Codes* in Appalachia, 1981-1996

	<u>Distressed</u>	<u>Transitional- I</u>	<u>Transitiona I</u>	<u>Competitiv e</u>	<u>Attainment</u>
1980-81	-0.59	-0.51	-0.23	0.65	0.17
1981-82	-0.42	-0.39	-0.38	0.35	0.01
1982-83	-0.34	-0.39	-0.42	0.14	0.17
1983-84	-1.10	-0.87	-0.45	0.73	0.35
1984-85	-1.18	-0.94	-0.52	0.74	0.21
1985-86	-1.43	-1.00	-0.50	0.60	0.56
1986-87	-1.64	-0.79	-0.19	0.79	0.99
1987-88	-1.62	-0.79	-0.08	0.93	0.78
1988-89	-1.52	-0.43	-0.03	0.68	0.45
1989-90	-0.82	-0.41	0.20	0.99	0.56
1990-91	0.14	0.37	0.43	0.81	0.63
1991-92	0.23	0.56	0.52	0.86	0.83
1992-93	0.36	0.51	0.52	1.18	0.92
1993-94	0.23	0.28	0.41	1.38	0.85
1994-95	0.33	0.48	0.44	1.32	0.64
1995-96	-0.04	0.35	0.66	1.32	0.68

* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Figure 3.5
Annual Net Migration Rates by Distress Codes, 1980-1996



Summary of Growth and Net In-migration in Appalachia

The proportion of counties within the Appalachian Region that are growing and the proportion of counties that report net in-migration are listed in Table 3.10. The data are broken down into two time periods: 1980-1989 and 1990-1996. During the 1980s, 204 Appalachian Region counties (51 percent) reported a total population increase, while 138 counties (34.6 percent) reported net in-migration. Between 1990 and 1996, total population grew in eighty five percent of counties within the Appalachian Region and over 300 counties (or 77 percent) witnessed net in-migration. While the origin of these in-migrants is unknown, it does suggest that either the Appalachian Counties that experienced net out-migration contributed greatly to the growth in population in other

counties in the Region, or that Appalachia is attracting residents from outside of the Region. This pattern is particularly pronounced in the 1990s.

Table 3.10 Proportion of Counties Growing and Experiencing Net In-Migration, 1980-1989 and 1990-1996

	1980-1989		1990-1996	
	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>
Percent Growing	51.1	204	85.5	341
Percent Net In-migration	34.6	138	77.4	309

Summary of Growth and Net In-migration by 1998 Distressed County Codes

The proportion of counties growing and experiencing net in-migration by ARC Distressed County Code classifications for two time periods, 1980-1989 and 1990-1996, are shown in Table 3.11. During the 1980s there was considerable variation in the proportions of counties growing by distressed county status. For example, only 23 percent of Distressed Counties experienced population growth compared with 92 percent of Competitive and 82 percent of Attainment Counties. The percentage of counties experiencing population growth within each Distress Code classification increased by the 1990-1996 period. The most marked change was among Distressed and Transitional Counties, such that by the period 1990-1996 approximately eighty percent of Distressed Counties experienced population growth.

Table 3.11 Proportion of Counties Growing and Experiencing Net In-Migration by Distress Codes*, 1980-1989 and 1990-1996

		1980-1989		1990-1996	
		<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>
Distressed	Percent Growing	22.7	22	79.4	77
	Percent Net In-migration	8.3	8	61.9	60
Transitional-1	Percent Growing	48.5	16	87.9	29
	Percent Net In-migration	18.2	6	81.8	27
Transitional	Percent Growing	57.5	134	86.3	201
	Percent Net In-migration	39.9	93	81.1	189
Competitive	Percent Growing	92.0	23	96.0	24
	Percent Net In-migration	88.0	22	92.0	23
Attainment	Percent Growing	81.8	9	90.9	10
	Percent Net In-migration	81.8	9	90.9	10

* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

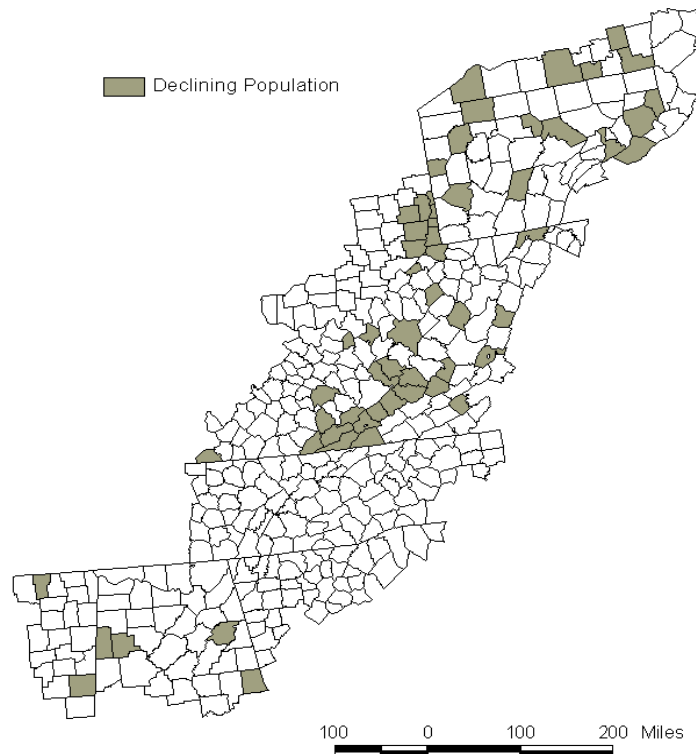
The variation in the proportion of counties experiencing net in-migration was even greater than that of the proportion of counties growing across Distress Codes. During the 1980s less than ten percent of all Distressed Counties experienced net in-migration, as did less than 20 percent of all Transitional-1 Counties. For the same period, almost 90 percent of Competitive Counties had experienced net in-migration. Over the period 1990-1996 many additional Distressed and Transitional-1 Counties experienced net in-migration: 62

percent Distressed and 82 percent Transitional-1 Counties. The middle Distress Code category, Transitional Counties, also showed a marked increase with about 40 percent of these counties reporting net in-migration, in the early period compared with over 80 percent for the years 1990-1996.

These patterns of overall population growth and net in-migration by Distressed County Code are consistent with out-migration from economically stressed counties during the 1980s. This was a period during which many rural counties experienced severe economic hardship, coal producing counties were especially hard-hit, and people moved out of these counties. The 1990s brought some improvement in economic conditions as local economies attempted to diversify and take advantage of broader economic strength in the U.S. Clearly, not all counties were able to rebound as quickly as others, or at all, thus some still had net out-migration from 1990 to 1996.

There were 58 counties that had experienced population decline during both the 1980 and 1990 time periods (Map 3.4). As can be seen from the map these tend to be counties in the old industrial Rustbelt, a block of counties in the coal-producing regions of West Virginia, Virginia and Kentucky, and a few scattered counties in Mississippi and Alabama. None of the Appalachian Region counties in Tennessee, North Carolina, South Carolina or Georgia experienced decline throughout the 1980 to 1996 period.

Map 3.4 **Map 3.6**
Counties With Population Decline
(1980-89 and 1990-96)



Spatial Variation in Population Growth and Net Migration Rates Across Beale Codes

A useful way to analyze population change and migration is to look at how such changes are distributed geographically along an urban to rural continuum, from central cities to the most isolated, rural areas. One framework for performing such analysis was first introduced by Calvin Beale of the Economic Research Service at the U.S. Department of Agriculture. He developed a classification scheme for counties based on a geographic

continuum of settlement patterns, adjacency to metropolitan areas and population density. Today, this classification scheme has taken on the name of its creator and is better known as the Beale codes (See Chapter 1).

Population Growth. Annual population growth rates across Beale Codes within the ARC are presented in Table 3.12. Beale Codes 0-3 are metropolitan counties while Beale Codes 4-9 are Non-metropolitan codes (see Chapter 1 and especially Table 1.1 for a breakdown of the number of ARC counties in each Beale Code classification). As shown in the table the fringe counties of metropolitan areas with one million or more people (Beale Code 1) within the Appalachian Region had the highest growth rates. Fringe county population growth rates after 1984-1985 were at least twice the US average and four times the average for the Appalachian Region. Within the metropolitan codes, counties in metropolitan areas of 250,000 -1,000,000 (Beale Code 2) were above the Appalachian Region average for all years (except 1982-1983). Counties within metropolitan areas with less than 250,000 people (Beale Code 3) had negative growth between 1980-1988 and below average Appalachian Region growth thereafter. The central counties of the region's largest metropolitan areas grew at rates at or above the Appalachian Region average in ten of the sixteen years covered, including the eight consecutive years between 1985-1986 and 1992-1993. However, these counties never exceed the average US growth rates and were below Appalachian Region averages from 1993 onwards.

**Table 3.12 Annual Population Growth Rate (%) across Beale Codes* in
Appalachia,
1981-1996**

	Beale Codes									
	Metro Areas				Non-Metro Areas					
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
1980-81	-0.02	1.17	0.63	-0.10	0.10	1.03	0.58	0.56	0.65	0.34
1981-82	0.24	1.09	0.19	-0.25	0.02	0.33	0.23	0.21	0.45	0.12
1982-83	0.21	1.19	0.09	-0.36	-0.06	0.60	0.17	0.27	0.29	0.15
1983-84	0.03	1.26	0.18	-0.37	-0.08	-0.39	0.22	-0.29	0.39	-0.09
1984-85	-0.33	1.71	0.25	-0.42	-0.40	-0.36	0.12	-0.37	0.12	-0.42
1985-86	0.21	2.16	0.10	-0.34	-0.43	-0.57	0.16	-0.63	0.10	-1.01
1986-87	0.43	2.57	0.53	-0.03	-0.16	-0.57	0.08	-0.65	0.60	-0.68
1987-88	0.51	2.38	0.52	-0.06	0.04	-0.26	0.37	-0.53	0.22	-0.86
1988-89	0.49	2.16	0.51	0.13	0.12	-0.42	0.37	-0.54	0.33	-0.76
1989-90	0.62	2.78	0.56	0.37	0.19	0.13	0.48	-0.05	0.47	-0.30
1990-91	0.84	2.70	0.88	0.54	0.45	0.76	0.93	0.64	1.37	0.49
1991-92	1.02	2.52	0.93	0.48	0.64	0.91	1.00	0.72	1.16	0.74
1992-93	0.95	2.35	0.95	0.56	0.53	0.90	1.17	0.77	1.13	0.69
1993-94	0.66	3.07	1.03	0.10	0.52	0.62	0.87	0.73	1.17	0.48
1994-95	0.53	3.15	0.64	0.30	0.48	0.78	1.00	0.73	1.55	0.78
1995-96	0.46	3.28	0.63	0.11	0.29	0.58	0.96	0.53	1.16	0.47

*Beale Codes

0 - Central counties of metro areas of 1 million or more pop.

1 - Fringe counties of metro areas of 1 million or more pop.

2 - Counties in metro areas of 250,000 - 1,000,000 pop.

3 - Counties in metro areas of less than 250,000 pop.

4 - Urban pop. of 20,000 or more, adjacent to a metro area

5 - Urban pop. of 20,000 or more, not adjacent to a metro area

6 - Urban pop. of 2,500-19,999, adjacent to a metro area

7 - Urban pop. of 2,500-19,999, not adjacent to a metro area

8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area

9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area

Reflecting broad suburbanization processes of the 1980s and 1990s, Non-metropolitan codes, counties with an urban population of 2,500-19,999 and adjacent to a metropolitan area (Beale Code 6) and completely rural counties adjacent to a metropolitan area (Beale Code 8) grew at rates above the Appalachian Region average, and during the 1990s at rates that exceeded the US averages (compare with Table 3.3). Indeed, completely rural counties adjacent to metropolitan areas (Beale Code 8) grew at rates between 17 percent and 50 percent above the US average after 1993. Other Non-metropolitan county groups had some experience with negative growth, typically during the mid and late 1980s. The non-adjacent, Non-metropolitan coded counties (Beale Codes 5, 7 and 9), with just a few exceptions (the years 1981-1983, and year 1994-1995), grew at rates consistently below the Appalachian Region average, though toward the end of the study period counties with an urban population of 20,000+ and not adjacent to a metropolitan area (Beale Code 5) closely mirrored overall Appalachian Region rates.

Annual Net Migration Rates

Annual net migration rates by Beale Code are presented in Table 3.13. Fringe counties reported the highest annual net migration rates for all years between 1980 and 1996, with rates as much as eight times the US average during the 1990s (compare with Table 3.3). For the other metropolitan county codes (Beale Codes 0, 2 and 3) negative net migration rates were observed 1980 through 1986, and for Beale Code 3 through to 1989. During the 1990s, the metropolitan counties, with the exception of Beale Code 3, have reported net migration rates higher than the US average.

Table 3.13 Annual Migration Rate (%) across Beale Codes* in Appalachia, 1981-1996

	Beale Code									
	Metro Areas				Non-Metro Areas					
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
1980-81	-0.39	0.40	0.02	-0.62	-0.43	0.30	-0.01	-0.16	0.03	-0.34
1981-82	-0.12	0.49	-0.27	-0.65	-0.39	-0.23	-0.19	-0.32	-0.01	-0.38
1982-83	-0.13	0.63	-0.35	-0.72	-0.45	0.09	-0.21	-0.22	-0.12	-0.29
1983-84	-0.28	0.72	-0.23	-0.68	-0.42	-0.84	-0.12	-0.72	0.03	-0.47
1984-85	-0.65	1.13	-0.15	-0.71	-0.73	-0.80	-0.21	-0.78	-0.21	-0.75
1985-86	-0.12	1.56	-0.28	-0.62	-0.74	-0.97	-0.14	-0.99	-0.20	-1.28
1986-87	0.09	1.96	0.16	-0.27	-0.43	-0.93	-0.19	-0.97	0.34	-0.90
1987-88	0.16	1.75	0.14	-0.31	-0.22	-0.61	0.09	-0.83	-0.03	-1.06
1988-89	0.11	1.50	0.10	-0.14	-0.16	-0.79	0.07	-0.85	0.06	-0.98
1989-90	0.32	2.28	0.23	0.16	-0.06	-0.16	0.24	-0.30	0.27	-0.50
1990-91	0.44	1.97	0.45	0.25	0.14	0.31	0.58	0.30	1.01	0.22
1991-92	0.64	1.86	0.53	0.22	0.37	0.49	0.70	0.42	0.92	0.52
1992-93	0.62	1.70	0.58	0.32	0.28	0.55	0.92	0.48	0.89	0.55
1993-94	0.41	2.53	0.44	0.02	0.42	0.33	0.82	0.53	1.00	0.41
1994-95	0.28	2.54	0.37	0.19	0.31	0.46	0.84	0.54	1.37	0.70
1995-96	0.22	2.70	0.36	0.01	0.13	0.29	0.81	0.34	0.97	0.39

*Beale Codes:

- 0 - Central counties of metro areas of 1 million or more pop.
- 1 - Fringe counties of metro areas of 1 million or more pop.
- 2 - Counties in metro areas of 250,000 - 1,000,000 pop.
- 3 - Counties in metro areas of less than 250,000 pop.
- 4 - Urban pop. of 20,000 or more, adjacent to a metro area
- 5 - Urban pop. of 20,000 or more, not adjacent to a metro area
- 6 - Urban pop. of 2,500-19,999, adjacent to a metro area
- 7 - Urban pop. of 2,500-19,999, not adjacent to a metro area
- 8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area
- 9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area

Among the Non-metropolitan county groups, Beale Codes 6 and 8 (both adjacent codes) reported net migration rates above the Appalachian Region average throughout the period of study. However, even these county classifications reported negative net migration rates (with some exceptions) between 1980-1981 and 1986-1987. During the 1990s these groups of counties experienced positive net migration rates of two to three times the US average, and were only exceeded within the Beale typology by fringe county growth rates. By and large, Non-metropolitan counties (all classifications) experienced out migration (negative net migration) through the mid 1980s, and Beale Codes 4, 5, 7 and 9 continued to do so through until 1989-1990. The largest negative migration rate reported by Non-metropolitan county classifications during this time was -1.28 by rural non adjacent counties (Beale Code 9) in 1985-1986. All Non-metropolitan codes (except Beale Code 4) reported net migration rates exceeding the US averages from 1990-1991 onwards.

Proportion of counties growing and experiencing net in-migration by Beale Code

Once again the overall figures can be examined by Beale Codes. Beale Code comparisons are reported in Table 3.14. A number of patterns emerge. First, for all Beale Code classifications the number of counties experiencing total population growth increased between the two time periods. Second, between 1980-1989 only fringe counties were observed to have over 75 percent of the counties experiencing population growth (in fact population growth was reported in eleven out of the twelve fringe counties), but for the period 1990-1996, eight of the Beale Code classifications have over 75 percent of the counties experiencing growth. For the latter time period, the rank order of the top three typologies based on the percentage of counties experiencing population growth was:

fringe (Beale Code 1); completely rural and adjacent to a metropolitan area (Beale Code 8); small urban population adjacent to metropolitan area (Beale Code 6). The county typologies with the lowest proportion of counties experiencing growth during the 1990s were counties in metropolitan areas of less than 250,000 people (Beale Code 3) at approximately 65 percent and Non-metropolitan counties with urban populations exceeding 20,000 that are adjacent to metropolitan areas at 68 percent.

The proportion of counties experiencing net in-migration during the 1980s was less than 50 percent for all but two Beale Codes: fringe (Beale Code 1) and metropolitan counties in metropolitan areas of between 250,000 and one million people (Beale Code 2). The data for the 1990s time period reveals that across all Beale Codes at least 50 percent of counties experienced net in-migration. The rank order is somewhat similar to that observed for the percentage with a growing population listed above: namely, fringe (Beale Code 1) completely rural and adjacent to a metropolitan area (Beale Code 8), and small urban population adjacent to metropolitan area (Beale Code 6). Perhaps deserving of mention here are those counties in Beale Code 4, Non-metropolitan counties with an urban population of 20,000 or more and adjacent to a metropolitan area (*note bene*: nineteen counties in the ARC are classified in this group). During the 1980s only 26 percent of all counties in this classification experienced net in-migration, but for the period 1990-1996 this had grown to almost 80 percent (or in 15 of the 19 counties). Thus, during the 1990s over eighty percent of those Non-metropolitan counties adjacent to metropolitan areas (Beale Codes 4, 6, and 8) experienced net in-migration.

**Table 3.14 Proportion of Counties Growing and Experiencing Net In-Migration
by Beale Codes*, 1980-1989 and 1990-1996**

		1980-1989		1990-1996	
		<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>
<u>Metropolitan Areas:</u>					
Code 0	Percent Growing	42.9	3	85.7	6
	Percent Net In-migration	42.9	3	71.4	5
Code 1	Percent Growing	91.7	11	100.0	12
	Percent Net In-migration	83.3	10	100.0	12
Code 2	Percent Growing	71.2	42	88.1	52
	Percent Net In-migration	52.5	31	83.1	49
Code 3	Percent Growing	35.5	11	64.5	20
	Percent Net In-migration	25.8	8	54.8	17

*Beale Codes:

- 0 - Central counties of metro areas of 1 million or more pop.
- 1 - Fringe counties of metro areas of 1 million or more pop.
- 2 - Counties in metro areas of 250,000 - 1,000,000 pop.
- 3 - Counties in metro areas of less than 250,000 pop.
- 4 - Urban pop. of 20,000 or more, adjacent to a metro area
- 5 - Urban pop. of 20,000 or more, not adjacent to a metro area
- 6 - Urban pop. of 2,500-19,999, adjacent to a metro area
- 7 - Urban pop. of 2,500-19,999, not adjacent to a metro area
- 8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area
- 9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area

Table 3.14 Proportion of Counties Growing and Experiencing Net In-Migration by Beale Codes*, 1980-1989 and 1990-1996 (continued)

		1980-1989		1990-1996	
		<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>
<u>Non-metropolitan Areas:</u>					
Code 4	Percent Growing	36.8	7	68.4	13
	Percent Net In-migration	26.3	5	79.0	15
Code 5	Percent Growing	63.6	7	90.9	10
	Percent Net In-migration	36.4	4	72.7	8
Code 6	Percent Growing	59.0	46	91.0	71
	Percent Net In-migration	35.9	28	83.3	65
Code 7	Percent Growing	45.5	35	84.4	65
	Percent Net In-migration	23.4	18	74.0	57
Code 8	Percent Growing	62.5	25	95.0	38
	Percent Net In-migration	47.5	19	87.5	35
Code 9	Percent Growing	26.2	17	83.1	54
	Percent Net In-migration	18.5	12	70.8	46

*Beale Codes:

- 0 - Central counties of metro areas of 1 million or more pop.
- 1 - Fringe counties of metro areas of 1 million or more pop.
- 2 - Counties in metro areas of 250,000 - 1,000,000 pop.
- 3 - Counties in metro areas of less than 250,000 pop.
- 4 - Urban pop. of 20,000 or more, adjacent to a metro area
- 5 - Urban pop. of 20,000 or more, not adjacent to a metro area
- 6 - Urban pop. of 2,500-19,999, adjacent to a metro area
- 7 - Urban pop. of 2,500-19,999, not adjacent to a metro area
- 8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area
- 9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area

Age- and Education-specific Net Migration Rates in Appalachia

Overall net migration rates hide the variability in the characteristics of the people who move out of and in to a particular county or region. They cannot disclose whether particular types of counties are gaining youth or losing more educated residents. Using data from the 1990 U.S. Census of Population and Housing County-to-County Migration File,^{xxxii} we are able to calculate age- and education-specific migration rates for each Appalachian County. The question on the Census captures those who moved anytime between 1985 and 1990, and identifies their county of residence in 1990 but also the county that they left.

These age- and education-specific net migration rates are the difference between in- and out-migrants, with positive values indicating net in-migration to the county, and negative values net out-migration or loss of people with those characteristics. The net migration rates reflect both the ability of counties to retain residents (reduce out-migration) and to attract residents from other places (encourage in-migration). The figures in the tables are the averages of the county-specific net migration rates for the counties. As in most characteristics we examine, there is a great deal of variability in net migration rates across all counties that is hidden by using the average values.

For Appalachia as a whole, there was only a modest gain in those ages 25 to 39 years of age, 0.9 per 100 persons that age from 1985 to 1990. There were larger gains among older age groups with the highest gain for those ages 55 to 64. Among those no longer of working age, the Region gained persons ages 65 to 74, but experienced net out-migration of those ages 75 and over (See Table 3.15).

**Table 3.15 Five-year Age-Specific Net Migration Rates, 1985 to 1990
(migrants per 100 people in the age group)**

	Age Group				
	25 to 39	40 to 54	55 to 64	65 to 74	75 and up
<u>Appalachia</u>	0.93	2.05	3.86	1.58	-0.52
<u>Sub-regions</u>					
Northern	-1.34	0.20	1.99	0.42	-0.71
Central	-2.76	0.42	2.94	0.53	-1.80
Southern	4.71	4.43	5.90	3.09	0.27
<u>1998 Distressed County Codes</u>					
Distressed	-5.29	-1.09	2.01	-0.10	-2.32
Transitional-1	-0.55	0.77	3.21	1.56	-2.29
Transitional	2.07	2.78	4.21	1.71	-0.21
Competitive	8.94	6.35	6.85	4.82	2.69
Attainment	17.77	8.38	7.76	6.39	6.59

Education-specific net migration rates are given in Table 3.16. The net in-migration of those with less than high school and high school educations is about the same — six persons per 100 from 1985 to 1990. College-educated persons had a lower net migration rate of 3.59, so there still was a gain in college-educated persons, but it lagged behind the increase for the high school and less than high school educated.

**Table 3.16 Five-year Education-Specific Net Migration Rates, 1985 to 1990
(migrants per 100 people in the education category)**

	Educational Attainment		
	Less than High School	High School	College or more
<u>Appalachia</u>	6.23	6.06	3.59
<u>Sub-regions</u>			
Northern	4.98	4.81	-1.47
Central	4.50	1.40	-0.74
Southern	8.15	9.46	10.03
<u>1998 Distressed County Codes</u>			
Distressed	3.09	-0.14	-3.81
Transitional-1	5.61	2.07	-0.28
Transitional	7.07	8.07	4.46
Competitive	9.84	12.16	16.92
Attainment	9.65	16.37	31.68

Age- and Education-specific Net Migration in Appalachian Sub-regions

The Northern and Central Sub-regions experienced the net out-migration of people ages 25 to 39 and ages 75 and up from 1985 to 1990. The highest net in-migration was for those ages 55 to 64, but this still was relatively small with about two persons per 100 in the Northern Sub-region and almost three per 100 in the Central Sub-region. The population growth in the Southern Sub-region is mirrored in the net migration rates. This Sub-region had net in-migration in every age group with the highest rate among those ages 55 to 64, but second highest among young adults ages 25 to 39.

Education-specific net migration rates by Sub-region are reported in Table 3.16. Both the Northern and Central Sub-regions had highest net in-migration among those with less than a high school education, and both of these Sub-regions experienced net out-migration of college educated people. The Northern Sub-region did better than the Central Sub-region in keeping and attracting those with high school diplomas. The Southern Sub-region again reveals the overall gains in population in each of the education-specific net migration rates. In contrast to the Northern and Central Sub-regions, net migration was highest for college educated persons in the South, with a net gain of ten people per 100 college-educated persons over five years.

Age- and Education-specific Net Migration by 1998 Distressed County Codes

Distressed Counties faced net out-migration from 1985 to 1990 in every age group except those ages 55 to 64 where they showed a gain of two persons per hundred (See Table 3.15). Net out-migration also occurred among the youngest and oldest age groups in Transitional-1 Counties. There was modest net in-migration in the other three age groups with the highest rate among those ages 55 to 64. The Transitional Counties showed more strength than the more economically stressed counties with gains in every age group, except the oldest. As with the Distressed and Transitional-1 Counties, the largest net in-migration was among those ages 55 to 64. Among both the Competitive and Attainment Counties, the highest net in-migration rates occurred for those ages 25 to 39 and the lowest rates, which still were positive, were found in the two age groups over age 65. Most notable is the large net in-migration of those ages 25 to 39 in the Attainment Counties, where there was a net gain of almost 18 persons per 100 in that age group.

Education-specific net migration by Distressed County Codes suggests the loss of people with higher educations in both Distressed and Transitional-1 Counties (Table 3.16). In Distressed Counties, more persons with high school and college educations left the county than moved into the county from 1985 to 1990. Every group of counties experienced, on average, net in-migration of those with less than high school educations. It is in the education-specific net migration rates that we observe the largest differentials in the averages by Distressed County Codes. Attainment Counties gained, on average, 32 persons per 100 with college educations from 1985 to 1990, Competitive Counties added 17 persons per hundred, while as noted above, both Distressed and Transitional-1 Counties lost people in this educational category. While both Attainment and Competitive Counties had net in-migration of people with less than a high school education, these rates were much lower than the gains they made in high school and college-educated groups. This suggests the greater ability of Competitive and Attainment Counties to both retain their better-educated residents and to attract better-educated residents to their counties.

Spatial Distribution of Age- and Education-Specific Net Migration

The spatial distribution of high (or low) net in-migration by age or education in the Appalachian Region is expected to vary with total net migration and population growth. However, the characteristics of specific places result in somewhat different patterns by age and education, as some areas attract youth while others lose them, and other areas attract elders or those with more education. To obtain a sense of both the variability in the net in-migration by age and which counties have high and low levels, the ten counties with the highest and the lowest net in-migration for people age 25 to 39 are shown in Table 3.17.

Table 3.17 Ten Counties with the Highest and Lowest Net Migration Rates for Young Adults Ages 25 to 39, 1985 to 1990

Fipco	Area name	Net migration rate for young adults (persons per 100)	Number of young adult net migrants
<u>Ten Lowest Net Migration Rates</u>			
54047	McDowell County, West Virginia	-25.25	-2,233
28105	Oktibbeha County, Mississippi	-23.47	-2,156
54097	Upshur County, West Virginia	-21.12	-1,174
37189	Watauga County, North Carolina	-20.82	-1,703
51091	Highland County, Virginia	-19.86	-125
36109	Tompkins County, New York	-18.86	-4,752
54061	Monongalia County, West Virginia	-18.28	-3,633
39009	Athens County, Ohio	-18.20	-2,452
42027	Centre County, Pennsylvania	-15.60	-4,939
51195	Wise County, Virginia	-15.05	-1,616
<u>Ten Highest Net Migration Rates</u>			
42103	Pike County, Pennsylvania	59.94	3,240
13057	Cherokee County, Georgia	41.85	9,729
13135	Gwinnett County, Georgia	41.00	39,890
13223	Paulding County, Georgia	39.68	4,081
01117	Shelby County, Alabama	36.58	8,918
13117	Forsyth County, Georgia	34.13	3,505
42089	Monroe County, Pennsylvania	32.89	6,821
13085	Dawson County, Georgia	30.43	702
13011	Banks County, Georgia	24.14	544
13291	Union County, Georgia	24.09	524

As can be seen, counties with the lowest net in-migration are scattered through the Appalachian Region. The lowest net in-migration occurred in McDowell County, West Virginia where the county lost 25.25 people age 25 to 39 per 100 in that age group over the five years from 1985 to 1990. Some of the other counties with net out-migration of young adults have universities or colleges in the county. Specifically, Tompkins County, New York, Monongalia County, West Virginia, Athens County, Ohio, and Centre County, Pennsylvania all are home to universities or colleges.

The counties with high net in-migration of young persons ages 25 to 39 are largely in Georgia (seven counties) with two in Pennsylvania and one in Alabama. As might be expected, the Georgia counties are in or near the Atlanta metropolitan area. The Pennsylvania counties are in the northeast portion of the state which is experiencing rapid growth due to in-migration of persons commuting to the New York City metropolitan area. It is important to remember that counties with very high rates of net migration often receive or lose fairly small numbers of people. The rates are high because of a relatively small population base. Counties like Gwinnett County, Georgia however, have both high rates of net migration and a large number of people involved. Gwinnett County gained 39,890 persons ages 25 to 39 from 1985 to 1990.

The patterns are quite different for persons ages 65 and over. The counties that had the highest rates of loss of persons ages 65 and over were located in Kentucky, West Virginia and Virginia, with one county in North Carolina (see Table 3.18). Wolfe County, Kentucky suffered the highest net out-migration of elders, losing 16.5 persons 65 and over per every 100 persons that age from 1985 to 1990. This amounted to a loss of only 138

people, however. Counties with the highest net in-migration of persons ages 65 and over were scattered across the Region, with four Georgia counties, two counties in North Carolina, and one county each in West Virginia, Tennessee, Pennsylvania and Ohio.

To examine the spatial differences in education-specific net migration, the ten counties with the lowest and highest net in-migration of college educated persons are shown in Table 3.19. Surprisingly, the counties with the highest net out-migration of college-educated persons (negative net migration rate) are not predominantly those that contain universities. The greatest rate of loss of college-educated persons occurs in five West Virginia counties, four Pennsylvania Counties, and one Kentucky county. The Pennsylvania counties with the lowest net migration rates (high net out-migration) have relatively small populations and are located economically stressed areas, as are the West Virginia Counties.

CONCLUSIONS

The population of the Appalachian Region had grown from 17.8 million in 1960 to approximately 21.7 million by 1996. The rates of population increase for the Appalachian Region as a whole and the Sub-regions have waxed and waned since the 1960s. After a period of low population growth during the 1980s (1.6 percent), the first six years of the 1990s witnessed a five percent increase in the population of the Appalachian Region. In this chapter, the focus was on two main components of population change: *natural increase* (births minus deaths) and *net migration* (in-migrants minus out-migrants). Overall natural increase and net migration figures were presented for different time periods and county classifications.

**Table 3.18 Ten Counties with the Highest and Lowest Net Migration Rates
for Persons Ages 65 and over, 1985 to 1990**

Fipco	Area name	Net migration rate for older persons (persons per 100)	Number of older net migrants
<u>Ten Lowest Net Migration Rates</u>			
21237	Wolfe County, Kentucky	-16.53	-138
54021	Gilmer County, West Virginia	-12.75	-164
51017	Bath County, Virginia	-11.66	-94
37075	Graham County, North Carolina	-9.42	-114
54071	Pendleton County, West Virginia	-9.13	-133
51077	Grayson County, Virginia	-8.86	-250
54031	Hardy County, West Virginia	-8.47	-149
54047	McDowell County, West Virginia	-7.42	-402
54105	Wirt County, West Virginia	-7.37	-57
21235	Whitley County, Kentucky	-7.26	-322
<u>Ten Highest Net Migration Rates</u>			
54065	Morgan County, West Virginia	17.73	332
37089	Henderson County, North Carolina	16.76	2,337
13291	Union County, Georgia	16.62	338
47035	Cumberland County, Tennessee	15.64	886
13135	Gwinnett County, Georgia	13.06	2,038
13281	Towns County, Georgia	12.35	188
42093	Montour County, Pennsylvania	12.22	337
37175	Transylvania County, North Carolina	12.07	539
13057	Cherokee County, Georgia	11.63	698
39075	Holmes County, Ohio	11.60	387

Table 3.19 Ten Counties with the Highest and Lowest Net Migration Rates for College-educated Persons, 1985 to 1990

Fipco	Area name	Net migration rate for college-educated (persons per 100)	Number of college-educated net migrants
<u>Ten Lowest Net Migration Rates</u>			
54047	McDowell County, West Virginia	-28.60	-300
42023	Cameron County, Pennsylvania	-27.57	-98
54013	Calhoun, West Virginia	-25.38	-92
54073	Pleasants, West Virginia	-23.92	-102
21135	Lewis County, Kentucky	-23.70	-144
54097	Upshur County, West Virginia	-21.86	-399
54085	Ritchie County, West Virginia	-20.94	-80
42047	Elk County, Pennsylvania	-19.01	-448
42031	Clarion County, Pennsylvania	-18.29	-593
54109	Wyoming County, Pennsylvania	-18.20	-214
<u>Ten Highest Net Migration Rates</u>			
1117	Shelby County, Alabama	59.87	8,835
13057	Cherokee County, Georgia	55.43	4,607
13223	Paulding County, Georgia	50.56	812
51045	Craig County, Virginia	50.14	92
13135	Gwinnett County, Georgia	48.61	27,327
13117	Forsyth County, Georgia	46.62	1,634
42103	Pike County, Pennsylvania	43.86	927
13085	Dawson County, Georgia	43.13	168

Population growth and annual net migration rates within the Appalachian Region has been mainly dominated by counties in the South Sub-region. Population growth throughout the Region has been highest, on average, in fringe metropolitan counties and Non-metropolitan counties adjacent to metropolitan areas [within the ARC there are 12 fringe counties (Beale Code 1) and 137 metropolitan adjacent counties (Beale Codes 4, 6 and 8)]. Similarly, during the 1990s, Competitive and Attainment Counties witnessed the highest growth rates and highest net migration rates. Taken together, population growth and net migration has been highest in counties in the South Sub-region, especially those counties in northern Georgia surrounding Atlanta, and other large metropolitan areas in Alabama, Tennessee, North Carolina.

The age- and education-specific net migration rates from 1985 to 1990 suggest that the region as a whole is gaining persons under age 75, but the gains are greatest among those nearing retirement age. Across Sub-regions and Distressed County Codes there is a great deal of variability with the more economically distressed areas losing young adults and those with college educations, and the economically more prosperous areas gaining people in every age group and educational group, but especially young adults and those with college educations. These data do not indicate where these in-migrants are coming from and as indicated in the tables that list the counties with the highest and lowest net migration values, there is a great deal of variability across counties in the Region with respect to migration and population growth.

APPENDIX 3.A.
Fertility and Mortality Rates in 1996

Two key components of population change are fertility and mortality. When the number of births in an area exceeds the number of deaths, the area experiences natural increase in population. If deaths are greater than births then natural decrease takes place. In the absence of migration, an area still can grow if natural increase occurs. Fertility and mortality both are influenced by the age composition of the population and the social and economic factors associated with the decision to have children or the risk of death from various causes. Obviously, areas with more women and families of child-bearing age will have more births, but this also is affected by the numbers of children to which each woman gives birth. Areas with large numbers of older people with high mortality rates will report more deaths than an area of equal population size but a younger population with lower mortality risks.

Fertility

Fertility and mortality rates for the United States, Appalachia and Sub-regions of Appalachia for 1996 are reported in Table 3.A.1. The fertility rate for Appalachia lags the U.S. rate by nine births per 1000 women aged 15-44. Within Appalachia there is some evidence of small regional variation, with higher fertility rates observed in the South Sub-region (58.9 births /1000 women aged 15-44) compared with the North (55.4/1000 women aged 15-44), with an intermediate rate for the Central Sub-region.

Table 3A.1 Fertility^a and Mortality^b Rates in Appalachia and the United States, 1996

	<u>Fertility Rate</u>	<u>Mortality Rate</u>
United States ^c	66.70	8.80
Appalachia Total	57.07	10.24
North Appalachia	55.42	10.97
Central Appalachia	56.09	10.51
South Appalachia	58.90	9.41

^a Births per 1,000 women aged 15-44.

^b Deaths per 1,000 population.

^c U.S. Fertility Rate for 1994, U.S. Mortality Rate for 1995.

Across ARC 1998 Distress County Codes fertility rates vary from a low of 56.43 in the Distressed Counties to a high of 60.22/1000 women aged 15-44 in Competitive Counties (Table 3.A.2). There do not appear to be any obvious gradients for fertility across Distressed County Codes.

Table 3A.2 Fertility^a and Mortality^b Rates by Distress^c Codes, 1996

<u>Distress Code</u>	<u>Fertility Rate</u>	<u>Mortality Rate</u>
Distressed	56.43	10.85
Transitional-1	58.11	11.27
Transitional	56.65	10.51
Competitive	60.22	9.17
Attainment	56.97	9.00

^a Births per 1,000 women aged 15-44.

^b Deaths per 1,000 population.

^c Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Mortality

The 1996 United States mortality rate averaged 8.8 deaths per 1000 of the population somewhat lower than the 10.24/1000 reported for Appalachia (Table 3.A.1).

Within Appalachia there appears to be a regional trend with lower mortality rates observed in the South (9.41/1000) compared to almost 11/1000 in the North Sub-region.

The variation in mortality rates across ARC Distressed County Codes varies between 9/1000 for the Attainment Counties and 11.27/1000 observed for the Transitional-1 Counties (Table 3.A.2). Overall, mortality rates are highest for Distressed Counties.

Chapter 3 Endnotes

1. Pickard, Jerome (1981) Appalachia's decade of change: a decade of in-migration. *Appalachia* 15(1), 24-28.
2. Elliot, James R. and Marc J. Perry. 1996. "Metropolitanizing Nonmetro Space: Population Redistribution and Emergent Metropolitan Areas, 1965-90." *Rural Sociology* 61(3):497-512.
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4. Lyson, Thomas A. 1989. *Two Sides to the Sunbelt: The Growing Divergence Between the Rural and Urban South*. New York: Praeger.
- 5 We use the County-to-County migration files of the 1990 census to obtain the age and education specific migration rates. Note that we use the mid-period population for that particular group as the denominator in calculating the migration rates.

CHAPTER 4

SOCIAL AND ECONOMIC WELL-BEING IN APPALACHIA

INTRODUCTION

Historically, the people and places of Appalachia have lagged behind the rest of the nation on many indicators of social and economic well-being. The chronic problems associated with parts of Appalachia, such as poverty and unemployment, reflect persistent deficits in individual *human capital* -- poorer education, and too few job skills, or job skills that don't match the needs of employers. The result is that many of the Appalachian poor are unable or lack the background necessary to assume productive economic roles, while many families are trapped in economically distressed communities with little hope of improving their economic situation. Many of the most talented historically have left for better jobs elsewhere within or outside the Region, leaving behind those least prepared to take advantage of the limited employment opportunities that are available to them.

Unfortunately, many Appalachia rural regions and communities, because of mismatches in educational levels, job skills, and availability of finance capital (i.e., a sufficient pool of educated or skilled people), are unable to develop a combination of worker training programs that facilitate attracting new employers, or developing new jobs within the community, especially high-wage jobs, which could transform the economic fortunes of the residents.

Chronic deficits in human capital also have gone hand-in-hand with deficits in *social capital*, i.e., "strong" families and community and social networks that represent resources that can enhance well-being and buffer economic distress. In particular, the

This chapter was written by Daniel T. Lichter and Stephen Matthews.

transformation of the Appalachian family (like American families everywhere) marked by high rates of nonmarital childbearing, low marriage rates, and family instability, has further eroded the economic well-being of many Appalachia residents, but especially mothers and their children. This is manifested in high rates of poverty and in other expressions of social pathology, including delinquency and other criminal behavior. And we know that child poverty, on balance, has deleterious effects on emotional and cognitive development which perpetuate poverty from generation to generation.

While there are clear problems of persistent distress in the Region, there has been progress in diversifying the economic base and in lowering poverty rates of many counties, while also improving the human resource base through education. Since the establishment of the ARC, the poverty rate in Appalachia has been cut in half, reflecting significant employment gains (e.g., 51 percent between 1969 and 1998) in the Region and a doubling of the percentage of adults with high school degrees. Clearly, the continuing challenge today -- and in the future -- is to foster complementary economic development and human resource efforts in the Region that build on past successes.

In this chapter, we describe recent trends and growing geographic diversity in the human and social capital of Appalachian residents and communities, as measured by changing levels of education and family structure. We also document the changes in the economic resources available to Appalachian families, i.e., the growth and diversity of family income across the region and the shifting prevalence of poverty.

It is clear that the past two decades have brought significant changes in the stock of human and material resources among Appalachia people and communities. At the same

time, the gap in social and economic well-being has widened during the recent past as many communities in the Region have moved ahead economically, while others have fallen farther behind in both absolute and relative terms. A narrow focus on statistical averages hides the tremendous diversity within the region.

CHANGES IN EDUCATION

Comparisons between Appalachia and the United States

The Region overall experienced a substantial increase during the 1980-90 period in the educational attainment of its population (Table 4.1). Although nearly one-third of Appalachia residents aged 25 or older in 1990, were high school dropouts (i.e., less than 12 years of completed schooling), this represents a significant decline (-10.97 percentage points) from 1980, when 42 percent had not completed high school. Between 1980 and 1990, the percentage of the Appalachian population with some college or more increased from about 22 percent to over 33 percent, a gain of nearly 50 percent.

Viewed optimistically, increases since 1980 in educational levels in the Region have exceeded those experienced for the United States overall. As a result, the educational levels of people living in Appalachia have become increasingly like the United States population overall. Viewed negatively, the Region still lags the United States in the percentage of its population that is highly educated. Over 20 percent of the U.S. population has a college degree, compared with only 14 percent in Appalachia. Recent educational convergence should not be interpreted as educational parity, despite the tremendous educational strides made in the Region.

**Table 4.1 Educational Attainment^a in Appalachia and the United States,
1980 and 1990**

	<u>1980</u>	<u>1990</u>	<u>Percent Change</u>
<u>Appalachia:</u>			
Less than High School (%)	42.60	31.63	-10.97
High School Diploma (%)	35.40	35.04	-0.36
Some College (%)	10.84	19.08	8.24
College Graduate (%)	11.16	14.26	3.09
 <u>United States:</u>			
Less than High School (%)	29.50	24.80	-4.70
High School Diploma (%)	37.70	30.00	-7.70
Some College (%)	15.10	24.90	9.80
College Graduate (%)	17.8 0	20.30	2.50

Note: Percentages may not total 100 due to rounding.

^a Persons 25 years and over.

Variation across population groups. The educational upgrading in Appalachia provides considerable optimism for the future. But the gains in education have not been distributed equally across population subgroups in the region. The rapid declines in the proportion of the population with less than a high school degree are due to cohort replacement, as older and least educated are replaced by younger, more educated cohorts. This pattern is clearly revealed in Table 4.2. In 1990, only 19.2 percent of 25-44 year olds were high school dropouts, compared with 57.7 percent of those aged 65 and older. Conversely, the percentage of college graduates was 19.5 among 25-44 year olds, but only

9.2 percent among the elderly. Clearly, the potential for additional future gains in educational attainment is high, especially as mortality among the least educated elderly population is offset by the growth of a younger, better educated population of labor force age.

Although 18-24 year olds have higher percentages with less than a high school education than those aged 25-44, this partly reflects the fact that younger cohorts have not yet finished high school. Table 4.3 estimates the percentage of high school dropouts among persons aged 16-19 years. In 1990, 11.57 percent of these teens were not currently enrolled in school and had not completed high school. From an optimistic standpoint, this figure is substantially smaller than the 19.2 percent observed in Appalachia for 25-44 year old men, and the 16.4 percent observed among 25-44 year old women.

The educational distributions and drop-out rates in Appalachia differ substantially across race-sex groups (Tables 4.2 and 4.3). White men and white women, at every age, had considerably higher levels of educational attainment than Black and Hispanic men and women. If education is a ticket to a good job, Blacks and Hispanics are clearly disadvantaged. For Black men of prime labor force age (i.e., 25-44), nearly two out of five (28 percent) were high school dropouts. For Hispanic men, the percentage approached one-third (32 percent). At the same time, a considerably higher percentage of these Hispanic men (22.3 percent) had a college degree than did their Black male counterparts (10.5 percent). Clearly, educational inequality among Hispanics is substantial compared with that observed among either whites or blacks.

Table 4.2 Educational Attainment by Gender, Race, and Age, 1990

	Less than High School (%)	High School Diploma (%)	Some College (%)	College Graduate (%)
<u>Black Women</u>				
18-24	25.0	33.9	37.1	4.1
25-44	22.6	33.3	31.2	12.9
45-64	48.9	29.2	13.9	8.0
65 and over	75.8	14.0	5.1	5.0
<u>Black Men</u>				
18-24	36.5	33.5	27.5	2.5
25-44	28.1	35.5	25.9	10.5
45-64	52.2	26.2	14.0	7.6
65 and over	78.2	12.6	5.5	3.8
<u>Hispanic Women</u>				
18-24	23.4	27.4	40.6	8.5
25-44	21.4	27.5	30.1	21.0
45-64	35.9	30.9	19.4	13.9
65 and over	58.9	23.9	9.8	7.4
<u>Hispanic Men</u>				
18-24	41.7	21.6	31.6	5.2
25-44	32.0	22.6	23.0	22.3
45-64	41.6	20.2	17.5	20.7
65 and over	57.9	17.5	11.0	13.6

Note: Percentages may not total 100 due to rounding.

Table 4.2 Educational Attainment by Gender, Race, and Age, 1990 (continued)

	Less than High School (%)	High School Diploma (%)	Some College (%)	College Graduate (%)
<u>White Women</u>				
18-24	20.0	34.4	38.9	6.7
25-44	15.8	40.0	26.4	17.8
45-64	32.5	41.9	15.8	9.8
65 and over	56.1	27.5	9.7	6.6
<u>White Men</u>				
18-24	25.6	34.9	33.9	5.5
25-44	18.5	37.3	24.2	20.0
45-64	34.3	33.5	16.4	15.8
65 and over	56.7	23.5	10.4	9.4
<u>Total Women</u>				
18-24	20.5	34.2	38.8	6.6
25-44	16.4	39.3	26.8	17.5
45-64	33.5	41.1	15.6	9.8
65 and over	57.2	26.8	9.5	6.6
<u>Total Men</u>				
18-24	26.5	34.6	33.5	5.4
25-44	19.2	37.0	24.3	19.5
45-64	35.1	33.0	16.3	15.6
65 and over	57.7	23.0	10.1	9.2

Note: Percentages may not total 100 due to rounding.

Table 4.3 High School Drop-Out Rates^a by Race in Appalachian Sub-regions, 1990

	<u>HS Drop-Out Rate (%)</u>
<u>North Appalachia</u>	
Total	8.24
White	8.05
Black	12.86
Hispanic	11.95
<u>Central Appalachia</u>	
Total	15.47
White	15.47
Black	15.67
Hispanic	13.21
<u>South Appalachia</u>	
Total	14.29
White	14.41
Black	13.53
Hispanic	23.06
<u>Total Appalachia</u>	
Total	11.57
White	11.38
Black	13.44
Hispanic	16.51

^a Persons 16-19 years old

Educational Disparities Across Appalachia

Sub-regional variation. Striking declines in the percentage of the low-educated persons (i.e., those lacking a high school degree) were observed in each of the three

Appalachian Sub-regions. Table 4.4 shows that percentage point declines ranged between -9.76 (North Appalachia) to -12.88 (South Appalachia) during the 1980s. Similar gains were found in the percentages with some college or more.

Table 4.4 Educational Attainment^a in Appalachian Sub-regions, 1980 and 1990

	<u>1980</u>	<u>1990</u>	<u>Percent Change</u>
<u>North Appalachia</u>			
Less than High School (%)	36.47	26.71	-9.76
High School Diploma (%)	41.48	40.56	-0.92
Some College (%)	10.57	18.33	7.76
College Graduate (%)	11.49	14.40	2.91
Median Years of Schooling	12	12	0
<u>Central Appalachia</u>			
Less than High School (%)	57.72	46.68	-11.04
High School Diploma (%)	26.94	30.41	3.48
Some College (%)	7.74	14.08	6.34
College Graduate (%)	7.60	8.83	1.22
Median Years of Schooling	10	12	2
<u>South Appalachia</u>			
Less than High School (%)	46.77	33.89	-12.88
High School Diploma (%)	29.61	29.74	0.13
Some College (%)	11.98	21.06	9.08
College Graduate (%)	11.64	15.31	3.67
Median Years of Schooling	12	12	0

Note: Percentages may not total 100 due to rounding.

^a Persons 25 years and over.

North Appalachia continues to have the lowest percentages of low educational attainment (i.e., 26.71 percent without a high school degree). But it is clear that South Appalachia has experienced the largest relative increases since 1980 in the percentage with either some college or a college degree. In 1990, over one-third of its population had at least some post-high school education, reflecting in-migration and retention of highly educated workers in the Region, as well as indigenous growth of educational achievement (as older cohorts are replaced by younger better educated workers).^{xxxiii} Central Appalachia, on the other hand, continues to lag the North and South in completed schooling. Nearly one-half (46.68 percent) of its population in 1990 had less than a high school education. While this percentage represents a significant decline from 1980, this Sub-region nevertheless experienced a slower increase in the population with some college (6.34 percentage points) and college degrees (1.22 percentage) than either of the other regions.

County variation. This concentration of population with low education in Central Appalachia is further revealed in the analysis in Table 4.5, which presents the 10 counties with the highest and lowest percentages with less than a high school degree in 1990. Kentucky contains the top seven counties with low education, with percentages ranging from 64.54 percent to 59.59 percent. All 10 Appalachian counties with the lowest percentages with less than a high school education were located in the North and South. These ranged from 12.78 to 21.81 percent, which are roughly one-third to one-fifth as high as those Appalachian counties with the highest percentage with high school dropouts.

The data in Table 4.6 similarly show remarkable county diversity in percentages with a college degree. Counties with high percentages of college graduates tended to be the locations of colleges or universities (Centre County, Pennsylvania, contains The

Table 4.5 Ten Counties with Highest and Lowest Percent of Persons with Less Than a High School Education^a in Appalachia, 1990

FIPS Code	County	State	% Less Than High School
<u>Highest Percent Less Than High School:</u>			
21189	Owsley	KY	64.54
21153	Magoffin	KY	61.78
21109	Jackson	KY	61.66
21051	Clay	KY	61.13
21057	Cumberland	KY	60.53
21147	McCreary	KY	59.85
21131	Leslie	KY	59.59
54047	McDowell	WV	57.67
47067	Hancock	TN	57.62
51027	Buchanan	VA	57.50
<u>Lowest Percent Less Than High School:</u>			
36109	Tompkins	NY	12.78
13135	Gwinnett	GA	13.34
42027	Centre	PA	16.38
36107	Tioga	NY	19.39
01089	Madison	AL	19.76
42103	Pike	PA	20.80
42003	Allegheny	PA	20.96
36007	Broome	NY	21.12
42019	Butler	PA	21.42
01117	Shelby	AL	21.81

^a Persons 25 years and over.

Pennsylvania State University; Tompkins County, New York is home to Cornell; and the University of West Virginia is in Monongalia County, West Virginia). Those with low percentages of highly educated people are isolated rural counties in Central Appalachia. The strong link between rurality and educational levels is clearly shown in Table 4.7, which presents educational distributions in 1990 for counties classified by the ten Beale Codes. The percentage of population with less than a high school degree was highest in the four most rural types. Specifically, these percentages were 36.14 and 41.80 percent, respectively, for counties adjacent and nonadjacent to a metro county and containing urban places with populations of 2,500 - 19,999. For completely rural counties (Codes 8 and 9), the percentages were 40.75 and 47.96, respectively, for adjacent and nonadjacent counties.

Not surprisingly, these rural counties also had the lowest percentages of their population with a college education. For the most rural counties (Beale code 9), only 7.75 percent of the population had a college degree. This compares with over 20 percent in Appalachia's largest metro central city counties. Surprisingly, non-metropolitan counties not adjacent to a metropolitan county and with urban areas of 20,000 or more had the second highest percentage with college educations — 18.49. Clearly, rurality constitutes an important axis of educational differentiation in Appalachia. Policies devoted to human resource and educational issues must be sensitive to geographic variation across the rural-urban continuum.^{xxxiv}

Table 4.6 Ten Counties with Highest and Lowest Percent of Persons with a College Education^a in Appalachia, 1990

FIPS Code	County	State	% College Graduate
<u>Highest Percent College Graduate:</u>			
36109	Tompkins	NY	41.72
42027	Centre	PA	32.31
28105	Oktibbeh	MS	31.74
01089	Madison	AL	30.12
13135	Gwinnett	GA	29.61
01117	Shelby	AL	29.03
54061	Monongala	WV	28.15
37189	Watauga	NC	27.39
37067	Forsyth	NC	24.10
47093	Knox	TN	23.91
<u>Lowest Percent College Graduate:</u>			
47129	Morgan	TN	3.69
47175	VanBuren	TN	4.13
51077	Grayson	VA	4.24
47173	Union	TN	4.45
54047	McDowell	WV	4.59
21153	Magoffin	KY	4.60
51021	Bland	VA	4.61
21147	McCreary	KY	4.63
54043	Lincoln	WV	4.72
01007	Bibb	AL	4.73

^a Persons 25 years and over

Table 4.7 Educational Attainment^a by Beale* Codes, 1990

	Metropolitan Areas				Non-Metropolitan Areas					
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Less than High School (%)	21.45	30.84	29.43	28.16	31.07	30.67	36.14	41.80	40.75	47.96
High School Diploma (%)	36.44	38.07	32.43	37.88	39.36	31.06	36.91	32.98	37.15	30.83
Some College (%)	21.78	18.46	21.32	20.04	18.12	19.78	16.57	15.38	14.01	13.46
College Graduate (%)	20.33	12.64	16.83	13.92	11.45	18.49	10.37	9.83	8.09	7.75
Median Years of Schooling	12	12	12	12	12	12	12	12	12	12

Note: Percentages may not total 100 due to rounding.

^a Persons 25 years and over

*Beale Codes:

0 - Central counties of metro areas of 1 million or more pop.

1 - Fringe counties of metro areas of 1 million or more pop.

2 - Counties in metro areas of 250,000 - 1,000,000 pop.

3 - Counties in metro areas of less than 250,000 pop.

4 - Urban pop. of 20,000 or more, adjacent to a metro area

5 - Urban pop. of 20,000 or more, not adjacent to a metro area

6 - Urban pop. of 2,500-19,999, adjacent to a metro area

7 - Urban pop. of 2,500-19,999, not adjacent to a metro area

8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area

9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area

Educational attainment and economic distress. Educational attainment in Appalachian Counties are inextricably linked to county economic distress (Table 4.8). In the Region's most economically distressed counties (Code 1), 45 percent of the population had less than a high school education, compared with 21 percent in the Attainment Counties. Conversely, only 8.54 percent of the population was highly educated in the Distressed Counties. Nearly one-fourth were college graduates in the Attainment Counties.

Table 4.8 Educational Attainment^a by Distress* Codes, 1990

<u>Percent</u>	<u>Distressed</u>	<u>Transitional-1</u>	<u>Transitional</u>	<u>Competitive</u>	<u>Attainment</u>
Less than High School	44.72	38.96	31.21	32.35	21.25
High School Diploma	33.30	36.02	36.51	31.84	31.33
Some College	13.44	16.08	18.92	20.95	23.65
College Graduate	8.54	8.94	13.36	14.87	23.77
Median Years of Schooling	12	12	12	12	12

Note: Percentages may not total 100 due to rounding.

^a Persons 25 years and over.

* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

The policy implication is that human resource development must be a critical component of any long term strategy to solve the problems of unemployment, poverty, and low income in Appalachia. At the same time, labor supply-side answers that stress education alone will not solve the economic distress faced by those with historically weak ties to the labor force, such as the elderly, the disabled, and low-income mothers. Nor is

education the only remedy for those who have been marginalized historically by limited opportunity or by discrimination, including many rural blacks. Education in the absence of good jobs is not adequate to improve conditions in Appalachian counties. The geographic concentration of low education suggests the conflicts inherent between individual-level and place-based development activities. Previous studies show that average education increased more rapidly over the past decade among the poor population than the nonpoor population.^{xxxv}

CHANGES IN APPALACHIAN FAMILIES

Comparisons between 1980 and 1990

Marriage and two-parent families confer many social and economic advantages, especially for children. The percentage distribution of household and family types in Appalachia for 1980 and 1990 is shown in Table 4.9. These data yield several conclusions. First, non-family households constituted about one-fourth of all households in Appalachia in 1990, and increased slightly during the 1980-90 period. Second, while family households have declined as a percentage of all households, single-parent-headed families have increased. This includes female-headed and male-headed families, both with and without children. Only 5.38 percent of families were female-headed families with children. Third, married-couple families with children were the only type of household to experience declines as a percentage of all households. Clearly, “traditional” families, comprised of father, mother, and children, are less common today than in the past. This pattern has also been observed for the United States as whole. In 1998, 24.6 percent of all households were represented by the traditional nuclear family.^{xxxvi}

Table 4.9 All Races - Household and Family Type by Presence of Children (%) for the Appalachia Region, 1980 and 1990

	<u>1980</u>	<u>1990</u>
Family Households:		
Married Couple Family		
With Own Children Under 18	33.40	27.30
Not With Own Children Under 18	32.45	32.86
Female Headed Family		
With Own Children Under 18	4.80	5.38
Not With Own Children Under 18	4.63	5.05
Male Headed Family		
With Own Children Under 18	0.77	1.16
Not With Own Children Under 18	1.52	1.63
Non-Family Households	22.43	26.63

Note: Percentages may not total 100 due to rounding.

Racial and ethnic variation. Much of the recent policy concern about declines in the traditional family stems from evidence, at the national level, that racial and ethnic divergence in family structure have largely offset any positive steps toward racial and ethnic economic equality over the last generation. Indeed, substantial differences in the distributions of household types are apparent for whites, Blacks, and Hispanics in 1980 and 1990 for the Region (Tables 4.10-4.12).

Table 4.10 Whites - Household and Family Type by Presence of Children (%) for the Appalachia Region, 1980 and 1990

	<u>1980</u>	<u>1990</u>
Family Households:		
Married Couple Family		
With Own Children Under 18	33.91	27.78
Not With Own Children Under 18	33.41	34.05
Female Headed Family		
With Own Children Under 18	4.02	4.47
Not With Own Children Under 18	4.30	4.58
Male Headed Family		
With Own Children Under 18	0.73	1.11
Not With Own Children Under 18	1.46	1.56
Non-Family Households	22.19	26.46

Note: Percentages may not total 100 due to rounding.

For Appalachia whites, the patterns and changes of household types mirror figures reported previously for the Appalachian Region as a whole (Table 4.10). The traditional nuclear family declined as a percentage of all household types, from 33.91 percent in 1980 to 27.78 percent in 1990. For Appalachian blacks, the percentage of families headed by females with children was 18.18 percent in 1990, up slightly from the 16.44 percent observed in 1980 (Table 4.11). The percentage of female-headed households with children is 4 times greater among blacks than among whites in the Region. Clearly, large racial differences, such as those reported here, undermine efforts to enhance the relative

socioeconomic status of blacks. By definition, households headed by females suffer very high rates of poverty because they contain (usually) only one potential wage earner and women's earnings still lag behind those of men. Poverty rates are especially high, both nationally and in the Region, among black female household heads, many of whom lack the education, skills, and employment opportunities to secure a good job that pays a family wage. Although the educational gap between Blacks and whites in the South has narrowed considerably, earnings have not, suggesting that opportunities may play a large role in these differentials.^{xxxvii}

Table 4.11 Blacks - Household and Family Type by Presence of Children (%) for the Appalachia Region, 1980 and 1990

	<u>1980</u>	<u>1990</u>
Family Households:		
Married Couple Family		
With Own Children Under 18	24.72	18.94
Not With Own Children Under 18	19.24	17.42
Female Headed Family		
With Own Children Under 18	16.44	18.18
Not With Own Children Under 18	9.62	11.94
Male Headed Family		
With Own Children Under 18	1.45	1.81
Not With Own Children Under 18	2.43	2.56
Non-Family Households	26.11	29.15

Note: Percentages may not total 100 due to rounding.

The story is different for Hispanics living in Appalachia (Table 4.12). The percentage of Hispanic married couple households with children exceeded that of both whites and blacks in 1990. More significantly, the percentage of married couple families with children, unlike other racial/ethnic groups, increased rather than decreased from 1980 to 1990. Such results are consistent with the strong familial cultural ideology found among most Hispanic groups, one manifested in comparatively high rates of early marriage and childbearing, and low divorce rates. At the same time, the percentage of female-headed families with children is almost twice as high among Hispanics as among whites (e.g., 8.61 percent vs. 4.47 percent). However, if national statistics provide a guide, much of this difference can be attributed to the greater prevalence of informal unions (i.e., common law marriages) among Hispanics, which provide, like marriage, a relatively stable familial context for childbearing and child-rearing.

Family Variations Across Appalachia

Sub-regional variation. Distributions of household types for the North, Central, and South Sub-regions of Appalachia are provided in Table 4.13. These data provide a singular conclusion: The distribution and changes in family types are remarkably similar across Appalachia's major Sub-regions. Each region experienced sizeable declines in the "traditional" married-couple family with children, and corresponding increases in other household types, including female-headed families with children.

**Table 4.12 Hispanics - Household and Family Type by Presence of Children (%)
for the Appalachia Region, 1980 and 1990**

	<u>1980</u>	<u>1990</u>
Family Households:		
Married Couple Family		
With Own Children Under 18	32.91	34.92
Not With Own Children Under 18	27.48	22.06
Female Headed Family		
With Own Children Under 18	7.41	8.61
Not With Own Children Under 18	4.71	3.42
Male Headed Family		
With Own Children Under 18	1.17	2.19
Not With Own Children Under 18	1.68	2.49
Non-Family Households	24.65	26.30

Note: Percentages may not total 100 due to rounding.

Table 4.13 Household and Family Type by Presence of Children (%) for Appalachia Sub-regions, 1980 and 1990

	1980			1990		
	<u>North</u>	<u>Central</u>	<u>South</u>	<u>North</u>	<u>Central</u>	<u>South</u>
Family Households:						
Married Couple Family						
With Own Children Under 18	31.87	38.59	34.05	26.11	31.32	27.74
Not With Own Children Under 18	32.47	31.57	32.66	32.56	32.65	33.25
Female Headed Family						
With Own Children Under 18	4.39	4.64	5.37	5.13	5.46	5.64
Not With Own Children Under 18	4.57	4.69	4.68	4.89	5.17	5.20
Male Headed Family						
With Own Children Under 18	0.76	0.82	0.78	1.16	1.18	1.15
Not With Own Children Under 18	1.64	1.48	1.38	1.70	1.60	1.55
Non-Family Households	24.31	18.21	21.07	28.46	22.62	25.46

Note: Percentages may not total 100 due to rounding.

County variation. The similarity in the distributions of household types across major Sub-regions of Appalachia hides the substantial inter-county diversity found within the Region. This becomes clear when we identify the 10 Appalachian counties with the highest and lowest percentages of female-headed households with children in 1990 (Table 4.14). The highest percentages are found in the Deep South. In fact, 8 of the 10 Appalachian counties with the highest percentages of female-headed families with children were found in Mississippi. These percentages ranged between 8.76 and 12.87 percent, roughly twice the Appalachian average for this family type.

Conversely, Appalachia counties with very low percentages of female-headed households with children were spatially more widely distributed. These counties typically were at the suburban periphery of metropolitan cities, or included counties with major universities or colleges.

This pattern can be more easily observed in Table 4.15, which provides the distributions of household types for each of the Beale Codes. The lowest percentage of female-headed families was found in the fringe counties of metro areas of 1 million or more population (4.72 percent) and in completely rural counties that were adjacent to a metro areas (4.47). These county types, not surprisingly, had the highest percentage of married couple families with children (31.42 and 30.08 percent, respectively).

Table 4.14 Ten Counties with Highest and Lowest Percent of Households that are Female Headed Families with Children in Appalachia, 1990

FIPS Code	County	State	% Female Headed Families
Highest Percent Female Headed Families:			
28103	Noxubee	MS	12.87
28025	Clay	MS	11.91
28159	Winston	MS	10.22
28087	Lowndes	MS	10.20
28069	Kemper	MS	9.90
21237	Wolfe	KY	9.66
28095	Monroe	MS	9.57
28105	Oktibbeh	MS	9.38
01107	Pickens	AL	9.24
28093	Marshall	MS	8.76
Lowest Percent Female Headed Families:			
51045	Craig	VA	2.02
51091	Highland	VA	2.21
51063	Floyd	VA	2.24
54105	Wirt	WV	2.43
13291	Union	GA	2.48
13281	Towns	GA	2.49
42053	Forest	PA	2.57
37149	Polk	NC	2.61
51023	Botetourt	VA	2.66
13117	Forsyth	GA	2.72

Table 4.15 Household and Family Type by Presence of Children (%) by Beale Codes*, 1990

	Metropolitan Areas				Non-Metropolitan Areas					
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Family Households:										
Married Couple Family										
With Own Children Under 18	25.21	31.42	26.14	26.29	27.26	26.40	28.82	29.74	30.08	29.88
Not With Own Children Under 18	32.08	33.49	32.41	33.01	32.65	30.56	34.37	32.74	34.75	34.12
Female Headed Family										
With Own Children Under 18	5.25	4.72	5.75	5.37	5.61	5.86	4.81	5.50	4.47	4.98
Not With Own Children Under 18	5.53	4.45	5.44	4.77	4.61	4.76	4.55	5.00	4.47	5.05
Male Headed Family										
With Own Children Under 18	0.89	1.35	1.12	1.11	1.23	1.13	1.32	1.21	1.49	1.42
Not With Own Children Under 18	1.79	1.68	1.62	1.54	1.64	1.45	1.58	1.61	1.59	1.67
Non-Family Households	29.25	22.88	27.51	27.91	27.00	29.84	24.55	24.19	23.15	22.88

Note: Percentages may not total 100 due to rounding.

*Beale Codes:

- 0 - Central counties of metro areas of 1 million or more pop.
- 1 - Fringe counties of metro areas of 1 million or more pop.
- 2 - Counties in metro areas of 250,000 - 1,000,000 pop.
- 3 - Counties in metro areas of less than 250,000 pop.
- 4 - Urban pop. of 20,000 or more, adjacent to a metro area

- 5 - Urban pop. of 20,000 or more, not adjacent to a metro area
- 6 - Urban pop. of 2,500-19,999, adjacent to a metro area
- 7 - Urban pop. of 2,500-19,999, not adjacent to a metro area
- 8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area
- 9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area

While rural-urban differences in family types are evident in these data, the overall picture is one of substantial geographical similarity rather than diversity. For the most part, the distribution of family types across Beale Codes share a common pattern. The implication is straightforward: rural areas, even in Appalachia, have fully shared in the sweeping family changes observed in the United States over the past three decades, changes usually regarded as “urban” problems. Rural America — including rural Appalachia—has not been immune to the economic and social forces that have buffeted the American family. Indeed, evidence of family instability and change is more apparent in the most rural areas in the Region than in the suburban fringe. The perception of close-knit and strong rural kinship networks must be amended to reflect the new reality of less stable ties between parents of children.

Family structure and economic distress. The distribution of household types, distinguished by (5) levels of economic distress (based on unemployment, poverty, and per capita income), is provided in Table 4.16 for Appalachian counties. Differences in family structure are largely a matter of degree rather than kind, and, in general, there are probably more similarities between Distressed and Attainment Counties than differences.

Table 4.16 Household and Family Type by Presence of Children (%) by Distress Codes*, 1990

	<u>Distressed</u>	<u>Transitional-1</u>	<u>Transitional</u>	<u>Competitive</u>	<u>Attainment</u>
Family Households:					
Married Couple Family					
With Own Children Under 18	30.53	28.28	27.06	28.25	25.13
Not With Own Children Under 18	31.19	33.42	33.37	33.65	31.11
Female Headed Family					
With Own Children Under 18	6.12	5.71	5.20	5.41	5.55
Not With Own Children Under 18	5.37	5.25	4.90	4.93	5.51
Male Headed Family					
With Own Children Under 18	1.37	1.21	1.15	1.30	0.93
Not With Own Children Under 18	1.69	1.54	1.60	1.57	1.75
Non-Family Households	23.73	24.60	26.73	24.88	30.03

Note: Percentages may not total 100 due to rounding.

* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Perhaps the most significant difference is that a disproportionate share of households containing children are located in the most economically distressed counties. In 1990, roughly 38 percent of the households in the Distressed Counties included children. This compares with almost 32 percent among the Attainment Counties. Moreover, while Distressed Counties contain a disproportionate share of married couple families with children, these counties also are home to a disproportionate share of single-parent households.

Clearly, distressed communities represent an important extra-familial context that shapes the experiences of a large share of Appalachian youth while “growing up.” Previous research, usually focused on large cities, suggests that the consequences of growing up in poor neighborhoods are often revealed in elevated school drop out rates, teen pregnancy and childbearing, and delinquent behavior (e.g., drug and alcohol use). Moreover, socially and economically disadvantaged communities are less likely than other communities to offset any negative effects associated with growing up in poverty or in unstable families. The implications of growing up in economically distressed communities in rural areas are less well studied.

CHANGES IN ECONOMIC WELL-BEING

Changes in Poverty, Family Income, and Income Inequality

Between 1979 and 1989, median family income (in 1989 dollars) in Appalachia declined slightly from \$30,069 to \$29,728 (Table 4.17). For the United States, median family income experienced only modest increases over the 1979 to 1989 period; indeed, median family in the United States has stagnated since the early 1970s.^{xxxviii} In

Appalachia, stagnation in real family income during the 1980s occurred in concert with increasing income inequality, a conclusion indicated by the rise in the family poverty rate from 9.77 percent to 11.94 percent between 1979 and 1989. During this period, the U.S. poverty rate for families increased from 9.2 percent to 10.3 percent.^{xxxix}

Table 4.17 Median Family Income and Percent of Families in Poverty in Appalachian Sub-regions, 1979 and 1989

	<u>1979^a</u>	<u>1989</u>	<u>Change</u>
<u>North Appalachia:</u>			
Median Family Income	\$31,874	\$30,018	(\$1,856)
Family Poverty (%)	7.50	10.73	3.23
<u>Central Appalachia:</u>			
Median Family Income	\$24,636	\$21,982	(\$2,654)
Family Poverty (%)	17.19	22.24	5.04
<u>South Appalachia:</u>			
Median Family Income	\$29,196	\$31,181	\$1,985
Family Poverty (%)	10.64	10.86	0.22
<u>Total Appalachia:</u>			
Median Family Income	\$30,069	\$29,728	(\$341)
Family Poverty (%)	9.77	11.94	2.17

^a Median Family Income for 1979 has been converted to 1989 dollars.

The rise in inequality can be clearly observed in Table 4.18, which provides two conventional measures of average household income inequality (the Gini Coefficient and the Theil Index^{xl}) across counties within the Region. These data indicate that average income inequality was virtually identical between the Region and the United States.

Table 4.18. Household Income Inequality in Appalachia and the United States, 1980 and 1990.

	Gini Coefficient		Theil Index	
	1980	Difference (1990 - 1980)	1980	Difference (1990 - 1980)
North Appalachia	0.386 0.338 to 0.434	0.026 -0.019 to 0.084	0.252 0.193 to 0.322	0.038 -0.026 to 0.119
Central Appalachia	0.424 0.371 to 0.496	0.028 -0.023 to 0.079	0.309 0.225 to 0.420	0.046 -0.059 to 0.149
South Appalachia	0.403 0.325 to 0.475	0.014 -0.049 to 0.054	0.280 0.183 to 0.395	0.021 -0.058 to 0.095
Total Appalachia	0.397 0.325 to 0.496	0.021 -0.049 to 0.084	0.269 0.183 to 0.420	0.032 -0.059 to 0.149
United States	0.397) 0.297 to 0.544	0.012 -0.099 to 0.103	0.271 0.150 to 0.529	0.018 -0.454 to 0.172

For example, the average Gini in the Region and United States was .386 in both in 1990. The range of within-county inequality across counties within the Region was more restricted than for the United States; i.e., there were fewer counties in the Region with extremely high or low inequality. However, inequality on average increased slightly more rapidly during the 1980s in the Region than in the United States overall.

Variations Across Appalachia

Sub-regional variations. Central Appalachia has experienced significantly higher rates of poverty and lower median family income than North and South Appalachia (Table 4.17). Poverty rates are roughly twice as high in Central Appalachia than in the rest of Appalachia and the nation. More troubling is the fact that Central Appalachia also

experienced large absolute and relative declines in median family income during the 1980s, a result that can be linked directly to the low levels of educational attainment reported earlier in the context of persistent economic underdevelopment and large-scale layoffs in coal production in this region. On the other hand, South Appalachia experienced increases in median family income between 1979 to 1989. Clearly, spatial inequality — especially between Central Appalachia and the rest of Appalachia — has accelerated over the past decade or so.

This fact also is evident in Table 4.18, which provides the average inequality measures for each Appalachian Sub-region. Central Appalachia, in both 1980 and 1990, had the highest average within-county income inequality, as well as the largest absolute increase in income inequality over the 1980s. In addition, Central Appalachia contained counties with the most uneven income distribution in the Region.

County variation. Figure 4.1 provides the changing dispersion of high-poverty counties (i.e., those over 40%) in 1979 and 1989. These data clearly revealed that persistent poor counties are located in Central Appalachia. The economically depressed situation of Central Appalachia is also revealed in analyses of the 10 counties with the lowest median family incomes (Table 4.19) and highest family poverty rates (Table 4.20) in 1989. Nine of the 10 counties with the lowest median family income were located in Kentucky; the remaining lowest income county was located in Tennessee. Median family incomes in these counties were roughly one-third to one-half the Appalachian region average. Kentucky also owned the distinction of being home to the nine poorest counties in Appalachia. Poverty was highest in Owsley County, Kentucky, with a rate of 46.81

percent. By way of contrast, Gwinnett County, Georgia, a suburb of Atlanta, had the lowest family poverty rate — 2.94 percent — in 1989. Such striking differences serve to illustrate the great diversity in the economic well-being of Appalachian people and communities.

The striking economic contrasts between rural Kentucky and suburban Atlanta suggest a more general pattern: the economic well-being of rural Appalachia significantly lags urban Appalachia. This is plainly revealed in Table 4.21, which provides median family income in 1989 and family poverty rates for each of the ten Beale Codes. Median family incomes were lowest (\$20,445) and family poverty highest (21.73 percent) in the most-rural counties, i.e., completely rural counties not adjacent to a metropolitan county. Median family incomes were highest and poverty rates lowest in the largest metropolitan counties and their suburban fringe counties. Clearly, any optimism implied by economic gains in urban Appalachia must be tempered by the pessimism implied by the deteriorating economic circumstances observed in rural Appalachia. The modest increases in poverty and stagnating real income in the Region hide growing inequalities between rural and urban areas.

The high poverty in Central Appalachian counties has gone hand-in-hand with high levels of household income inequality. Kentucky contained all ten counties with the highest levels of income inequality (Table 4.22). Most were heavily rural counties. The lowest inequality was found in North and South Appalachia; indeed, one-half of the counties with the lowest levels of income inequality were found in Georgia.

Table 4.19 Ten Counties with Highest and Lowest Median Family Income in Appalachia, 1989

FIPS Code	County	State	Median Family Income
Highest Median Family Income:			
51105	Allegheny	VA	\$84,232
51191	Washington	VA	\$50,581
51035	Carroll	VA	\$50,375
13135	Gwinnett	GA	\$48,000
51195	Wise	VA	\$44,843
01117	Shelby	AL	\$42,549
13057	Cherokee	GA	\$41,762
13117	Forsyth	GA	\$40,718
13097	Douglas	GA	\$40,497
01089	Madison	AL	\$39,264
Lowest Median Family Income:			
21189	Owsley	KY	\$11,110
21147	McCreary	KY	\$12,223
21237	Wolfe	KY	\$12,469
21153	Magoffin	KY	\$13,955
21129	Lee	KY	\$14,618
21053	Clinton	KY	\$14,627
21051	Clay	KY	\$14,721
47067	Hancock	TN	\$14,745
21109	Jackson	KY	\$14,767
21025	Breathitt	KY	\$14,908

Table 4.20 Ten Counties with Highest and Lowest Family Poverty in Appalachia, 1989

FIPS Code	County	State	Family Poverty (%)
Highest Percent Family Poverty:			
21189	Owsley	KY	46.81
21237	Wolfe	KY	41.01
21147	McCreary	KY	40.06
21153	Magoffin	KY	39.23
21025	Breathitt	KY	36.16
21051	Clay	KY	35.88
21119	Knott	KY	35.69
21121	Knox	KY	34.78
21109	Jackson	KY	34.64
28103	Noxubee	MS	34.44
Lowest Percent Family Poverty:			
13135	Gwinnett	GA	2.94
13057	Cherokee	GA	4.42
13117	Forsyth	GA	4.67
51023	Botetourt	VA	4.77
13097	Douglas	GA	4.88
42103	Pike	PA	5.09
42089	Monroe	PA	5.12
42037	Columbia	PA	5.94
42093	Montour	PA	6.01
37059	Davie	NC	6.08

Table 4.21 Median Family Income and Percent of Families in Poverty by Beale Codes, 1989

Beale Code	Median Family Income	Family Poverty (%)
<u>Metropolitan Areas:</u>		
0 - Central counties of metro areas of 1 million or more pop.	\$35,939	7.98
1 - Fringe counties of metro areas of 1 million or more pop.	\$32,520	9.43
2 - Counties in metro areas of 250,000 - 1,000,000 pop.	\$31,928	10.20
3 - Counties in metro areas of less than 250,000 pop.	\$29,701	10.63
<u>Non-Metropolitan Areas:</u>		
4 - Urban pop. of 20,000 or more, adjacent to a metro area	\$28,346	11.56
5 - Urban pop. of 20,000 or more, not adjacent to a metro area	\$28,729	13.40
6 - Urban pop. of 2,500-19,999, adjacent to a metro area	\$27,383	12.66
7 - Urban pop. of 2,500-19,999, not adjacent to a metro area	\$24,270	17.91
8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area	\$24,248	15.96
9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area	\$20,445	21.73

Over the past decade, the largest increases in income inequality were also found in Central Appalachia — all in West Virginia and Kentucky (Table 4.23). Moreover, the three counties with the highest levels of income inequality in 1990 (i.e., the Kentucky counties of Owsley, Know, and Lee) also were found among the top ten counties that experienced the largest absolute increases in inequality during the 1980s. These results again clearly suggest growth of within- and between-county income inequality in Appalachia.

Income, poverty, and economic distress. Compared with the Attainment Counties, the Distressed Counties in Appalachia have very low levels of family income and high rates of poverty (Table 4.24). This is to be expected because the designation of “distressed” counties by the Appalachian Regional Commission is based on per capita family income, unemployment levels, and poverty rates.

The more interesting question is whether the situation in Distressed Counties deteriorated over the 1979 to 1989 period, and whether the gap widened between the least and most distressed counties in Appalachia. As shown in Table 4.24, median family income declined from \$24,243 to \$20,478 between 1979 and 1989 in the 97 Distressed Counties, while poverty rates increased from 16.87 to 24.06 percent. In vivid contrast, the 11 Attainment Counties experienced significant increases in real income between 1979 and 1989, although poverty rates increased slightly -- a fact indicative of growing income inequality within prosperous counties. More significantly, the income gap between the least and most distressed counties thus widened between 1979 and 1989, from \$11,523 to \$17,237. The poverty gap, measured by the absolute difference in poverty rates between the least and most distressed counties, similarly increased from 10.22 in 1979 to 16.38 in 1989. The Appalachian “winners” during the 1980s clearly have distanced themselves economically and perhaps socially from the Appalachian “losers.”

Table 4.22 Counties with Highest and Lowest Household Income Inequality in 1990 — Gini Coefficient

Fips Code	County	State	Gini Coefficient in 1990
Highest Gini Coefficient (highest income inequality in 1990)			
21189	Owsley	KY	0.547
21121	Knox	KY	0.526
21129	Lee	KY	0.510
21159	Martin	KY	0.509
21053	Clinton	KY	0.503
21025	Breathitt	KY	0.500
21127	Lawrence	KY	0.498
21119	Knott	KY	0.496
21237	Wolfe	KY	0.496
21175	Morgan	KY	0.496
Lowest Gini Coefficient (lowest income inequality in 1990)			
13135	Gwinnett	GA	0.327
13097	Douglas	GA	0.333
13223	Paulding	GA	0.339
42099	Perry	PA	0.341
13057	Cherokee	GA	0.342
42067	Juniata	PA	0.359
36097	Schuyler	NY	0.360
13213	Murray	GA	0.365
51023	Botetourt	VA	0.367
39025	Clermont	OH	0.367

Table 4.23 Counties with Largest Change in Household Income Inequality in 1990.

Fips Code	County	State	Gini Coefficient
Largest increase in income inequality from 1980 to 1990)			
54005	Boone	WV	0.084
21189	Owsley	KY	0.079
54047	McDowell	WV	0.070
54109	Wyoming	WV	0.065
21121	Knox	KY	0.064
21129	Lee	KY	0.062
54059	Mingo	WV	0.058
54001	Barbour	WV	0.057
54021	Gilmer	WV	0.057
54073	Pleasants	WV	0.055
Largest decrease in income inequality from 1980 to 1990			
13223	Paulding	GA	-0.049
21057	Cumberland	KY	-0.023
13311	White	GA	-0.022
47133	Overton	TN	-0.019
54065	Morgan	WV	-0.019
13057	Cherokee	GA	-0.017
13213	Murray	GA	-0.017
47007	Bledsoe	TN	-0.016
47173	Union	TN	-0.016
13013	Barrow	GA	-0.016

**Table 4.24 Median Family Income and Percent of Families in Poverty by 1998
ARC Distress Codes, 1979 and 1989**

Distress Code	1979 ^a		1989	
	Median Family Income	Family Poverty (%)	Median Family Income	Family Poverty (%)
Distressed	\$24,243	16.87	\$20,478	24.06
Transitional-1	24,993	12.79	24,355	15.88
Transitional	30,207	9.12	29,513	11.10
Competitive	30,614	8.27	32,692	7.97
Attainment	35,766	6.65	37,725	7.68

^a Median family income for 1979 has been converted to 1989 dollars.

This conclusion is reinforced in the analysis of recent trends in income inequality, reported in Table 4.25. Distressed counties had the highest average level of within-county income inequality in 1990 (Gini = .422), as well as the highest absolute increases over the 1980-90 period. Thus, distressed counties have not only fallen behind the least distressed counties, but the 1980s brought an acceleration in income inequality within the most distressed counties.

CRIME RATES IN APPALACHIA

The social and economic well-being of Appalachia can also be measured by changes in crime rates, which are rooted in changing economic conditions, community disorganization, and individual psychopathy. For our purposes, the Federal Bureau of Investigation's *Uniform Crime Reports (UCR)* provide annual data on "index" crimes for U.S. counties. The crime data include counts of offenses occurring in several categories of

serious crime. Typically these index crimes are divided into two groups: violent and property crimes. In turn these two groups can be subdivided. Violent crimes include murder, rape, robbery and assault. Property crimes include burglary, larceny (theft), arson, and auto-theft.

Table 4.25. Household Income Inequality in Appalachia by Distressed Code, 1980 and 1990.

	Gini Coefficient		Theil Index	
	1980	Difference (1990 - 1980)	1980	Difference (1990 - 1980)
Distressed	0.422 0.381 to 0.496	0.032 -0.023 to 0.084	0.305 0.244 to 0.420	0.052 -0.059 to 0.149
Transitional-1	0.405 0.371 to 0.458	0.022 -0.019 to 0.053	0.280 0.225 to 0.364	0.033 -0.025 to 0.087
Transitional	0.393 0.342 to 0.455	0.020 -0.049 to 0.055	0.264 0.197 to 0.369	0.030 -0.058 to 0.083
Competitive	0.385 0.328 to 0.429	0.011 -0.022 to 0.029	0.256 0.185 to 0.331	0.015 -0.045 to 0.039
Attainment	0.395 0.325 to 0.429	0.021 -0.017 to 0.034	0.266 0.183 to 0.311	0.034 -0.026 to 0.054

Before proceeding it is worth noting some of the problems with the UCR data. Among the most important limitations are variation in crime reporting by both the victims and by law enforcement officials, incomplete and missing data, and definitions of the population at risk. Data on crimes reported by victims are generally regarded as more reliable than arrest data. The UCR contain missing data, though for the Appalachian Region as a whole there are relatively few missing data items (counties not reporting). In

addition, as annual data can vary and may be influenced by a small number of events, the data presented below are “mean” rates calculated from five individual years. In this situation, if a county is missing one year of data, four data values are used to calculate the mean. If two years were missing, three were counted, etc. In practice, if a county was missing a data item in one year it usually was missing the same information for all five years (twelve counties in 1992-1996).

The data used here are drawn from two five year periods: 1977-1981 and 1992-1996. The years 1977-1981 cover the first five years for which UCR data are available, while 1992-1996 cover the last five years of interest in this report. For these five year periods, the crime data reported below have been converted to rates (per 100,000 of the population) and weighted by the dependency ratio (calculated as “((population 0-14 + population 65 and over) / (population 15-64) * 100”) to control for variations in the age distributions of the counties of interest. For the year 1977-1981 the dependency ratio was calculated from 1980 data, and the dependency ratio for 1992-1996 used 1990 census data.

Changes in Appalachian Crime Rates

Overall, crime in Appalachia is low compared to US averages, typically around 60-70 percent of the national levels. The weighted crime rates for the two time periods and the mean percent change in index crimes for Appalachia as a whole are provided in Table 4.26. The general trend appears to be that crime rates have increased (with exceptions for individual crimes). Crime rates increased by over twelve percent. The highest increases reported were for rape and arson. Such increases in crime raise questions about the reporting of those crimes and changes in public awareness and procedure, particularly

associated with rape. Not all individual index crimes increased: murder rates dropped in the ARC by 32 percent, and among property crimes, burglary dropped by 17 percent and auto theft by 4 percent.

Table 4.26 Weighted Crime Rates in Appalachia, 1977-1981 and 1992-1996

	1977-1981	1992-1996	Percent Change
All Index Crimes	1152.6	1294.0	12.3
Violent Crimes:	87.6	133.9	52.8
Murder	4.0	2.7	-32.5
Rape	5.7	11.3	99.1
Robbery	14.8	16.8	13.5
Assault	62.9	102.9	63.5
Property Crimes:	1064.4	1159.9	8.9
Burglary	394.9	327.5	-17.0
Arson	7.2	12.0	66.6
Larceny	585.3	752.3	28.5
Auto Theft	84.1	80.1	-4.7

While crime is low compared to the nation as a whole there are considerable variations within the region and between different types of crime. The following section focuses on the changes in the various index crimes over time for the three Sub-regions within the Appalachian Region, before moving on to a discussion of crime rates by Beale Codes and Distress Codes.

Sub-regional variation. The mean weighted index crime rates for 1977-1981 and 1992-1996 and the change in rates between the two periods are shown in Tables 4.27-4.29.

Briefly, overall crime rates in the earlier time period were highest in the North Sub-region though these were driven by property crime rates, specifically larceny and burglary (Table 4.27). Violent crime rates were highest in the South Sub-region, though murder and rape crime rates were highest in the Central Sub-region. The Central Sub-region had the lowest crime rate of the Sub-regions, but in addition to murder and rape crimes it also reported the highest rate for arson between 1977-1981.

Table 4.27 Weighted Crime Rates in Appalachia Sub-regions, 1977-1981

	North	Central	South	Total
All Index Crimes	1313	821	1182	1152
Violent Crimes:	74	84	101	87
Murder	2.2	6.5	4.3	4.0
Rape	5.8	6.1	5.5	5.7
Robbery	15.5	11.1	16.0	14.8
Assault	50.4	60.1	75.1	62.9
Property Crimes:	1239	737	1081	1064
Burglary	441	302	402	394
Arson	7.4	13.4	3.9	7.2
Larceny	719	350	589	585
Auto Theft	79	84	89	84

Note: Figures represent available data for 396 of 399 Appalachian counties.

By 1992-1996 overall crime rates increased for Appalachia, though not for the North Sub-region (Table 4.28). The South sub-region had the highest overall crime rate, including the highest rates for violent and property crimes. Indeed, the South sub-region had the highest crime rates for five of the eight individual index crimes, with the Central sub-region retaining the highest murder, rape and arson crime rates.

Table 4.28 Weighted Crime Rates in Appalachia Sub-regions, 1992-1996

	North	Central	South	Total
All Index Crimes	1256	922	1508	1294
Violent Crimes:	96	140	164	134
Murder	1.8	4.1	2.7	2.7
Rape	12.1	12.5	10.1	11.3
Robbery	13.2	8.5	24.1	16.8
Assault	68.4	114.6	126.7	102.9
Property Crimes:	1160	782	1345	1159
Burglary	304	246	388	327
Arson	12.7	16.5	9.2	12.0
Larceny	789	467	862	752
Auto Theft	67	70	96	80

Note: Figures represent available data for 387 of 399 Appalachian counties.

The percentage change in the weighted index crime rates between 1977-1981 and 1992-1996 is reported in Table 4.29. The overall index crime rates decreased in the North Sub-region, experiencing reductions in four index crime rates: murder (-18.1), robbery (-14.8), burglary (-31 percent) and auto theft (-14.2 percent). Crime increased in the Central Sub-region at a rate similar to the Appalachian Region as a whole (12 percent). However, the Central Sub-region also witnessed a reduction in crime rates for murder, robbery, burglary and auto theft, though it also reported the largest increase in the violent crime rate, with almost a doubling of the assault rate. The South Sub-region saw the largest increases in overall crime (27.5 percent) at twice the Appalachian Region rate. Property crime increases in the South Sub-region were almost three times the Appalachian average.

While the South had impressive reductions in the murder rate (-37 percent), the only other index crime rate to fall was burglary (-3 percent) which was small compared to regional trends. Robbery and auto theft, which decreased in both the North and Central Sub-regions, increased in the South. The 50 percent increase in robbery crime rates in the South Sub-region contributed to the increase in the Appalachian Region as a whole for this type of crime.

Table 4.29 Mean Percent Change in Weighted Crime Rates in Appalachia Sub-regions, 1977-1981 vs. 1992-1996

	North	Central	South	Total
All Index Crimes	-4.4	12.3	27.5	12.3
Violent Crimes:	29.1	66.7	61.9	52.8
Murder	-18.1	-36.9	-37.2	-32.5
Rape	108.6	104.9	83.6	99.1
Robbery	-14.8	-23.4	50.6	13.5
Assault	35.7	90.6	68.7	63.5
Property Crimes:	-6.3	6.2	24.4	8.9
Burglary	-31.0	-18.7	-3.6	-17.0
Arson	71.6	23.1	135.8	66.6
Larceny	9.6	33.3	46.1	28.5
Auto Theft	-14.2	-16.9	7.9	-4.7

Note: Figures represent available data for 387 of 399 Appalachian counties.

Crime Disparities by County. Overall index crime rates between 1992-1996 were highest in non-metropolitan counties with more than 20,000 people both adjacent to a metropolitan area (Beale Code 4) and not adjacent to a metropolitan area (Beale Code 5)

(see Table 4.26). Violent crime rates vary by less than 2:1 between the highest and lowest rates across all county typologies, with the highest rates (189/100,000) in metropolitan areas of between 250,000 and one million residents and the lowest in rural non adjacent counties (96/100,000). Within violent crimes there is variability, with the ratio between highest and lowest rates for robbery approximately 7:1. A reversal of the crime gradient between metropolitan and non-metropolitan seems evident for murder, with rates above the ARC average (2.7 per 100,000) in four of the six non-metropolitan Beale Codes. Rape, robbery and assault reveal the highest rates in metropolitan areas, though non-metropolitan Beale Codes 4 and 5 have relatively high rates for these three crimes.

Property crime rates vary across county typologies with the exception of counties Beale Coded 4 and 5 counties disrupting the smooth metropolitan-non-metropolitan gradient (Table 4.30). Property rates are driven largely by the larceny rate. Auto theft is strongly a metropolitan phenomenon though small cities report high rates. Other property crimes such as burglary and arson are highest in metropolitan Beale Codes (especially central and fringe counties) though variation in the rates between highest and lowest reported values are less than two to one.

Table 4.30 Mean Weighted Crime Rates in Appalachia by Beale Codes, 1992-1996

	Metropolitan Areas				Non-Metropolitan Areas					
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
All Index Crimes	1553	1723	1657	1577	1741	2006	1335	1206	897	727
Violent Crimes:	136	135	189	152	154	162	131	123	98	96
Murder	1.5	1.7	2.4	2.0	1.6	3.0	2.3	2.9	2.8	4.0
Rape	13.3	10.4	13.9	10.7	13.4	13.1	10.9	9.3	9.3	9.9
Robbery	39.4	20.6	32.7	26.5	21.7	33	13.4	11.8	5.5	6.4
Assault	82.7	102.5	140.4	113.2	117.6	112.9	104.4	99.3	80.3	74.1
Property Crimes:	1416	1587	1467	1424	1586	1844	1204	1084	798	630
Burglary	267	444	367	323	365	382	346	318	294	262
Arson	14.9	15.0	11.3	10.1	13.8	7.7	12.1	12.3	12.0	12.5
Larceny	995	1011	991	1025	1138	1342	773	690	444	322
Auto Theft	152	131	108	75	82	120	83	73	59	46

Note: Figures represent available data for 387 of 399 Appalachian counties.

*Beale Codes:

0 - Central counties of metro areas of 1 million or more pop.

1 - Fringe counties of metro areas of 1 million or more pop.

2 - Counties in metro areas of 250,000 - 1,000,000 pop.

3 - Counties in metro areas of less than 250,000 pop.

4 - Urban pop. of 20,000 or more, adjacent to a metro area

5 - Urban pop. of 20,000 or more, not adjacent to a metro area

6 - Urban pop. of 2,500-19,999, adjacent to a metro area

7 - Urban pop. of 2,500-19,999, not adjacent to a metro area

8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area

9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area

to a metro area

Regarding changes in crime rates between 1977-82 and 1992-1996 the overall violent crime rates increased by 53 percent (Table 4.31 - compare with Table 4.29). The smallest increases (7 percent) in violent crimes were found in center cities (Beale Code 0) and the largest increase (74 percent) among small cities not adjacent to metropolitan counties (Beale Code 5). As already noted there is variability among violent crimes. Murder rates have dropped across all Beale Code county typologies but most especially in center and fringe metropolitan counties. Robbery rates vary enormously with some counties experiencing a decrease or no change (in five of the county typologies) and small non adjacent cities experiencing an increase in robbery of 55 percent. Assault rates have increased greatly (63 percent) though metropolitan central cities and the most remote rural areas have the lowest rates of increase, 13 and 24 percent respectively.

Property crimes have increased by almost nine percent (Table 4.31 - compare with Table 4.29). However, in central cities (Beale Code 0), counties with over 20,000 people and adjacent to metropolitan areas (Beale Code 4) and rural areas adjacent to metropolitan areas (Beale Code 8) the property crime rates have fallen. The highest increases are generally found among the remaining non-metropolitan counties (Beale Codes 5, 6, 7 and 9). Burglary rates have fallen in all county typologies, though the smallest decreases are found in non-metropolitan counties. Larceny rate increases vary across county typologies by five to one, with the highest rates of increase in non-adjacent rural counties (Beale Code 9). Auto theft has declined or not changed in seven of ten county typologies with declines in excess of 20% in small metropolitan areas and counties with over 20,000 people adjacent to metropolitan areas (Beale Code 3 and 4).

Table 4.31 Mean Percent Change in Weighted Crime Rates in Appalachia by Beale Codes, 1977-1981 vs. 1992-1996

	Metropolitan Areas				Non-Metropolitan Areas					
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
All Index Crimes	-1.6	12.1	11.0	3.2	-2.1	29.4	21.0	13.2	1.7	16.8
Violent Crimes:	7.0	58.8	70.2	50.4	40.0	74.1	65.8	43.0	68.9	26.3
Murder	-42.3	-63.8	-27.7	-23.0	-40.7	-26.8	-30.3	-38.2	-26.3	-27.2
Rape	38.5	76.2	93.0	67.1	103.0	87.1	122.4	75.4	82.3	102.0
Robbery	-7.9	10.7	34.5	11.3	-6.8	55.6	13.5	-1.6	-7.8	0.0
Assault	13.4	82.7	84.0	44.8	51.9	86.3	76.0	53.9	88.9	24.5
Property Crimes:	-2.3	9.4	6.2	0.0	-4.9	26.5	17.6	10.8	-3.0	15.8
Burglary	-42.3	-24.4	-20.5	-26.0	-30.2	-11.3	-11.2	-10.6	-23.8	-6.7
Arson	86.2	134.3	76.5	55.3	17.9	133.3	120.0	73.2	37.9	37.3
Larceny	21.0	37.5	22.6	14.7	10.4	46.5	38.5	28.4	18.0	52.6
Auto Theft	-7.3	3.9	-0.9	-21.0	-28.6	11.1	12.1	-14.1	0.0	-9.8

Note: Figures represent available data for 387 of 399 Appalachian counties.

*Beale Codes:

0 - Central counties of metro areas of 1 million or more pop.

1 - Fringe counties of metro areas of 1 million or more pop.

2 - Counties in metro areas of 250,000 - 1,000,000

5 - Urban pop. of 20,000 or more, not adjacent to a metro area

6 - Urban pop. of 2,500-19,999, adjacent to a metro area

7 - Urban pop. of 2,500-19,999, not adjacent to a metro area

8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area

9 - Completely rural (no places with pop. of 2,500 or more) not adjacent

	<u>Distressed</u>	<u>Transitional-1</u>	<u>Transitional</u>	<u>Competitive</u>	<u>Attainment</u>
All Index Crimes	957	1139	1375	1914	1284
Violent Crimes:	122	98	135	207	96
Murder	3.6	3.4	2.3	2.3	2.0
Rape	13.3	8.0	10.6	14.6	7.8
Robbery	11.4	9.3	17.3	39.9	13.4
Assault	93.5	77.4	105.2	150.8	72.7
Property Crimes:	835	1041	1240	1706	1188
Burglary	272	275	344	426	310
Arson	17.2	11.7	10.2	11.0	7.8
Larceny	490	713	816	1146	786
Auto Theft	71	52	79	133	91

* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Crime Disparities by Economic Distress. The variation in crime rates across distress codes for the period 1992-1996 is reported in Table 4.32. Competitive Counties have consistently the highest crime rates: for the overall index, for both violent and property crimes, and for six of the eight index crimes (excluding murder and arson). For the overall index crime rate there is an apparent gradient from low crime Distressed Counties to high crime Competitive Counties. The distress county gradient is not clear for any separate index crimes. In the case of murder (and to a lesser extent arson) a reverse gradient is more in evidence, with the most distressed reporting the highest crime rates and the least distressed reporting the lowest crime rates. Within individual property crime rates the lowest rates are typically for Distressed and Transitional-1 counties (except arson).

The percent change in rates between those reported in for 1977-1982 and 1992-1996 are listed in Table 4.33. The pattern across the distress county codes is less clear, though overall index crimes and property crimes are highest in the most distressed counties and lowest in the “Attainment” counties.

Table 4.33 Mean Percent Change in Weighted Crime Rates in Appalachia by Distress Codes*, 1977-1981 vs. 1992-1996

	<u>Distressed</u>	<u>Transitional-1</u>	<u>Transitional</u>	<u>Competitive</u>	<u>Attainment</u>
All Index Crimes	17.1	15.9	10.2	12.9	7.2
Violent Crimes:	41.2	19.4	59.5	66.4	29.5
Murder	-38.9	-15.0	-28.1	-32.3	-47.6
Rape	107.8	56.8	100.0	92.1	32.2
Robbery	1.7	8.8	14.5	42.5	5.6
Assault	49.8	23.2	72.1	76.3	46.5
Property Crimes:	14.4	15.7	6.7	8.7	5.7
Burglary	-7.0	-19.1	-19.9	-15.3	-24.5
Arson	47.0	91.8	72.8	111.5	160.0
Larceny	37.3	42.8	25.7	22.5	26.5
Auto Theft	-9.8	-12.2	-4.0	-3.0	-1.5

* Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Changes in crime rates across Distress Codes vary enormously. Overall index crime rate increases appear to follow a gradient where the highest increases are found in the most depressed counties. Violent crimes (based on lower rates) show higher increases than property crimes but show no clear crime gradient across distress codes. Murder has

dropped across all distress codes with a u-shaped pattern across codes, with the largest decreases found in both the most and the least distressed counties. While rape data are questionable (in terms of accuracy and true reporting as well as greater awareness of the seriousness of this type of crime) the largest increases were observed in the Distressed Counties. Robbery crime increases vary by a factor of twenty-to-one, with the highest increases found in Competitive Counties.

As mentioned above, the changes in property crime rates follow a gradient across the distress codes, with the highest increases found in Distressed and Transitional-1 counties. Within property crimes this gradient seems to hold up (except for arson). For burglary and auto theft, where decreases were found, the decrease has been smallest in the most distressed counties. For larceny the highest increases are for the most distressed counties.

CONCLUSION

The uneven development and social and economic diversity in Appalachia are clearly revealed in this chapter. Major strides forward in some parts of Appalachia have been off-set by stagnation or slow social and economic progress in other parts of the Region. The optimism of significant improvements in the human capital — the rise in completed schooling — only gives ballast to the persistent and continuing low levels of education attainment in most of Appalachia compared to the rest of the nation. The lack of skills and education, now necessary for upward socioeconomic mobility in an increasingly high tech economy, remain problematic in many parts of Appalachia,

especially in Central Appalachia — and most especially in rural Kentucky. Clearly, geographic social and economic differentiation and inequality characterize the Appalachian landscape.

Unfortunately, the persistent problem of low human capital in some parts of the Region are now exacerbated by (and reflect) the continuing transformation of the family. The rise in female headed families reinforces the problem of low family income and high rates of poverty in the Region. The seeds of family change take root today, but the results are reaped tomorrow when today's poor and social disadvantaged children enter adulthood, many of whom are ill-prepared to assume productive and civic roles. Research studies show that growing up in single parent families is associated with lower educational achievement, impaired emotional and cognitive development, and juvenile delinquency. In fact, crime rates were highest in the most economically distressed counties of Appalachia, and, violent and property crime rates have increased over the last two decades in the Region. Clearly, the economic problems of the Region cannot be separated from the problem of human resource development, unstable families, and psychopathy (revealed in high crime rates). At the same time, creating decent jobs in the absence of skilled and well-adjusted workers will not solve the problems of low income population in Appalachia. Economic growth and human resource development must go hand-in-hand.

Chapter 4 Endnotes

1. See Table 20. U.S. Bureau of the Census. 1999. Geographical Mobility: March 1996 to March 1997 (Update). Current Population Report, P20-510. Washington, DC: Government Printing Office. Between March 1996 and March 1997, the South on balance imported 8,000 more highly educated adults (with college degrees) than they exported to other regions of the country.
2. See Lichter, Daniel T., Gretchen T. Cornwell, and David J. Eggebeen. 1993. "Harvesting Human Capital: Family Structure and Education Among Rural Youth." Rural Sociology 58:53-75; and Lichter, Daniel T., Lionel J. Beaulieu, Jill L. Findeis, and Ruy Teixeira. 1993. "Human Capital, Labor Supply, and Poverty in Rural America." Pp. 39-67 in Gene Summers (ed.), Persistent Rural Poverty. Boulder, CO: Westview Press.
3. See Isaac Shapiro. 1989. Laboring for Less: Working But Poor in Rural America. Washington, DC: Center on Budget and Policy Priorities.
4. .Source: <http://www.census.gov/population/socdemo/hh-fam/98pplb.txt>
5. Mark Fossett and Theresa Seibert. 1997. Long Time Coming: Racial Inequality in the Non-metropolitan South, 1940-1990. Boulder, CO: Westview Press..
6. Source: U.S. Bureau of the Census (1997).
7. Source: U.S. Bureau of the Census (1993).
8. The Gini Coefficient and Theil Index vary between 0 and 1, with higher scores indicating greater average within-county inequality. The Gini has a straightforward interpretation: A coefficient of zero means that income is evenly across households (i.e., all households have the same income), while a Gini of 1 indicates that all income is concentrated in one family. In 1997, the top 20 percent of households in the United States accounted for 49.4 percent of all family income.

CHAPTER 5

JOBS AND WORKERS IN APPALACHIA

INTRODUCTION

Labor force activity of residents is a key indicator of the economic viability and stability of local labor markets. Coupled with information on occupational and industrial structure, this information provides a picture of the economic capacity of a local labor market, and an indicator of whether the labor market relies on older, established industries or is taking part in the faster growing sectors of the economy. General growth or decline in the labor market also can be inferred from this type of information. This chapter builds on and helps to explain the differences in population composition found in Chapter 2, patterns of migration observed in Chapter 3, and economic well-being of Appalachian residents described in Chapter 4.

In addition, it is important to remember that the success of local areas in attracting new jobs, supporting existing businesses, and diversifying their economies depends in part on the resources at their disposal (e.g. good transportation systems, finance capital, building sites, markets, citizen involvement and good leadership). A critical resource is the pool of workers available. The work ethic, education and skills of workers, and sometimes the size of the available work pool with particular characteristics can influence the decisions of outside firms to locate in an area, and affects the ability of local entrepreneurs to build their businesses.

There are four major sections to this chapter. Initially, we provide information on the labor force participation rates of men and women in 1980 and 1990, and the size of the labor

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force, based on data from the U.S. Census of Population. We then examine unemployment rates over the same period. Third, we give information on the industrial structure in 1980, 1990 and 1996 based on Regional Economic Information System (REIS) data so that a more recent picture of industrial structure is available. We then show the occupation structures in 1980 and 1990 based on U.S. Census of Population and Housing. Looking at both industrial and occupational change is important since the restructuring that had occurred influences the occupational structure as well as the industrial composition in local labor markets affecting types of jobs available.

LABOR FORCE STATUS AND GROWTH

Labor Force Participation in Appalachia

Labor force participation is measured by the number of persons who are employed and unemployed divided by the number of persons ages 16 and over. We show the labor force participation rates as percentages for men and women, for 1980 and 1990, for the United States, Appalachia, and the three Sub-regions of Appalachia in Table 5.1. The percentage point difference from 1980 to 1990 is reported in the final column of the table. Generally, the table shows divergence for men and convergence for women between Appalachia and the U.S. in labor force participation. In 1980, 74.7 percent of men in the U.S. participated in the labor force, compared with 71.4 percent of men in Appalachia—a 3.3 percentage point gap. By 1990, this difference had widened to a 6.3 point difference.

Table 5.1 Labor Force Participation for Appalachia and the U.S. by Gender and Sub-region, 1980 and 1990

	1980		1990		Change	
	No.	%	No.	%	No.	%
<u>North Appalachia</u>						
Men	2,637,639	71.2	2,511,631	68.2	-126,008	-3.0
Women	1,736,873	42.1	2,001,744	48.6	264,871	6.5
Total	4,374,512	55.9	4,513,375	57.8	138,863	6.7
<u>Central Appalachia</u>						
Men	480,334	64.9	462,310	62.6	-18,024	-2.3
Women	277,878	34.7	337,694	41.5	59,816	6.7
Total	758,212	49.3	800,004	51.5	41,792	2.2
<u>South Appalachia</u>						
Men	2,075,112	73.3	2,368,493	73.2	293,381	-0.1
Women	1,538,820	48.7	1,994,635	55.3	455,815	6.7
Total	3,613,932	60.3	4,363,128	63.8	749,196	3.5
<u>Total Appalachia</u>						
Men	5,193,085	71.4	5,342,434	69.8	149,349	-1.6
Women	3,553,571	43.9	4,334,073	50.8	780,502	6.8
Total	8,746,656	56.9	9,676,507	59.7	929,851	2.8
<u>U.S.</u>						
Men	59,926,488	74.7	67,046,083	76.1	7,119,596	1.4
Women	44,523,329	49.8	56,427,367	56.7	11,904,038	6.9
Total	104,449,817	61.6	123,473,450	66.4	19,023,633	4.8

Appalachian women's labor force participation rose by 6.8 points to 50.8 from 1980 to 1990, but Appalachian women's labor force participation remained 5.9 percentage points below that of U.S. women, overall. In 1990, 56.7 percent of U.S. women were in the labor force compared to 50.8 percent of Appalachian women.

Labor Force Participation by Appalachian Sub-regions

Comparing the change in participation rates for men across Sub-regions in Appalachia, every Sub-region had declines in labor force participation from 1980 to 1990. There are differences, however, across Sub-regions in the labor force participation rates. In 1990, men in the South Sub-region had the highest participation with 73.2 percent in the labor force. The Central Sub-region had the lowest participation among men, with 62.6 percent in the labor force, a gap of 10.6 percentage points with the South. The North Sub-region had the largest decline in participation rates from 1980 to 1990, however, -3.0 percentage points.

Increases in labor force participation among women were quite similar from 1980 to 1990 across Appalachian Sub-regions (6.5 and 6.7 percentage points), but these similar gains do not reduce the large variation in women's participation across Sub-regions. Women in the Central Sub-region have by far the lowest labor force participation, with only 41.5 percent in the labor force (increased from 34.7 percent in 1980). The North Sub-region is intermediate with 48.6 percent of women in the labor force in 1990. Women in the South Sub-region have the highest labor force participation, with 55.3 percent participating. This is almost as high as women's participation in the U.S. overall. The gap in participation among women in the Central and Southern Sub-regions is 13.8 percentage points, suggesting quite different opportunities for women and perhaps variation in attitudes regarding women's involvement in the paid labor force. It may also indicate a priority given to men in filling positions in a region hard-hit by declines in extractive industries and manufacturing employment in the 1980s -- jobs typically held by men.

Labor Force Participation in 1993 Beale Codes

Labor force opportunity often is associated with proximity to metropolitan areas. To explore this relationship, the labor force participation of men and women in counties classified by Beale Codes in 1990 is shown in Table 5.2. There is a general pattern of declining labor force participation for men and women from the most metropolitan to the most rural counties. Without question, the highest participation is found among men and women in the top three metro classifications.

Metro men's labor force participation is over 72 percent in 1990 in the top three metropolitan categories, with men in fringe counties of metro areas of 1,000,000 or more having participation of 74.3 percent. In the largest Non-metropolitan counties and in counties in metro areas with less than 250,000 population, men's participation rates are between 68 and 69 percent. For men in the three most rural Beale classifications, labor force participation drops to 65.7 percent for counties with urban populations between 2,500 and 19,999 but not adjacent to metro areas, 67.3 percent for completely rural adjacent counties, and to 62.1 percent for men in completely rural counties not adjacent to a metro area.

Women's participation in the labor force shows the same basic pattern by Beale Code as men's, only with lower participation rates. Women in the three largest metro classifications have the highest participation, about 53 percent. In the next four classifications (Codes 3 to 6) women have participation rates between 49.2 and 50.9 percent. These are lower than those for women in the largest metro areas, but are higher than the participation rates for women in the three most rural categories. The lowest participation rates for both

men and women are found in the completely rural counties, not adjacent to metro areas. Only 42.9 percent of women in these counties were in the labor force in 1990.

Table 5.2 Labor Force Participation by Sex Across Beale Codes, 1990

Beale Region	Men		Women	
	Number	Percent	Number	Percent
<u>Metropolitan Areas:</u>				
0 - Central counties of metro areas of 1 million or more pop.	715,493	72.31	599,745	53.16
1 - Fringe counties of metro areas of 1 million or more pop.	203,585	74.30	157,457	53.13
2 - Counties in metro areas of 250,000 - 1,000,000 pop.	1,622,058	72.25	1,365,198	53.73
3 - Counties in metro areas of less than 250,000 pop.	655,184	68.46	528,957	49.64
<u>Non-Metropolitan Areas:</u>				
4 - Urban pop. of 20,000 or more, adjacent to a metro area	385,615	68.78	312,019	50.18
5 - Urban pop. of 20,000 or more, not adjacent to a metro area	169,883	68.01	143,041	50.86
6 - Urban pop. of 2,500-19,999, adjacent to a metro area	725,159	68.96	567,333	49.15
7 - Urban pop. of 2,500-19,999, not adjacent to a metro area	555,016	65.68	430,700	46.08
8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area	133,760	67.29	98,237	46.69
9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area	176,681	62.09	131,386	42.92
Total	5,342,434	69.78	4,334,073	50.75

Labor Force Participation by 1998 Distressed County Codes

Given that the Distressed County Codes are based on poverty rates, unemployment, and per capita income, we expect a strong relationship between men’s and women’s labor force participation and Distressed County Codes. Labor force participation is shown for men and women in 1990 by Distressed County Codes in Table 5.3. As expected, the lowest participation is found in the Distressed Counties where 60.3 percent of men and 38.8 percent of women are in the labor force. The highest participation rates are in the Competitive Counties, rather than in the Attainment Counties (the most prosperous counties). In the Competitive Counties 75.6 percent of men and 58.1 percent of women are in the labor force. These levels are almost as high as the U.S. average for men, and women in the Appalachian Competitive Counties have slightly higher participation rates than the average for U.S. women.

Table 5.3 Labor Force Participation by Sex Across Distress Codes*, 1990

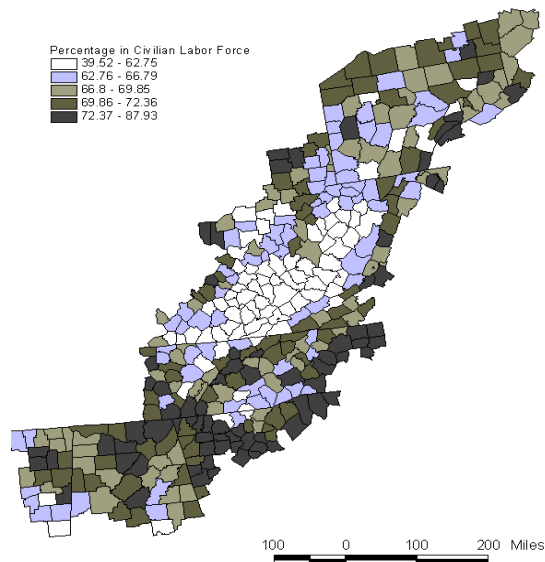
	Men		Women	
	No.	Percent	No.	Percent
Distressed	476,335	60.30	337,649	38.75
Transitional-1	211,413	66.22	164,806	46.11
Transitional	3,374,714	69.67	2,740,126	50.74
Competitive	514,287	75.56	432,345	58.12
Attainment	765,685	74.87	659,147	56.51
Total	5,342,434	69.78	4,334,073	50.75

* * Distress codes created by the ARC using measures of unemployment, poverty, and per capita income.

Spatial Distribution of Labor Force Participation Rates

To provide an indication of the diversity in labor force participation rates and the geographic distribution of counties with high and low rates, Map 5.1 shows the Appalachian counties by labor force participation for men. There is an equal number of counties in each category. Highest labor force participation counties are the lightest shade. The labor force participation for men in these counties in 1990 ranged from 72.3 to 87.9 percent. Consistent with the participation rates by Beale Codes, these counties tend to border or be parts of large metropolitan areas. They also tend to be more concentrated in the South in South Carolina,

Map 5.1
Percentage in Civilian Labor Force,
Men 1990

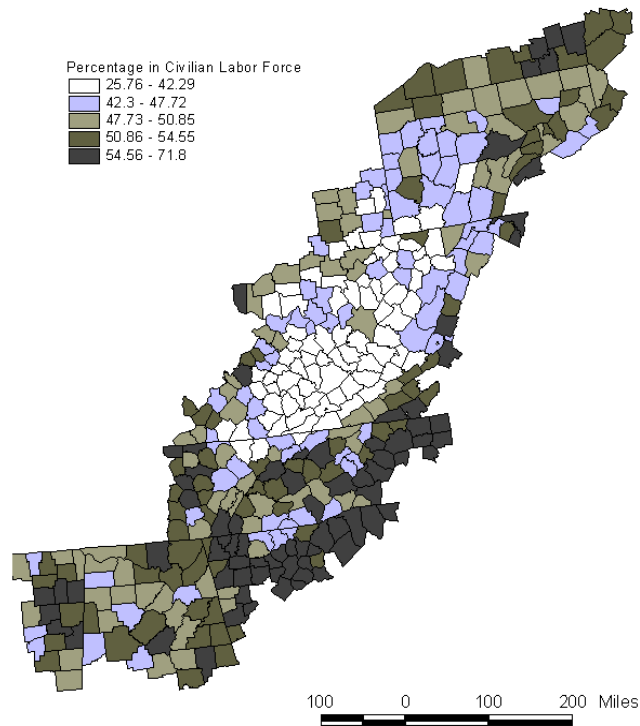


Georgia, and Alabama. The counties with the lowest participation rates (those that are darkest on the map) are concentrated in the middle of Appalachia, specifically parts of West Virginia, eastern Kentucky, and southern Ohio. Areas associated with coal-mining and steel production. These counties have labor force participation that ranges from a low of 39.5 percent to 63.7 percent. As can be seen from the distribution of counties on the map, the majority of Appalachian counties (60 percent) have men's labor force participation that ranges from 63.7 to 72.3 percent.

The spatial distribution of counties with high and low women's labor force participation mirrors that for men. The labor force participation for women, with an equal number of counties in each category, is shown in Map 5.2. As with men, the highest labor force participation among women is located largely in Southern Appalachia adjacent to metropolitan areas, although there is a block of counties in New York with high women's participation. Counties in this group have women's labor force participation that ranges from 54.3 to 71.8 percent. The lowest women's labor force participation is concentrated in the central part of Appalachia, in West Virginia, eastern Kentucky, and some counties in southeastern Ohio and the south-western tip of Virginia. Women's labor force participation for these counties ranges from 25.8 to 43 percent.

A list of the ten counties with the lowest labor force participation rates for men and women in 1990 is provided in Table 5.4. Owsley County, Kentucky has the lowest men's labor force participation, only 39.5 percent. The next lowest participation is found in McDowell County, West Virginia, where 47.4 percent of men are in the labor force. Recall that McDowell County experienced some of the highest out-migration of all Appalachian Counties, consistent with poor and/or declining economic opportunities. The gap between

Map 5.2
Percentage in Civilian Labor Force,
Women 1990



Owsley, Kentucky and McDowell County is significant suggesting very serious barriers to men's employment and/or very high levels of disability in Owsley, Kentucky. Five of these ten counties with the lowest men's labor force participation are located in eastern Kentucky in the coal mining region and the more mountainous areas where transportation is difficult.

Table 5.4 Appalachian Counties with Lowest Labor Force Participation Rates for Men and Women, 1990

FIPS Code	County	State	Percent in Labor Force
<u>Men:</u>			
21189	Owsley	KY	39.52
54047	McDowell	WV	47.41
21051	Clay	KY	50.84
47067	Hancock	TN	52.07
21175	Morgan	KY	52.47
42053	Forest	PA	52.59
21129	Lee	KY	52.93
47007	Bledsoe	TN	53.03
21147	McCreary	KY	53.09
13281	Towns	GA	53.09
<u>Women:</u>			
54047	McDowell	WV	25.76
54109	Wyoming	WV	25.79
54059	Mingo	WV	25.83
54015	Clay	WV	26.08
21133	Letcher	KY	26.84
54101	Webster	WV	26.94
21131	Leslie	KY	26.97
21159	Martin	KY	27.80
54005	Boone	WV	28.19
21095	Harlan	KY	28.49

All of the counties with lowest women's labor force participation are located in Kentucky (6) or West Virginia (4). McDowell, Wyoming, and Mingo Counties, West Virginia have the lowest women's labor force participation in the Appalachian Region — 25.8 percent. Only two counties, McDowell, West Virginia and Clay, West Virginia, are among the ten counties with the lowest participation for both men and women. These differences for men and women are consistent with research that has shown different employment opportunities for men and women in the same labor markets and provides evidence of the continued sex-segregation of employment opportunities.

The ten counties with the highest men's and women's labor force participation in 1990 are listed in Table 5.5. Six of the counties with the highest men's labor force participation are in Georgia, with Gwinnett's participation of 87.9 percent the highest in Appalachia. This county also had the highest women's labor force participation in 1990 — 71.8 percent, well above the U.S. average, and it had high in-migration and population growth (see chapter 3). There is more consistency in the top ten counties for men's and women's labor force participation, with five of the top ten counties the same. Four of these are Georgia counties that border or are part of the Atlanta metropolitan area.

Gender and Race Differences in Labor Force Participation in Appalachia

Labor force participation rates in 1980 and 1990, and the change in labor force participation rates for men and women, by race and ethnicity are shown in Table 5.6. The first panel shows sex-specific participation for men and women. Panels 2 through 4 give sex-specific participation rates by race and ethnicity. The patterns observed for all men and women tend to hold, for the most part, in each race group.

**Table 5.5 Appalachian Counties with Highest Labor Force
Participation Rates for Men and Women, 1990**

FIPS Code	County	State	Percent in Labor Force
<u>Men:</u>			
13135	Gwinnett	GA	87.93
13057	Cherokee	GA	84.89
13097	Douglas	GA	81.97
01117	Shelby	AL	81.88
13117	Forsyth	GA	81.64
37003	Alexander	NC	80.92
13223	Paulding	GA	80.87
13313	Whitfield	GA	80.24
39025	Clermont	OH	79.69
01089	Madison	AL	79.65
<u>Women:</u>			
13135	Gwinnett	GA	71.80
13097	Douglas	GA	66.71
13057	Cherokee	GA	64.89
37003	Alexander	NC	64.73
13085	Dawson	GA	62.72
13213	Murray	GA	62.37
37023	Burke	NC	62.20
37027	Caldwell	NC	61.74
13313	Whitfield	GA	61.71
37059	Davie	NC	61.53

Women experienced gains in labor force participation from 1980 to 1990, while men taken together as a group experienced a slight decline. This was true for each race group, although only Hispanic men experienced an increase in labor force participation over the decade. These gains in women’s labor force participation may reflect the shifting industrial and occupational composition towards creation of jobs more often associated with women (in retail trade and services), and it may indicate the need for dual-earner families as the job opportunities and quality of jobs for men have declined.

Table 5.6 Labor Force Participation Rates by Gender and Race
1980 and 1990

	Men			Women		
	1980	1990	Change	1980	1990	Change
Total	71.4	69.8	-1.6	43.9	50.8	6.9
Whites	72.1	70.4	-1.7	43.6	50.3	6.7
Blacks	61.4	60.8	-0.6	49.1	56.2	7.1
Hispanics	63.1	69.9	6.8	42.1	55.8	13.7

As might be expected, labor force participation rates vary a great deal by race and ethnicity. Among men, overall labor force participation for whites and Hispanics is quite similar in 1990 — 70.4 percent of whites and 69.9 percent of Hispanics were in the labor force. Only 60.8 percent of Black men were in the labor force in 1990, significantly lower than either whites or Hispanics. Gains in labor force participation were greatest for Hispanic men (6.8 percentage points), and the decline was largest for whites (-1.7 percentage points).

Women's labor force participation also varies by race and ethnicity. These groups can be compared to each other and to men in the same group. Black and Hispanic women have higher labor force participation than white women in 1990. Among Black women 56.2 percent were in the labor force compared to 55.8 percent of Hispanic women, and 50.3 percent of white women. Hispanic women had the largest increase in labor force participation over the decade — 13.7 percentage points. Black women gained 7.1 percentage points and White women's labor force participation rose by 6.7 points.

These differences in labor force participation by race and ethnicity only partly reflect the different places people live. Recall that most minorities are concentrated in the metropolitan counties or counties adjacent to large cities, the areas with the highest labor force participation rates. Living in counties with depressed economic opportunities is not likely to explain the race and ethnic gap with whites on labor force participation. Other explanations include differentials in human capital (education and work skills) and disability (among older working age persons) across race and ethnic groups, and discrimination against Blacks and Hispanics in local labor markets. The particularly low participation rates of Black men in 1980 and the loss to 1990 suggests that they may be at the bottom of any labor queue, regardless of their education and skills.

Unemployment in Appalachia

Unemployment rates also vary greatly across Appalachia. Unemployment rates for 1980 and 1990 for the U.S., Appalachia, and the Appalachian Sub-regions for all persons, and for men and women are given in Table 5.7. In both 1980 and 1990, Appalachia's total unemployment rate exceeded that of the U.S. In 1990, the U.S. unemployment rate was 6.3 percent, compared to 6.8 percent for Appalachia. The unemployment rate was down in 1990 compared to 1980, and the decline was larger for the Appalachia than for the U.S. Men's and

Table 5.7 Unemployment for Appalachia by Gender and Sub-region, 1980 and 1990

	1980		1990		Change	
	No.	%	No.	%	No.	%
<u>North Appalachia</u>						
Men	229,174	8.7	199,132	7.9	-30,042	-0.8
Women	130,548	7.5	131,941	6.6	1,393	-0.9
Total	359,722	8.2	331,073	7.3	-28,649	-0.9
<u>Central Appalachia</u>						
Men	52,109	10.8	49,342	10.7	-2,767	-0.1
Women	24,413	8.8	32,408	9.6	7,995	0.8
Total	76,522	10.1	81,750	10.2	5,228	-0.1
<u>South Appalachia</u>						
Men	128,935	6.2	121,498	5.1	-7,437	-1.1
Women	110,655	7.2	126,033	6.3	15,378	-0.9
Total	239,590	6.6	247,531	5.7	-15,480	-0.9
<u>Total Appalachia</u>						
Men	410,218	7.9	369,972	6.9	-40,246	-1.0
Women	265,616	7.5	290,382	6.7	24,766	-0.8
Total	675,834	7.7	660,354	6.8	-15,480	-0.9

women's unemployment rates were quite similar in Appalachia in 1980 and 1990, with men's 0.4 and 0.2 percentage points higher in each year, respectively, than women's.

Unemployment in Appalachian Sub-regions

Comparing Sub-regions, Central Appalachia has the highest unemployment rates for men and women, and, most notably, the unemployment rates *increased* from 1980 to 1990, and for women overall. Men's unemployment rate was 10.7 percent in 1990, while women's was 9.6 percent. These decline by 0.1 percentage points for men and rose by 0.8 points for women. Technological change in mining continued to displace workers during the 1980s, suggesting one reason for the increase in unemployment rates in the Central Sub-region. Another explanation may be more optimistic. These increases in unemployment rates occurred at the same time as labor force participation rates for women in the Central Sub-region grew. The beginnings of economic diversification and more available jobs may have encouraged discouraged women workers (those without jobs who had stopped looking for work) to begin looking for employment, thus resulting in increases in both labor force participation rates and unemployment rates. Given either explanation, there clearly remains a mismatch of persons interested in working compared with the number or type of job opportunities available. Unemployment rates were lowest in the South Sub-region in both 1980 and 1990, and this Sub-region had declines from 1980 to 1990 similar to those in the North Sub-region. Only 5.1 percent of men and 6.3 percent of women were unemployed in the South in 1990. Over the ten year period, men's unemployment had dropped by 1.1 percentage points, while women's declined by 0.9. In the North Sub-region, 7.9 percent of women and 6.6 percent of men still were unemployed in 1990.

Unemployment Rates by 1993 Beale Codes

Trends in unemployment are inversely related to population size and metropolitan adjacency, although the pattern is less clear for men than women. The unemployment rates

for men and women in Appalachian Counties grouped by Beale Codes are in Table 5.8. Among women the unemployment rates are lowest for central counties of 1 million or more, 5.29 percent and the second lowest is in metropolitan counties of 250,000 to 1,000,000. In each case, the women's unemployment rate is below 6.6 percent. In Non-metropolitan counties, adjacent counties have lower unemployment than nonadjacent counties in each population size class, with the highest women's unemployment, 9.24 percent, found in completely rural, nonadjacent counties.

Among men, the lowest unemployment in 1990 occurred in metropolitan counties with populations of 250,000 to 1,000,000 -- 5.86 percent. Fringe counties of metro areas of 1 million or more and the central counties of those areas were more than a half percentage point higher, 6.48 and 6.52 percent, respectively. The highest men's unemployment rate among Non-metropolitan counties was 9.6 percent in completely rural counties not adjacent to metropolitan counties. Non-metropolitan counties not adjacent to metropolitan counties and having urban populations of 20,000 or more had the lowest men's unemployment rate among Non-metropolitan counties, 7.10 percent. In all comparisons of men's and women's unemployment rates within each category except two, women's unemployment rates were lower than men's in 1990.

Unemployment Rates by 1998 Distressed County Codes

Since unemployment rates are part of the criteria used to classify counties as distressed, we expect a straightforward relationship. Unemployment rates by sex by Distressed County Codes are given in Table 5.9. As expected, the Distressed Counties have the highest unemployment for both men and women, 13.02 and 11.30 percent, respectively.

Table 5.8 Unemployment by Sex Across Beale Codes, 1990

Beale Code	Men		Women	
	No.	Percent	No.	Percent
<u>Metropolitan Areas:</u>				
0 - Central counties of metro areas of 1 million or more pop.	46,657	6.52	31,705	5.29
1 - Fringe counties of metro areas of 1 million or more pop.	13,194	6.48	9,970	6.33
2 - Counties in metro areas of 250,000 - 1,000,000 pop.	95,044	5.86	83,652	6.13
3 - Counties in metro areas of less than 250,000 pop.	44,037	6.72	34,857	6.59
<u>Non-Metropolitan Areas:</u>				
4 - Urban pop. of 20,000 or more, adjacent to a metro area	29,803	7.73	21,955	7.04
5 - Urban pop. of 20,000 or more, not adjacent to a metro area	12,070	7.10	10,220	7.14
6 - Urban pop. of 2,500-19,999, adjacent to a metro area	52,846	7.29	41,208	7.26
7 - Urban pop. of 2,500-19,999, not adjacent to a metro area	48,329	8.71	36,811	8.55
8 - Completely rural (no places with pop. of 2,500 or more) adjacent to a metro area	11,029	8.25	7,859	8.00
9 - Completely rural (no places with pop. of 2,500 or more) not adjacent to a metro area	16,963	9.60	12,145	9.24
Total	369,972	6.93	290,382	6.70

Table 5.9 Unemployment by Sex Across Distress Codes*, 1990

	Men		Women	
	Number	Percent	Number	Percent
Distressed	62,018	13.02	38,171	11.30
Transitional-1	18,787	8.89	14,431	8.76
Transitional	225,498	6.68	181,736	6.63
Competitive	22,153	4.31	22,710	5.25
Attainment	41,516	5.42	33,334	5.06
Total	369,972	6.93	290,382	6.70

* * Distress codes created by the ARC using unemployment, poverty, and per capita income.

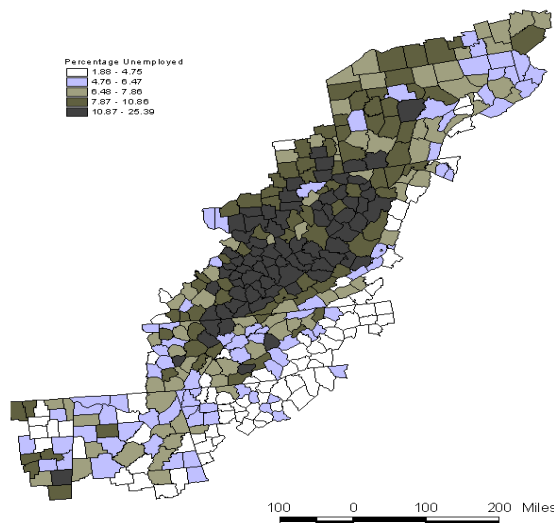
The lowest unemployment rates for women are found in Attainment Counties, where the rate is 5.06 percent. Among men, however, the Competitive Counties show an unemployment of 4.31 percent, the lowest of the Distressed Codes. In all but the Competitive Counties, women's unemployment rates within a Distress Code were lower than men's.

Spatial Distribution of Unemployment in Appalachia

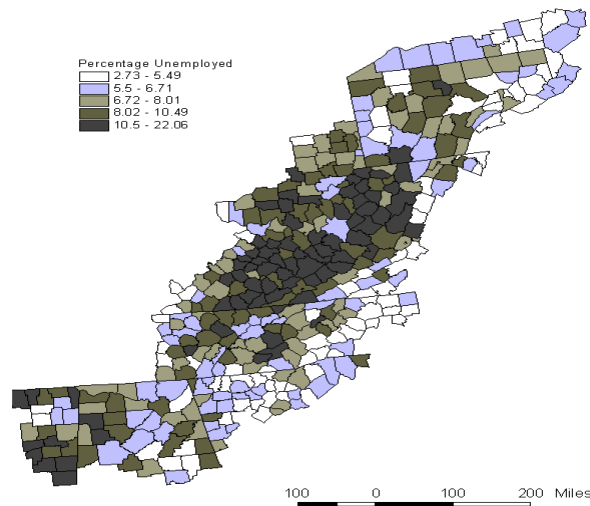
The spatial distribution of men's unemployment across Appalachian Counties is shown in Map 5.3. The highest unemployment rates, which include the top twenty percent of counties, have rates which range from 10.3 to 25.4 percent. These counties are concentrated in the center of Appalachia but generally remain north of the Carolinas and Tennessee. The second highest unemployment rates for men encircle the block of counties with the highest rates and extend into southeastern Ohio, western Pennsylvania, and the southern tier of New York. The lowest unemployment rates, which run from 1.9 to 5.0 percent, are found along the eastern edges of Appalachia, especially in South Carolina and Georgia — mostly near rapidly growing metropolitan areas.

The spatial pattern of women's unemployment is basically similar to that for men, except that the core is more broken and there is a larger block of high unemployment in Mississippi and fairly high unemployment in more counties in Alabama (see Map 5.4). Lower levels of unemployment (counties in the lowest category have values that range from 2.7 to 5.5) are found along the eastern edge of Appalachia, with most counties in Georgia, North Carolina, and the southwest tip of Virginia. These may have quite different explanations. The low unemployment in Georgia and North Carolina may relate to the rapid growth in these areas and their economies overall. In the southwest tip of Virginia, many men have been displaced from coal mining and women find employment to offset the loss in income, plus jobs that become available are lower-paying and targeted towards women.

Map 5.3
Percentage of Civilian Labor Force
Unemployed, Men 1990



Map 5.4
Percentage of Civilian Labor Force
Unemployed, Women 1990



To provide additional detail on the counties with the highest unemployment rates, Table 5.10 lists the ten counties with the highest unemployment rates for men and women in 1990. Owsley County, Kentucky had the highest unemployment for men among Appalachian counties in 1990, 25.4 percent. The second highest was McDowell, West Virginia with 22.7 percent of men in the labor force unemployed. These two counties also had the lowest labor force participation among men in 1990. Five of the ten highest unemployment counties for men in 1990 were in Kentucky and five in West Virginia.

The highest unemployment for women in 1990 occurred in Benton County, Mississippi, where 22.1 percent of women in the labor force were unemployed. The second highest was McDowell County, West Virginia with 20.8 percent of women unemployed. Of the ten counties with highest unemployment for women, five were located in Kentucky, three in West Virginia, and two were Mississippi Counties.

Table 5.10 Appalachian Counties with Highest Unemployment Rates for Men and Women, 1990

FIPS Code	County	State	Percent Unemployed
<u>Men:</u>			
21189	Owsley	KY	25.39
54047	McDowell	WV	22.74
54015	Clay	WV	22.42
54101	Webster	WV	21.51
21153	Magoffin	KY	20.71
21147	McCreary	KY	20.41
54087	Roane	WV	19.17
21063	Elliott	KY	18.73
54109	Wyoming	WV	17.39
21119	Knott	KY	17.08
<u>Women:</u>			
28009	Benton	MS	22.06
54047	McDowell	WV	20.84
21147	McCreary	KY	20.30
21127	Lawrence	KY	20.17
54101	Webster	WV	18.09
28103	Noxubee	MS	17.61
21109	Jackson	KY	16.28
54043	Lincoln	WV	16.04
21095	Harlan	KY	15.72
21197	Powell	KY	15.42

The counties with the lowest unemployment rates for men and for women are given in Table 5.11. For men, the lowest unemployment rate is 1.88 in Towns County, Georgia. The low unemployment counties are more scattered geographically than might be expected. Only three are in Georgia, two each are in North Carolina and Virginia and one each in Ohio, Alabama, and Mississippi. Counties with the lowest unemployment rates in 1990 for women are equally geographically dispersed. Three are in Virginia, two are located in Georgia and North Carolina, and one each in Ohio, Tennessee, and New York. Interestingly, only three of the counties that were lowest on men's unemployment also were among the ten lowest counties on women's unemployment. This again suggests that there often are distinct labor markets and job opportunities for men and women in the same geographic area.

Gender, Race and Ethnic Variation in Unemployment in Appalachia

Overall in Appalachia, unemployment declined by 1.0 percentage points for men and 0.8 percentage points for women from 1980 to 1990 (see Table 5.12). Consistent with this overall pattern of decline, white and Hispanic men's unemployment declined by 1.0 and 2.6 percentage points, respectively. Unemployment rose among Black men, however, from 12.5 to 12.9 percent. Among women, unemployment also declined for white and Hispanics, by 0.9 and 1.4 percentage points, respectively. Black women, like Black men, experienced a slight increase in unemployment over the decade, from 12.2 to 12.4 percent.

INDUSTRIAL STRUCTURE

The industrial structure of an area provides insight into the types and quality of jobs that are available, and how vulnerable employment is to market forces or changes in the global

Table 5.11 Appalachian Counties with Lowest Unemployment Rates for Men and Women, 1990

FIPS Code	County	State	Percent Unemployed
<u>Men:</u>			
13281	Towns	GA	1.88
37005	Alleghany	NC	2.60
39075	Holmes	OH	2.73
37003	Alexander	NC	2.75
01117	Shelby	AL	2.80
51091	Highland	VA	2.85
13117	Forsyth	GA	2.89
13135	Gwinnett	GA	3.02
51021	Bland	VA	3.03
28017	Chickasaw	MS	3.06
<u>Women:</u>			
39057	Holmes	OH	2.73
51091	Highland	VA	3.21
37059	Davie	NC	3.22
13135	Gwinnett	GA	3.33
36109	Tompkins	NY	3.52
13137	Habersham	GA	3.59
51045	Craig	VA	3.60
47153	Sequatchie	TN	3.79
37193	Wilkes	NC	3.88
51023	Botetourt	VA	3.89

**Table 5.12 Unemployment Rates by Gender and Race,
1980 and 1990**

	Men			Women		
	<u>1980</u>	<u>1990</u>	<u>Change</u>	<u>1980</u>	<u>1990</u>	<u>Change</u>
Total	7.7	6.9	-0.8	7.5	6.7	-0.8
Whites	7.4	6.6	-0.8	7.1	6.2	-0.9
Blacks	12.3	12.9	0.5	12.2	12.4	0.2
Hispanics	10.5	8.0	-2.5	10.2	8.9	-1.4

economy. The shifts in the U.S. economy from farming and extractive industries (mining and forestry) to manufacturing and then towards services over the past century have corresponded with vast changes in the types of jobs available, job security, and job rewards. Labor force participation rates of men and women, unemployment, and the ability of families to earn adequate incomes all are influenced by the restructuring of the economy in the U.S., but these shifts are experienced locally.

While the U.S. patterns of shifting industrial structure have been marked over the past three decades, these changes are minor compared to the influence industrial restructuring has had on some local economies because local economies often are not diverse, but rely on one or two major industries. When changes occur in these industries, the entire economic base of a community can be disrupted or lost. Parts of Appalachia, in particular, have suffered the loss of mining and extractive industry jobs-- jobs that were the largest part of the local economy. Some of these have not experienced growth in either manufacturing or services to replace

those lost jobs. Or the jobs that have replaced the mining and extractive industry jobs do not pay similar wages or offer comparable benefits. Adjusting to these changes is one of the major challenges facing many Appalachian communities now and in the future.

Jobs in Industries in Appalachia and the United States

The REIS (Regional Economic Information System) data provide annual estimates of employment (full- and part-time combined) or number of jobs by industry for every county in the U.S. Important trends in the changing industrial structure for Appalachia overall are revealed in Table 5.13. Most noteworthy for the region as a whole are the declines in manufacturing from 24.69 percent of jobs in 1980 to 17.65 percent in 1996. Farm employment, mining, and government positions showed more modest declines. Industries that increased their share of employment were services, which rose from 18.23 percent of employment to 25.96 percent. Retail trade had a more modest increase from 15.2 to 17.87 percent of employment. Other industries' share of employment changed by less than one percent from 1980 to 1996. These changing shares of employment in Appalachia occurred at a time when employment in the Region increased from 8.8 million to almost 11.2 million people, thus, the growth in jobs overall was substantial despite declining jobs and shares of jobs in some sectors.

Manufacturing and mining industries not only lost shares of employment, they lost absolute numbers of jobs. The numbers of workers employed in mining declined from 229,494 in 1980 to 99,801 in 1996. Manufacturing lost 202,173 jobs over the same period.

Despite their loss in share of employment, other industries in the region actually had increases

Table 5.13. Employment by Industry for the Appalachian Region

	1980		1990		1996	
	Number	%	Number	%	Number	%
Farm employment	312,708	4.51	339,725	3.34	301,483	2.70
Nonfarm employment						
Ag., forest. & fishing	36,033	0.41	70,680	0.69	78,332	0.70
Mining	229,494	2.61	148,807	1.46	99,801	0.89
Construction	438,926	4.99	574,147	5.64	655,804	5.87
Manufacturing	2,173,603	24.69	1,997,414	19.63	1,971,430	17.65
Transportation, communication, utilities	424,081	4.82	457,325	4.49	486,864	4.36
Wholesale trade	339,755	3.86	409,659	4.03	449,454	4.02
Retail trade	1,338,091	15.20	1,729,557	17.00	1,996,383	17.87
Finance, insurance and real estate	465,327	5.29	525,299	5.16	597,030	5.34
Services	1,604,581	18.23	2,434,225	23.92	2,899,344	25.96
Government	1,333,825	15.15	1,422,650	13.98	1,499,407	13.42
Military	107,769	1.22	126,167	1.24	104,169	0.93
State and local	1,047,426	11.90	1,128,551	11.09	1,238,984	11.09
Total employment	8,803,864		10,176,753		11,170,651	

Data are from the REIS data set through the University of Virginia homepage.

in the number of persons employed from 1980 to 1996. Government employment increased

by 165,582 jobs, even though its share of jobs dropped from 15.15 to 13.42 percent. Most of this increase in government employment occurred in state and local governments which

increased by 191,558 jobs. The devolution of federal government responsibilities to state and local levels has resulted in some increases in state and local government employment as they have attempted to fill the void and meet their new obligations.

The largest increase in number of jobs was in the service sector where employment increased by 1,294,763 jobs from 1980 to 1996. Retail trade had the next largest increase of 658,292 jobs, with 1,338,091 persons employed in retail trade in 1980 and 1,996,383 jobs in 1996. Retail trade alone more than offset the numbers of jobs lost in manufacturing and mining, but the quality of jobs is argued to be lower in retail trade and services. This shifting in quality of jobs has corresponded with increasing shares of dual-worker families suggesting that it may take two jobs in the service or retail trade sector to support a family, while one job may have been adequate in the manufacturing or mining industry.

Compared to the U.S. (See Table 5.14), the Appalachian Region has larger shares of jobs in mining, construction, manufacturing, retail trade, and state and local government employment. Most noteworthy, the Appalachian Region still had 17.65 percent of its jobs in manufacturing in 1996, while the U.S. had dropped to 12.63 percent of jobs in this industrial sector. The Region lags behind the U.S. in the percentage of jobs in services, which was responsible for 30.44 percent of jobs in the U.S. in 1996 but offered 25.96 percent of jobs in Appalachia in the same year. Appalachia was lower than the U.S. by two percentage points in the finance, insurance and real estate sector. These differences in industrial structure could be interpreted as the Appalachia Region still lagging behind the U.S. economy as a whole in making the transition from a goods producing to a service producing economy. For those who find this transition troubling because of the corresponding change in job quality and the loss of middle-class jobs in the goods-producing sector, Appalachia may be seen as being able to

hold on to a more diverse industrial structure that utilizes both goods- and services-producing sectors of the economy.

Table 5.14. Employment by Industry for the United States.

	1980		1990		1996	
	Number	%	Number	%	Number	%
Farm employment	3,798,000	3.32	3,147,000	2.26	2,934,000	1.93
Nonfarm employment						
Ag., forest. & fishing	909,000	0.80	1,452,400	1.04	1,883,000	1.24
Mining	1,277,600	1.12	1,042,900	0.75	880,300	0.58
Construction	5,654,200	4.95	7,264,000	5.22	8,118,000	5.33
Manufacturing	20,781,100	18.19	19,634,600	14.11	19,231,500	12.63
Transportation, communication, utilities	5,672,100	4.97	6,560,600	4.71	7,209,300	4.73
Wholesale trade	5,741,700	5.03	6,651,900	4.78	7,013,200	4.60
Retail trade	17,883,900	15.66	22,840,700	16.41	25,703,900	16.88
Finance, insurance and real estate	8,756,000	7.67	10,695,600	7.68	11,282,900	7.41
Services	24,999,600	21.89	38,662,900	27.78	46,369,800	30.44
Government	18,758,000	16.42	21,232,000	15.25	21,688,000	14.24
Military	2,501,000	2.19	2,750,000	1.98	2,245,000	1.47
State and local	13,263,000	11.61	15,245,000	10.95	16,565,000	10.88
Total employment	114,231,200		139,184,600		152,313,900	

Data are from the REIS data set through the University of Virginia homepage.

Industry Composition and Change by Appalachian Sub-region.

The variation in employment opportunities by Sub-region within Appalachia, and how employment by industry changed is shown in Table 5.15. The general patterns in the shifts in employment by industry are similar across Sub-region, but the magnitude of the shifts varies indicating the different industrial composition of the Sub-regions in 1980. In the North Sub-region, the four largest employers in 1980 were manufacturing (22.94 percent), services (20.47 percent), retail trade (16.23 percent), and government (14.44 percent).

Table 5.15. Employment by Industry and Sub-region

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 1. North Sub-region						
Farm employment	138,625	3.18	118,232	2.51	104,388	2.53
Nonfarm employment						
Ag., forest. & fishing	16,552	0.38	30,040	0.64	35,596	0.71
Mining	117,439	2.69	75,481	1.60	49,635	1.00
Construction	207,154	4.75	246,320	5.23	260,923	5.23
Manufacturing	1,000,038	22.94	769,091	16.33	725,878	14.55
Transportation, communication, utilities	235,251	5.40	231,796	4.92	235,563	4.72
Wholesale trade	170,239	3.90	182,245	3.87	184,150	3.69
Retail trade	707,716	16.23	843,906	17.92	924,967	18.55
Finance, insurance and real estate	239,060	5.48	260,228	5.52	294,440	5.90
Services	892,501	20.47	1,288,892	27.36	1,443,466	28.94
Government	629,529	14.44	642,428	13.64	671,874	13.47
Military	38,777	0.89	47,127	1.00	38,138	0.76
State and local	524,276	12.03	527,517	11.20	564,756	11.32
Total employment	4,359,657		4,710,220		4,987,183	

Table 5.15. Employment by Industry and Sub-region, continued.

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 2: Central Sub-region						
Farm employment	74,665	10.01	70,752	8.60	63,316	7.11
Nonfarm employment						
Ag., forest. & fishing	3,183	0.43	5,873	0.71	5,880	0.66
Mining	90,573	12.14	54,410	6.61	36,021	4.04
Construction	35,117	4.71	40,391	4.91	50,216	5.64
Manufacturing	111,007	14.88	128,430	15.60	130,075	14.60
Transportation, communication, utilities	40,253	5.40	41,295	5.02	44,375	4.98
Wholesale trade	24,759	3.32	25,094	3.05	26,440	2.97
Retail trade	108,181	14.51	128,282	15.58	151,868	17.05
Finance, insurance and real estate	28,529	3.83	30,589	3.72	32,327	3.63
Services	117,410	15.74	154,105	18.72	187,317	21.02
Government	109,446	14.68	124,017	15.07	136,767	15.35
Military	8,249	1.11	10,677	1.30	8,795	0.99
State and local	89,448	11.99	102,418	12.44	117,308	13.17
Total employment	745,791		823,141		890,938	

Table 5.15. Employment by Industry and Sub-region, continued

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 3: Southern Sub-region						
Farm employment	184,170	4.98	150,741	3.25	133,779	2.53
Nonfarm employment						
Ag., forest. & fishing	16,298	0.44	34,767	0.75	36,856	0.07
Mining	21,482	0.58	18,916	0.41	14,145	0.27
Construction	196,655	5.32	287,436	6.19	344,665	6.51
Manufacturing	1,062,558	28.73	1,099,893	23.69	1,115,477	21.08
Transportation, communication, utilities	148,577	4.02	184,234	3.97	206,926	3.91
Wholesale trade	144,757	3.91	202,320	4.36	238,864	4.51
Retail trade	522,194	14.12	757,369	16.31	919,548	17.37
Finance, insurance and real estate	197,738	5.35	234,482	5.05	270,263	5.11
Services	594,670	16.08	991,228	21.35	1,268,561	23.97
Government	594,853	16.08	656,205	14.13	690,766	13.05
Military	60,743	1.64	68,363	10.47	57,236	1.08
State and local	433,702	11.73	498,616	10.74	556,920	10.52
Total employment	3,698,416		4,643,392		5,292,530	

Data are from the REIS database obtained from the University of Virginia homepage.

These same four industries were the top employers in the Central Sub-region in 1980, but the shares were much more equal with 15.74 percent in services, 14.88 percent in manufacturing, 14.68 percent in government, and 14.51 percent in retail trade. The next highest employer in the Central Sub-region was mining with 12.14 percent of employment in

1980. The fifth largest industry by employment in the North Sub-region in 1980 was finance, insurance and real estate with only 5.48 percent of the jobs.

The South Sub-region, like the other Sub-regions, had its largest shares of employment in manufacturing, services, government, and retail trade, but manufacturing's share in 1980 was 28.73 percent, compared with 16.08 percent for both services and government and 14.12 percent for retail trade. As in the North, finance, insurance and real estate held the next highest share of jobs (5.35 percent). In contrast with the Central Sub-region, mining was only 0.58 percent of employment in the South and 2.69 percent in the North Sub-region.

Examining changes in the shares of employment by industry from 1980 to 1996, the shifts reflect the shares in 1980. In the North Sub-region, manufacturing employment dropped from 22.94 to 14.55 percent, with a loss of 274,160 jobs. Services industries had the largest gain in employment (550,965 jobs) and employment shares rose from 20.47 to 28.94 percent. Retail trade also experienced an increase from 16.23 to 18.55 percent of employment, or a gain of 217,251 jobs.

Other industries had smaller changes in their share of employment. Mining, for example was 2.69 percent of employment in the North Sub-region in 1980, and dropped to one percent in 1996, with a loss of 67,804 jobs. Finance, insurance and real estate increased its employment share with a gain of 55,380 jobs, while government employment gained 42,345 jobs, but lost job share. Overall, in the North Sub-region, employment increased by 14.4 percent from 1980 to 1996, a gain of 627,526 employed. This is 26.5 percent of the gain in employment for the Appalachian Region as a whole, even though in 1980 the North Sub-region had almost half (49.5 percent) of the employment in the region.

Central Sub-region jobs grew by 19.5 percent from 1980 to 1996, or 145,147 jobs. This job growth largely occurred in four sectors: services, retail trade, government and construction. Services increased its share of employment from 15.74 to 21.02 percent, or by

69,907 jobs. Retail trade added 43,687 employed to increase its share from 14.51 to 17.05 percent. Government had a smaller role, with 27,321 new jobs all in state and local government, and an increase in employment share from 14.68 to 15.35 percent. Only 15,899 jobs were added in construction, enough to boost employment share from 4.71 to 5.64 percent. Manufacturing lost employment share, from 14.88 to 14.60 percent, but added 19,068 jobs from 1980 to 1996. The mining industry, on the other hand, lost both jobs and employment share, dropping from 12.14 to 4.04 percent of employment while losing 54,552 jobs. Farm employment (actual persons working on farms or farmers) declined from 10.01 to 7.11 percent of people working, but this remains the largest share that farm employment holds in any Sub-region.

Growth in employment is a characteristic of every industry sector in the Southern Sub-region, but two — farm employment and mining. Even while other industries lost employment share, they gained in numbers of persons working in those industries from 1980 to 1996. Services had the largest gain, increasing its employment share from 16.08 to 23.97 percent and adding 673,891 jobs. Retail trade increased jobs by 397,354 to raise its share of employment from 14.12 to 17.37 percent. Over 148,000 jobs were added in construction, while state and local governments increased workers by 123,218. Despite this increase, state and local governments lost employment share from 11.73 to 10.52 percent. Manufacturing had the largest loss in employment share, from 28.73 to 23.69, but still added 52,919 workers from 1980 to 1996. Overall, the Southern Sub-region experienced an increase of 43.1 percent or 1,594,114 jobs from 1980 to 1996. This was 67.4 percent of the total Appalachian rise in

number of jobs. This Sub-region, in 1980, was the location of 42 percent of Appalachia's jobs. By 1996, the Southern Sub-region held 47.4 percent of Appalachia's jobs.

Industry Composition and Change by Distressed County Code

Distressed County Codes are developed based on key indicators that are related to the quality of employment in the county. Differences in industrial structure and restructuring may be particularly useful for understanding this classification of counties. In 1980, the government sector was the largest employer in Distressed Counties, with 17.12 percent of jobs (See Table 5.16). This was followed by services (15.64 percent), retail trade (14.65 percent), mining (14.47 percent), and manufacturing (12.68 percent). By 1996, the industrial composition had shifted so that services had the largest share of employment (22.87 percent), retail trade had grown to 18.05 percent, and government sector had dropped to third with 17.82 percent of employment. Manufacturing had changed little in its employment share from 1980 to 1996, holding at about twelve percent. Farm employment exceeded mining with 6.09 percent of persons in farm employment, and 5.36 percent in mining. This decline in mining corresponds with a loss of 63,818 jobs, or almost 60 percent of mining jobs in 1980. The gain in service sector employment just barely offsets that decline with a gain of 72,449 jobs. Jobs in retail trade only increased by 39,966 from 1980 to 1996. Manufacturing employment rose by only 4,120 jobs. In 1996, 828,368 jobs were located in Distressed Counties of Appalachia. Overall job growth in Distressed Counties was 10.7 percent, well below Appalachia's growth in jobs of 26.9 percent.

Table 5.16. Employment by Industry and 1998 ARC Distressed County Codes

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 1: Distressed Counties						
Farm employment	61,644	8.24	55,741	7.26	50,450	6.09
Nonfarm employment						
Ag., forest. & fishing	2,401	0.32	4,722	0.62	5,199	0.63
Mining	108,223	14.47	66,705	8.69	44,405	5.36
Construction	36,140	4.83	35,710	4.65	43,775	5.28
Manufacturing	94,851	12.68	91,844	11.96	98,971	11.95
Transportation, communication, utilities	41,794	5.59	40,261	5.24	41,400	5.00
Wholesale trade	19,674	2.63	19,578	2.55	19,744	2.38
Retail trade	109,555	14.65	128,075	16.68	149,521	18.05
Finance, insurance and real estate	26,748	3.58	27,528	3.59	29,028	3.50
Services	117,009	15.64	154,243	20.09	189,458	22.87
Government	128,078	17.12	136,532	17.78	147,612	17.82
Military	8,996	1.20	11,377	1.48	9,685	1.17
State and local	108,869	14.55	115,311	15.02	128,399	15.50
Total employment	747,999		767,668		828,368	

Transitional 1 Counties show less reliance on mining than Distressed Counties and a much heavier emphasis on manufacturing employment in 1980. Manufacturing employed 25.24 percent of the workers in 1980, followed by the government sector (17.02 percent),

Table 5.16. Employment by Industry and 1998 ARC Distresses County Codes, continued.

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 2: Transitional 1 Counties						
Farm employment	27,595	8.32	24,198	6.75	21,548	5.68
Nonfarm employment						
Ag., forest. & fishing	1,354	0.41	2,340	0.65	2,491	0.66
Mining	13,974	4.21	8,448	2.36	5,737	1.51
Construction	14,490	4.37	18,139	5.06	21,459	5.65
Manufacturing	83,734	25.24	80,027	22.31	75,494	19.89
Transportation, communication, utilities	15,913	4.80	15,800	4.40	13,946	3.67
Wholesale trade	7,576	2.28	8,783	2.45	7,600	2.00
Retail trade	47,500	14.32	56,966	15.88	66,422	17.50
Finance, insurance and real estate	12,366	3.73	12,905	3.60	14,443	3.80
Services	50,020	15.08	70,149	19.56	79,239	20.87
Government	56,469	17.02	59,694	16.64	59,654	15.71
Military	4,101	1.24	5,202	1.45	4,217	1.11
State and local	44,373	13.37	47,234	13.17	49,677	13.09
Total employment	331,761		358,720		379,610	

Table 5.16. Employment by Industry and 1998 ARC Distressed County Code, continued

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 3: Transitional Counties						
Farm employment	267,113	4.74	228,453	3.58	202,749	2.92
Nonfarm employment						
Ag., forest. & fishing	24,279	0.43	45,725	0.72	50,265	0.72
Mining	100,104	1.78	65,945	1.03	43,861	0.63
Construction	268,829	4.77	353,011	5.53	399,737	5.76
Manufacturing	1,455,805	25.85	1,331,448	20.85	1,295,132	18.68
Transportation, communication, utilities	266,581	4.73	283,015	4.43	296,340	4.27
Wholesale trade	212,209	3.77	241,046	3.78	260,352	3.75
Retail trade	854,693	15.18	1,086,795	17.02	1,244,014	17.94
Finance, insurance and real estate	290,807	5.16	311,714	4.88	353,303	5.09
Services	1,001,216	17.78	1,463,967	22.93	1,720,259	24.81
Government	871,987	15.48	914,432	14.32	964,661	13.91
Military	71,805	1.28	81,139	1.27	66,236	0.96
State and local	690,365	12.26	736,450	11.54	809,407	11.67
Total	5,631,737		6,384,473		6,934,323	

Table 5.16. Employment by Industry and 1998 ARC Distressed County Code, continued

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 4: Competitive Counties						
Farm employment	30,392	3.97	23,109	2.31	19,852	1.72
Nonfarm employment						
Ag., forest. & fishing	3,846	0.50	7,423	0.74	7,460	0.65
Mining	2,255	0.29	2,555	0.25	1,758	0.15
Construction	49,672	6.49	72,592	7.24	79,614	6.92
Manufacturing	247,911	32.39	261,379	26.08	273,683	23.77
Transportation, communication, utilities	30,262	3.95	41,595	4.15	49,134	4.27
Wholesale trade	29,293	3.83	42,137	4.20	50,740	4.41
Retail trade	114,880	15.01	170,909	17.05	206,489	17.94
Finance, insurance and real estate	37,372	4.88	48,443	4.83	54,784	4.76
Services	123,553	16.14	216,681	21.62	276,468	24.02
Government	94,100	12.29	114,994	11.47	126,674	11.00
Military	7,720	1.01	9,749	0.97	8,818	0.77
State and local	78,508	10.26	96,044	9.58	107,977	9.38
Total employment	7,654,443		1,002,145		1,151,212	

Table 5.16. Employment by Industry and 1998 ARC Distressed County Code, continued

	1980		1990		1996	
	Number	%	Number	%	Number	%
Panel 5: Attainment Counties						
Farm employment	10,716	0.81	8,224	0.49	6,884	0.37
Nonfarm employment						
Ag., forest. & fishing	4,153	0.31	10,470	0.63	12,917	0.69
Mining	4,938	0.37	5,154	0.31	4,040	0.22
Construction	69,795	5.26	94,695	5.69	111,219	5.92
Manufacturing	291,302	21.95	232,716	13.99	228,150	12.15
Transportation, communication, utilities	69,531	5.24	766,654	4.61	86,044	4.58
Wholesale trade	71,003	5.35	98,115	5.90	111,018	5.91
Retail trade	211,463	15.94	286,812	17.24	329,937	17.58
Finance, insurance and real estate	98,034	7.39	124,709	7.50	145,472	7.75
Services	312,783	23.57	529,185	31.81	633,920	33.77
Government	183,191	13.81	196,998	11.84	200,806	10.70
Military	15,147	1.14	18,700	1.12	15,213	0.81
State and local	125,311	9.44	133,512	8.02	143,524	7.65
Total employment	1,326,924		1,663,747		1,877,138	

services (15.08 percent), retail trade (14.32 percent) and farm employment (8.32 percent). By 1996, the industry structure had shifted so that the services sector had the largest share of employment at 20.87 percent, and manufacturing had shifted to second with 19.89 percent. This shift in share occurred because of a loss of 8,240 jobs in manufacturing and a gain of

29,219 jobs in services. Retail trade (17.50 percent), government (15.71 percent) and farming (5.68 percent) rounded out the top five industry sectors by employment. Mining is a relatively small sector with only 4.21 percent (or 13,974) of jobs in 1980 and 5,737 jobs in 1996. Overall, jobs in Transitional 1 Counties grew by 14.4 percent from 1980 to 1996.

The larger group of Transitional Counties has characteristics quite similar to the first group of Transitional-1 Counties, but they have slightly better indicators of poverty, unemployment and income levels. These counties also were heavily reliant on manufacturing in 1980, with 25.85 percent of jobs (1,455,805 jobs) found in that industrial sector. Services were important with 17.78 percent of jobs. Government sector and retail trade employed 15.48 and 15.18 percent of workers, respectively. Finance, insurance and real estate was the fifth largest industrial sector with 5.16 percent of jobs.

By 1996, manufacturing and services had switched places, so that services employed the largest share of workers, 24.81 percent, and manufacturing had dropped to 18.68 percent. This occurred as the result of a gain of 719,043 jobs in services, and a loss of 160,673 jobs in manufacturing. Retail trade had grown to 17.94 percent of jobs by adding 389,321 jobs over the sixteen years, followed by government sector with 13.91 percent. In 1996, 6,934,323 persons were employed in these Transitional Counties, up 1,302,586 people or 23.1 percent from 1980. These counties experienced greater growth in employment than the Distressed Counties and the Transitional-1 Counties, but still fell below the job growth of Appalachia.

Competitive Counties, like the Transitional Counties, had their largest share of jobs in manufacturing in 1980, 32.39 percent. This is the highest share of manufacturing jobs of any of these county groups. Services employed the second largest group — 16.14 percent. Retail

trade and government followed with 15.01 and 12.29 percent of jobs, respectively. Perhaps an indicator of pending growth, construction employed 6.49 percent of workers, the fifth highest share. Also like the Transitional Counties, by 1996, services exceeded manufacturing in share of employment. Services' share had increased to 24.02 percent, and manufacturing's share had dropped to 23.77 percent. Even though this drop in share had corresponded with a job growth of over 25,000 jobs, manufacturing could not compete with the gain of 152,915 jobs in services.

Retail trade had increased its share of employment to 17.94 percent, and government had dropped to 11.0 percent. Despite this drop in share, state and local government gained 29,469 jobs from 1980 to 1996, jobs that might have been added in response to the increasing demands for services as population in these counties grew. Employment in these Competitive Counties increased from 765,443 to 1,151,212 from 1980 to 1996, a jump of 385,769 jobs or 50.4 percent. This increase significantly exceeds the job growth in the entire Appalachian Region.

The Attainment Counties had made the shift from a goods-producing to a service-based economy by 1996. Even in 1980, services employed the largest share of workers, 23.57 percent, followed closely by manufacturing with 21.95 percent of employment. Retail trade had 15.94 percent of jobs, and government 13.81 percent. Finance, insurance and real estate was the fifth largest sector with 7.39 percent of workers. By 1996, the services sector share of employment had increased by over ten percentage points to 33.77 percent, retail trade had grown to encompass 17.58 percent of jobs, and manufacturing had dropped to only 12.15 percent of jobs. Government employment had declined to 10.7 percent, while finance, insurance, and real estate had grown slightly to 7.75 percent. Manufacturing's share dropped

by 9.8 percentage points due to a loss of 63,152 jobs. The service sector's growth in share of employment resulted from a gain of 321,137 jobs. The Attainment Counties have an industrial structure most like that of the U.S. overall. The Attainment Counties' employment grew by 41.5 percent from 1980 to 1996, an increase of 550,214 jobs. This is well above the Appalachian average, but below the growth experienced by the Competitive Counties.

OCCUPATIONAL STRUCTURE

Much of the attention on change in the workplace in recent years has focused on industrial restructuring and the shift from manufacturing to service industry employment. Less discussed has been the corresponding changes in the types of occupations available. The change in industrial structure — jobs in the service sector fall into different occupational categories than do jobs in manufacturing — is one cause of this change in occupational structure. For example, manufacturing has more precision production, craft and repair occupations or machine operators, assemblers and inspectors occupations, while service sector occupations are more likely to include technical and sales and professional occupations.

A second change also is occurring, and it relates to the internal restructuring of occupations within industries. These relate to the re-organization of work away from large scale mass-production to more flexible modes of production with heavier reliance on skilled workers and computer-assisted design and production of smaller batches of product targeted to particular markets. These occupations may carry the same general title, but require much more education and computer skills than similarly titled occupations in the same industry ten or fifteen years ago. The increasing use of computers and technology in clerical jobs has decreased the number of these occupations while increasing the technology-related skills

demanded. Efforts to shift costs of worker benefits and wages and fluctuations in market demand by outsourcing and contracting for production and services formerly conducted within a large firm (parts production, janitorial services, advertising and marketing) further change the occupational structure by industry sector. Changing technology and the drive to be competitive by specializing, outsourcing particular processes, and being responsive to buyer's needs have altered the occupational structure within industries.

Occupational Structure of Appalachia

Within Appalachia as a whole these changes in occupational structure can be observed from 1980 to 1990. Occupation data at the county level beyond 1990 is not available. Based on data from the U.S. Census of Population, Table 5.17 shows the percentage of those employed in each of the ten major occupational groups in Appalachia. In 1980, the largest percentage of workers, 15 percent, was found in the precision production, craft and repair occupations. Administrative support occupations were second with 14.3 percent, followed by machine operators, assemblers and inspectors, and then service occupations.

The largest group in 1980 was occupations largely found in manufacturing industries. By 1990, however, most workers were employed in technical and sales occupations (14.33 percent), followed by administrative support (14.15 percent), with precision production, craft and repair third with 13.45 percent of those employed in 1990. In just those ten years, the occupational structure of Appalachia shifted to a heavier reliance on occupations associated with the service sector. The smallest occupational category was farming, forestry and fishing in both years, with under three percent of workers reporting these occupations.

It is important here to note that service occupations include private household workers,

Table 5.17 Occupational Structure of Appalachia.

	1980		1990	
	Number	Percent	Number	Percent
Executive, administrative, managerial	766,219	8.04	1,012,131	9.60
Professional specialty	1,024,468	10.74	1,299,679	12.33
Technical and sales	1,096,213	11.50	1,510,256	14.33
Administrative support	1,363,274	14.30	1,492,037	14.15
Service	1,156,217	12.13	1,353,578	12.84
Farming, forestry, fishing	240,366	2.52	245,142	2.33
Precision production, craft and repair	1,430,280	15.00	1,418,131	13.45
Machine operators, assemblers and inspectors	1,324,824	13.89	1,117,778	10.60
Transportation and materials movers	570,273	5.98	560,985	5.32
Handler, equipment cleaner, laborer	563,245	5.91	531,782	5.04
Total employed	9,535,379		10,541,499	

protective services (firefighters, police), food preparation, waiters and waitresses, health service occupations, cleaning and building maintenance and personal service occupations (barbers, child care providers), while services as an industrial sector includes business and repair services (advertising, computer and data processing, protective services, auto repair), personal services (private household, hotels, beauty shops), entertainment services, and

Table 5.18 Occupation Structure of the United States

	1980		1990	
	Number	Percent	Number	Percent
Executive, administrative, managerial	11,729,405	10.31	16,332,671	12.23
Professional specialty	13,989,090	12.30	18,805,764	14.08
Technician and related support	14,824,552	13.04	20,630,295	15.45
Administrative support	19,532,153	17.18	21,670,633	16.23
Service	14,753,046	12.97	17,705,354	13.26
Farming, forestry, fishing	3,347,191	2.9	3,331,730	2.49
Precision production, craft and repair	14,693,572	12.92	15,147,908	11.34
Machine operators, assemblers and inspectors	10,601,306	9.32	9,153,506	6.85
Transportation, materials movers	5,134,558	4.51	5,484,477	4.11
Handler, equipment cleaner, laborer	5,118,337	4.50	5,282,685	3.96
Total employed	113,723,210		133,545,024	

professional and related services (physicians, hospitals, legal services, schools and universities, museums).

Comparing Appalachia with the United States, there are some important differences (see Table 5.18). As mentioned above, in 1980 Appalachia still had more workers in precision production, craft and repair occupations than any other occupation indicating a continuing reliance on the manufacturing industrial sector. For the U.S. overall, however,

more workers reported administrative support occupations in both 1980 and 1990, with 17.18 percent of those employed in this category in 1980 and 16.23 percent in 1990. This was the second largest category in Appalachia in both years. In the U.S. in 1990, the second and third largest occupational categories were technician and related support and professional specialty occupations. Services was the fourth largest occupation group in the U.S. in 1990 while precision production, craft and repair had dropped from fourth to sixth with 11.34 percent of workers in 1990. As in Appalachia, the farming, forestry and fishing occupations had the fewest workers in the U.S. overall. Appalachia's occupational structure is moving more slowly towards the heavy reliance on administrative support and professional specialty occupations.

Occupational Structure by Appalachian Sub-regions

Looking at Appalachia by Sub-region, the Northern Sub-region looks the most similar to the U.S. overall in that the largest occupation group in both 1980 and 1990 was administrative support with 14.98 percent of workers in 1980 and 14.82 percent in 1990 (see Table 5.19). Unlike the U.S. however, in 1980 the Northern Sub-region's second largest occupation was precision production, craft and repair with 14.56 percent, this had dropped to 12.64 percent of employed in 1990, or the fifth largest.

In 1990, service occupations was the second largest group with 14.37 percent of workers, followed by technical and sales and professional specialty occupations. These last two occupational categories had the largest percentage point increases from 1980 to 1990. Four occupational categories lost 256,834 people from 1980 to 1990. Two of these four, machine operators, assemblers and inspectors and precision production, craft and repair had the largest

losses with 160,122 and 69,677, respectively. The biggest absolute gains were in technical and sales occupations (154,798) and professional specialty occupations (106,269), also those with

Table 5.19 Occupation Structure of Appalachia by Sub-region.

	1980		1990	
	Number	Percent	Number	Percent
Panel 1: North Sub-region				
Executive, administrative, managerial	382,206	8.03	474,353	9.60
Professional specialty	546,251	11.45	652,520	13.20
Technician and related support	553,670	11.61	708,468	14.33
Administrative support	714,374	14.98	732,705	14.82
Service	628,778	13.18	710,204	14.37
Farming, forestry, fishing	108,437	2.27	112,464	2.28
Precision production, craft and repair	694,651	14.56	624,974	12.64
Machine operators, assemblers and inspectors	568,110	11.91	407,988	8.25
Transportation, materials movers	287,527	6.03	261,922	5.30
Handler, equipment cleaner, laborer	258,960	5.60	257,530	5.21
Total employed	4,769,965		4,943,127	

the largest percentage gain in employment over the decade.

The Central Sub-region was heavily reliant on precision production, craft and repair occupations in both 1980 and 1990. Over 19 percent of the Central Sub-region's workforce was employed in these occupations in 1980. While this had decreased to 16.32 percent of employed by 1990 with an actual loss of 17,289 workers, it remained the largest occupational group. There were shifts in the relative importance of other occupation categories over the

Table 5.19 Occupation Structure of Appalachia by Sub-region, continued

Central Sub-region	1980		1990	
	Number	Percent	Number	Percent
Panel 2: Central Sub-region				
Executive, administrative, managerial	56,502	6.80	64,787	7.47
Professional specialty	79,047	9.52	92,870	10.70
Technician and related support	86,248	10.38	112,015	12.91
Administrative support	98,422	11.85	102,386	11.80
Service	94,059	11.32	110,084	12.69
Farming, forestry, fishing	35,195	4.24	32,019	3.69
Precision production, craft and repair	158,930	19.13	141,641	16.32
Machine operators, assemblers and inspectors	95,582	11.51	93,323	10.75
Transportation, materials movers	75,671	9.11	69,941	8.06
Handler, equipment cleaner, laborer	50,992	6.14	48,688	5.61
Total employed	830,646		867,754	

decade. Administrative support, which was second largest in 1980 with 11.85 percent of workers, dropped to fourth not because it lost workers, but because technicians and related support grew to 12.91 percent and services grew to 12.69 percent of the workforce by 1990.

Table 5.19 Occupation Structure of Appalachia by Sub-region, continued.

	1980		1990	
	Number	Percent	Number	Percent
Panel 3: South Sub-region				
Executive, administrative, managerial	327,512	8.32	472,991	10.00
Professional specialty	399,170	10.14	554,289	11.72
Technician and related support	456,295	11.60	689,773	14.58
Administrative support	550,478	13.99	656,946	13.89
Service	433,380	11.01	533,291	11.27
Farming, forestry, fishing	96,735	2.46	100,658	2.13
Precision production, craft and repair	576,699	14.66	651,516	13.77
Machine operators, assemblers and inspectors	661,132	16.80	616,467	13.03
Transportation, materials movers	207,075	5.26	229,122	4.84
Handler, equipment cleaner, laborer	226,292	5.75	225,564	4.77
Total employed	3,934,768		4,730,618	

The largest growth in number of workers occurred in technical and sales occupations with an additional 25,767 persons added from 1980 to 1990. This is almost seventy percent of the jobs held by the additional 37,108 people employed in the Central Sub-region from 1980 to 1990. This supports the idea that some of these local economies are beginning to diversify in an effort to become less reliant on their traditional extractive economic base.

The Southern Sub-region showed the most change in occupation structure over the 1980 to 1990 decade. In 1980, the top two occupation categories were machine operators, assemblers and inspectors and precision production, craft and repair with 16.8 and 14.66 percent of those employed, respectively. The third the fourth largest occupations were administrative support and technical and sales. These had 13.99 and 11.6 percent of the workers, respectively.

By 1990, the top two occupation categories in the Southern Sub-region had shifted to technical and sales, with 14.58 percent, and administrative support with 13.89 percent of those employed. Precision production, craft and repair had dropped to third with 13.77 percent and machine operators, assemblers and inspectors had moved to fourth with 13.03 percent of workers in 1990. Of these three occupation categories, only machine operators, assemblers and repair occupations suffered a real decline in the number of workers over the decade with a loss of 44,665. By comparison, the technical and sales category increased by 233,478 and administrative support by 106,468. The second largest numerical growth in occupations was in professional specialty occupations which added 155,119 jobs from 1980 to 1990. Despite this growth it had risen to only the fifth largest occupation group by 1990.

Occupational Structure by ARC 1998 Distressed County Categories

An examination of occupational structure by 1998 Distressed County Code provides insight to the relationship between occupational structure and economic success of counties. Comparable to the occupational structure of the Central Sub-region, Distressed Counties rely most heavily on precision production, craft and repair occupations (see Table 5.20). Almost twenty percent of those employed work in these occupations. While the number employed in this category dropped by 30,122 from 1980 to 1990, it remained the most important occupation

category in 1990 with 16.27 percent of the employed. Services remained the second largest occupation group by increasing its employment by 18,310 and its share of employment from 11.93 to 13.86 percent. The third largest occupation group in 1980, administrative support with 11.43 percent of employed, dropped to fourth in 1990 even though it gained in both numbers and share of workers. Technical and sales occupations moved into the third largest occupational group in 1990 when its share of employment reached 12.30 percent, with an increase of 24,696 employed from 1980 to 1990. Overall, employment in the Distressed Counties increased by only 10,602 persons from 1980 to 1990, a 1.2 percent increase.

These occupational shifts suggest the retraining and placement of displaced workers over the decade, and a shift in the gender distribution of workers as spouses of displaced workers enter the labor force to take jobs in the new growing occupational categories. The increased labor force participation of men in this region over the decade indicates that both processes took place, although population loss through out-migration of discouraged male job searchers may also influence both the labor force participation rates and the shares in the local economy held by different occupations.

Transitional-1 Counties appear to have been more able to retain employment in precision production, craft and repair and machine operators, and assemblers and inspectors occupations than were the Distressed Counties. These two occupation groups were the largest in the Transitional-1 Counties in both 1980 and 1990. In 1980, 16.94 percent of employed were in precision production, craft and repair occupations, but this had dropped to 15.52 percent in 1990. This drop was due to the loss of only 2,316 jobs, however. Machine operators, assemblers and inspectors was the second largest occupation group with 16.45

Table 5.20 Occupation Structure of Appalachia by ARC 1998 Distressed County Code

	1980		1990	
	Number	Percent	Number	Percent
Panel 1: Distressed Counties				
Executive, administrative, managerial	57,116	6.54	63,444	7.18
Professional specialty	86,665	9.93	99,525	11.27
Technician and related support	83,965	9.62	108,661	12.30
Administrative support	99,759	11.43	105,885	11.99
Service	104,138	11.93	122,444	13.86
Farming, forestry, fishing	31,471	3.61	28,913	3.27
Precision production, craft and repair	173,840	19.92	143,718	16.27
Machine operators, assemblers and inspectors	89,952	10.31	82,105	9.30
Transportation, materials movers	85,018	9.74	76,923	8.71
Handler, equipment cleaner, laborer	60,748	6.96	51,657	5.85
Total employed	872,673		883,275	

Table 5.20 Occupation Structure of Appalachia by ARC 1998 Distressed County Code, continued

	1980		1990	
	Number	Percent	Number	Percent
Panel 2: Transitional 1 Counties				
Executive, administrative, managerial	25,599	6.65	28,933	7.14
Professional specialty	33,924	8.81	41,225	10.18
Technician and related support	37,387	9.71	49,897	12.32
Administrative support	45,772	11.89	46,637	11.51
Service	46,528	12.09	54,313	13.41
Farming, forestry, fishing	12,743	3.31	12,401	3.06
Precision production, craft and repair	65,190	16.94	62,874	15.52
Machine operators, assemblers and inspectors	63,317	16.45	57,514	14.20
Transportation, materials movers	28,001	7.27	26,226	6.48
Handler, equipment cleaner, laborer	26,457	6.87	24,999	6.17
Total employed	384,919		405,021	

Table 5.20 Occupation Structure of Appalachia by ARC 1998 Distressed County Code, continued

	1980		1990	
	Number	Percent	Number	Percent
Panel 3: Transitional Counties				
Executive, administrative, managerial	474,945	7.70	602,929	9.01
Professional specialty	655,110	10.62	800,663	11.96
Technician and related support	703,677	11.40	938,546	14.02
Administrative support	868,562	14.08	927,701	13.86
Service	754,407	12.23	875,505	13.08
Farming, forestry, fishing	167,033	2.71	167,611	2.50
Precision production, craft and repair	909,711	14.74	910,496	13.60
Machine operators, assemblers and inspectors	909,763	14.74	763,247	11.40
Transportation, materials movers	358,431	5.81	355,638	5.31
Handler, equipment cleaner, laborer	369,140	5.98	352,975	5.27
Total employed	6,170,779		6,695,313	

Table 5.20. Occupation Structure of Appalachia by ARC 1998 Distressed County Code, continued.

	1980		1990	
	Number	Percent	Number	Percent
Panel 4: Competitive Counties				
Executive, administrative, managerial	69,515	8.42	103,389	10.10
Professional specialty	77,279	9.36	111,070	10.85
Technician and related support	91,737	11.11	144,414	14.11
Administrative support	114,039	13.80	144,570	14.13
Service	87,598	10.60	115,760	11.31
Farming, forestry, fishing	19,317	2.34	20,931	2.05
Precision production, craft and repair	125,563	15.20	144,651	14.14
Machine operators, assemblers and inspectors	150,922	18.27	138,998	13.58
Transportation, materials movers	42,890	5.19	48,840	4.77
Handler, equipment cleaner, laborer	47,211	5.72	50,659	4.95
Total employed	826,072		1,023,283	

**Table 5.20 Occupation Structure of Appalachia by ARC 1998
Distressed County Code, continued**

	1980		1990	
	Number	Percent	Number	Percent
Panel 5: Attainment Counties				
Executive, administrative, managerial	139,043	10.85	213,437	13.91
Professional specialty	171,491	13.39	247,196	16.11
Technician and related support	179,447	14.01	268,737	17.51
Administrative support	235,141	18.36	267,243	17.41
Service	163,545	12.77	185,555	12.09
Farming, forestry, fishing	9,801	0.77	15,286	1.00
Precision production, craft and repair	155,976	12.18	156,391	10.19
Machine operators, assemblers and inspectors	110,869	8.66	75,913	4.95
Transportation, materials movers	55,933	4.37	53,358	3.48
Handler, equipment cleaner, laborer	59,689	4.66	51,492	3.36
Total employed	1,280,936		1,534,607	

percent of persons employed in 1980. It lost 5,803 jobs over the decade to have a 14.20 percent share in 1990. Services, the third largest occupation group in 1980 and 1990, gained 7,785 jobs to increase its share of employment from 12.09 to 13.41 percent. The largest gain in employment over the decade occurred in technical and sales occupations. This occupation

group added 12,510 employed and constituted 12.32 percent of those employed in Transitional-1 Counties in 1990. The overall gain in employment for these counties was 20,102, or about 5.2 percent. The shift from blue-collar jobs to white and pink-collar jobs is evident, although these counties were better able to retain their blue-collar jobs in the 1980s than were the Distressed Counties.

Transitional Counties were equally reliant on precision production, craft and repair and machine operators, assemblers and inspectors occupations in 1980, with 14.74 percent of those employed in each category. By 1990, counties in this category had lost 146,516 machine operators, assemblers and inspectors jobs so that employment share dropped to 11.4 percent, only the sixth largest occupation group. The precision production, craft and repair occupations were able to retain most jobs, with a loss of only 785 positions from 1980 to 1990. Growth in other occupational categories meant that this category dropped to third largest in 1990, with 13.6 percent of employment.

The largest absolute and percentage growth in employment occurred in the technical and sales occupations which gained 234,869 jobs (a 33 percent increase) over the decade, and rose from fourth largest to largest occupation group in 1990. It employed 14.02 percent of workers in 1990. Administrative support occupations gained 59,139 employed, enabling this category to retain second place even while its share of employment dropped from 14.08 to 13.86 percent. Professional specialty occupations added 145,553 jobs from 1980 to 1990, the second largest gain of any occupation category and a 22.2 percent increase. Overall for these counties, employment increased by 524,534 jobs or 8.5 percent.

Machine operators, assemblers and inspectors occupations were the largest share of employment in Competitive Counties in 1980 with 18.27 percent of the employed. The second largest occupation group was precision production, craft and repair which employed 15.2 percent of workers. Unlike the first three county groups, Competitive Counties were able to add precision production, craft and repair occupations over the decade, increasing employment in this category by 19,088 and enabling it to share the position of largest occupation group in 1990 with technical and sales, and administrative support occupations. These occupation groups had 14.14, 14.11 and 14.13 percent of employed in 1990, respectively.

The largest gains over the decade were in technical and sales occupations which increased by 52,677 positions, and moved from fourth to tied for largest occupation group. Employment in this category grew by 57 percent from 1980 to 1990. As in other county groups, professional specialty occupations grew substantially from 1980 to 1990, by 33,791 employed (a 43.7 percent growth) for Competitive Counties, but failed to become one of the top four occupation categories. Executive, administrative and managerial occupations also rose by over 33,000 employed, an almost 50 percent increase from 1980 to 1990. Administrative support occupations rose by 30,531. The largest decline over the decade occurred in machine operators, assemblers and inspectors occupations, which dropped by 11,924 employed, and moved from first to fourth largest occupation group. Employment in Competitive Counties grew by 197,211 or 23.8 percent from 1980 to 1990.

Occupational categories on which the Attainment Counties relied were predominantly those related to service, sales and professional employment in both 1980 and 1990. Administrative support occupations was the largest occupation category in 1980, employing

18.36 percent of workers. Technical and sales occupations ranked second with 14.01 percent of employed, and was followed by professional specialty occupations with a 13.39 percent share. Services employed 12.77 percent of workers and was ranked fourth in 1980. By 1990, the rankings of these categories had shifted somewhat. A gain of 89,290 workers in the technical and sales category made it the largest occupational group in 1990, with 17.51 percent of Attainment County workers. Administrative support occupations fell to second with a 17.41 percent share of total employed. Professional specialty occupations held third place by adding 75,705 positions to obtain 16.11 percent of employment. Executive, administrative and managerial occupations increased by almost the same amount, 74,394 new employed over the decade, to become the fourth largest occupational group in 1990. This was an increase of 53.5 percent over 1980 levels. Employment in Attainment Counties grew by 19.8 percent from 1980 to 1990.

CONCLUSIONS

The patterns in labor force participation, unemployment levels, industrial and occupational structure that we observe in this chapter continue to reflect the diversity in the Appalachian Region. As presented in many of the overviews of the Region, Appalachia as a whole does lag behind the rest of the nation on such indicators of economic strength as labor force participation rates and unemployment rates. It also lags behind the nation in making the transition away from being an economy based on goods production and towards an economy more reliant on service production and retail trade. While the former patterns may suggest less vitality in the Appalachian economy, the slower shift towards predominance of services and

retail trade may not be viewed as negatively. As we have seen in other chapters, however, this overview of the Region masks the variability within. A more detailed examination paints a picture that in some areas is much worse than that of the Region as a whole, and in others presents conditions that suggest economic growth and vitality that match that of the U.S.

Economic opportunities available and the ability of workers to capitalize on those opportunities clearly varies within Sub-regions, and obviously differs across the ARC Distressed County Codes. There is little surprise that the areas of lowest labor force participation, and even decline in men's labor force participation over the decade fall in the North and Central Sub-regions. This is consistent with the industrial restructuring that has occurred in the 'Rust Belt' of the North, and the changes in markets and technology in coal mining in the Central Sub-region. Women's increasing labor force participation from 1980 to 1990, even in the North and Central Sub-regions suggest the continued restructuring in the economy away from manufacturing and extractive industries, which predominantly employed men, towards jobs in services and retail trade which are characterized as offering lower wage jobs that often are part-time and so more often filled by women. As part of this shift, in both of these Sub-regions, men's labor force participation remained higher than that of women, but men's unemployment rates were higher than women's suggesting men's greater difficulty in finding suitable employment, or their greater likelihood of being displaced as manufacturing and extractive industries scale back, move to other locations, or close.

The South Sub-region has experienced the strongest economy and growth during the 1980s and so is the Sub-region with labor force participation rates and unemployment rates that almost surpass the averages for the U.S. It is important to stress the 'almost' here. Even this

fastest growing Appalachian Sub-region does not exceed the U.S. average for these important economic indicators.

Not surprisingly, these patterns are reflected in the labor force participation and unemployment rates for the counties in the five Distressed County Code categories. The Distressed Counties, many of which are located in the Central Sub-region, have the lowest labor force participation among men and women, and women, in particular are much less likely to be in the labor force. Only 39 percent of women in Distressed Counties were in the labor force in 1990, compared with 46 percent in Transitional-1 and more than 50 percent in each of the other categories. Men's labor force participation rates ranged from 60 percent in Distressed Counties to over 74 percent in the most prosperous counties. Clearly, the economic opportunities vary greatly across Sub-regions and Distressed County Codes. But even the most prosperous counties in Appalachia — those classified as Attainment Counties — have labor force participation rates that are below the U.S. average. These counties do, however, have unemployment rates lower than the national average.

The industrial composition of the Region shows the steady shift away from goods production and extraction towards the services-producing sector of the economy. The main difference is the speed with which this transition is occurring. The North Sub-region which was fairly heavily reliant on manufacturing has shifted strongly into services and retail trade. The South Sub-region, which had an even stronger base in manufacturing than the North in 1980, has been more successful in retaining manufacturing employment but has also greatly expanded jobs in services and retail trade. This heavier manufacturing economic base in the South is consistent with the movement of manufacturing from the unionized North to the non-union

South during the 1970s and 1980s. Keeping these jobs from moving overseas or to Mexico as a result of NAFTA is one challenge facing community leaders in the South. The Central Sub-region was the most heavily reliant on extractive industries, particularly mining, as a share of employment, but the drop in energy prices and new technology that requires far fewer workers have resulted in a loss of almost 60,000 jobs in the Central Sub-region alone from 1980 to 1996. Manufacturing was never as important in the Central Sub-region, comprising only 14 percent of jobs. The largest increases have occurred in services and retail trade.

These differences in industrial structure across the Sub-regions, and across Distress County Codes, influence the occupational structure of employment. The shift away from goods production has resulted in a decline in occupations, such as precision production, craft and repair, often associated with these industries. While this occupational group remains important in the Region, it has fallen behind technical and sales and administrative support occupations in share of employment. One of the most marked differences in occupations across counties in the Distressed County Codes is the concentration of technician and related support, administrative support, and professional specialty occupations in Attainment Counties. These counties exceed the U.S. share of employment in these occupations. Distressed Counties have their largest share of employment in precision production, craft and repair occupations.

The variation in labor force participation, unemployment, industrial and occupational structure across Appalachia indicates more than what the descriptive information gives. Areas with low labor force participation and high unemployment face problems in generating adequate employment for their residents. The change in occupational and industrial structure give insight to the losses some local economies have suffered and to their success in building and transforming their economies. These changes also indicate the types of skills and education that workers in the area have. Mismatches between employer needs in growing sectors of the economy nationally, regionally, and locally, and in the apparent skills and education of residents in an area pose a challenge to local communities attempting to attract outside employers or to capitalize on the skills, resources, and opportunities that can be developed locally. The increasing focus on sustainability and diversity of local economies that are more reliant on local ownership and management indicates a somewhat different development strategy. The ability of local communities to encourage education and training programs to facilitate local leadership, entrepreneurship, and retention of residents may play an important role in successful sustainable development when the impetus for economic growth is more focused on local resources. These strategies still place communities that have experienced decades of out-migration and extraction of resources and profits by absentee owners with minimal reinvestment at a disadvantage to communities with a strong base of infrastructure, capital, and human resources. But the solutions may be more attainable for disadvantaged communities than ‘smokestack chasing’ or ‘buffalo-hunting’ for those one or two big employers. It is in this scenario that local investment in

physical and human infrastructure can pay-off in locally guided and locally beneficial economic growth.

CHAPTER 6

APPALACHIA: CHALLENGES FOR THE FUTURE

Appalachia is a Region marked by its diversity. While the Region as a whole is often characterized as lagging behind the rest of the United States in education, economic growth, and economic well-being of its citizens, summaries and averages mask the diversity that exists within the Region. This study documents the great variability across Appalachia, even when looking at relatively broad categorizations of counties: the three geographic Subregions of Appalachia, counties classified by the 1998 ARC Distressed County Codes, and counties organized by the 1993 Beale Codes which uses a rural-urban continuum. The reporting of counties with the highest and lowest values on various indicators reveals the great diversity that exists across Appalachian Counties.

Current conditions in Appalachia are the conjunction of historically determined patterns of power and decision-making, utilization of resources, more recent patterns of migration and the ability of current residents (new and long-time) to work together to build the type of community they desire. Polar opposite problems of economic decline and population loss and too rapid growth as a result of a booming local economy exist within the Region. Each places unique strains on existing infrastructure — social, human, financial and physical — and each demands investments to build local capacity to help meet the needs and solve the problems facing residents.

Demographic and Economic Diversity —Bringing them Together

Each of the chapters in this report examined separate aspects of demographic and economic change, the task for this chapter is to tie those separate aspects together. The

various chapters covered the composition and distribution of the population in the Region, family structure, educational attainment, the labor force participation and industrial composition, and the economic well-being of residents. These can be discussed separately, but they clearly are intertwined.

A summary of patterns observed in the data helps to identify the characteristics that tend to group together. Areas with population decline are those that have experienced out-migration (especially of younger adults and more highly educated persons) during at least part of the study period, the residents have lower educational attainment, lower labor force participation rates especially among women, higher unemployment, higher poverty rates, lower median household incomes, the counties have slow growth or decline in employment (to match the population decline), and they tend to be more reliant on services, retail trade, and government industry sectors as the top three employers. These counties are more likely to be found in the Central Subregion, to be defined by the ARC in 1998 as Distressed Counties, they are more likely to be rural and not adjacent to metropolitan counties, and they are more likely to have a history of reliance on extractive industries (timber and coal), although Counties that the ARC defined as Distressed Counties in 1998 fall in every part of the Region (See Table 1.4).

On the other hand, there are counties that have experienced rapid population increases since 1980. In-migration of all ages, but especially of young adults and better-educated persons, marks these counties, as does rapid growth in employment, concentration of employment in the services, retail trade and manufacturing industrial sectors, high median incomes, lower poverty rates, high labor force participation of both

men and women, lower unemployment rates, and higher educational attainment of residents. Blacks and Hispanics in Appalachia are most likely to be found in these rapidly growing counties. These counties are found near the rapidly growing metropolitan areas in the South (Atlanta predominates), and they are the Competitive and Attainment Counties as classified by the ARC in 1998, although there are other pockets of comparable growth in the North Subregion. None of the counties in the Central Subregion falls into the Competitive or Attainment County categories.

Between these extremes are the counties where most Appalachian residents live. These counties are facing neither serious economic and population decline, nor are they experiencing explosive growth and suburbanization. Moderate population growth spurred by natural increase and relatively low in-migration rates, middle level educational attainments, economies midway in the transition from a goods- to a services-producing economy that are reliant on employment in services, manufacturing and retail trade as the top three industry sectors, and middle level labor force participation and unemployment rates characterize these counties. These counties tend to be those classified as Transitional by the ARC, and they comprise the largest share of counties in the North (65 percent) and the South (68 percent) Subregions. They are only 28 percent of counties in the Central Subregion, however. A closer examination would probably reveal that some of these counties are poised to enter a phase of more rapid growth, some teeter on the brink of decline, and others sit well-satisfied with their current conditions.

Equally interesting are the counties that appear to defy what would seem to be their histories and location. These counties experience growth but they sit nestled among

the poorest, declining counties in the Region. Others are depressed economically and face population decline, but are surrounded by economic and population growth. These outliers may be the most interesting cases for understanding why some counties are able to defy the odds and remain viable, while others can't seem to catch a break even when surrounded by wealth.

Challenges for the Future

A study that only spans the 1980s and into the 1990s can identify those counties experiencing growth, decline, or stability, and can describe the trends that have occurred. From the patterns we observe, we can infer the processes driving change, but we must draw on other sources of information to understand the history and background of the Region. It seems clear in seeing the very different levels of growth and decline across the Region that multiple factors are at work. Histories of particular areas have resulted in very different levels of resources being available, giving communities quite different options and outlooks as they approach the next century. Some have a wealth of human resources, good infrastructure, and access to financial capital to call upon as they plan for the future. Others have little — they have lost key human resources to out-migration, they have little to invest in infrastructure or development activities, and they are competing with much richer communities in attempting to attract jobs, keep and attract residents, and opportunities. Yet a third set of communities is experiencing rapid growth that exceeds the capacity of local infrastructure, housing and services, and in many cases the nature and speed of that growth is beyond local control. The challenge for the Appalachian Region is to work to ensure that the growth that does occur is sustainable

environmentally and economically, and to help those communities that have limited resources to improve the economic opportunities available without sacrificing the aspects of their communities that residents value.

The data compiled for this report can help to identify those characteristics that are associated with counties facing decline and those experiencing growth, but they cannot reveal which of these attributes causes the others. As indicated above, each of these counties has a unique history, and counties may have reached the same point today by following a different path. What is clear from these data is that the Appalachian Region essentially faces the same problems as the rest of the United States — how to close the gap between rural and urban counties, how to foster improvements in well-being in poor counties and help rapidly growing areas monitor and manage their growth, and how to work with counties as diverse as those from the Northern Rust Belt, the formerly mining-dependent region, and the now-booming urban Sun Belt.

As unique as the histories and current conditions across these counties are, the goals of the citizens for the future are likely to be at least as diverse. Some are interested in economic and population growth, others would like improved jobs and income but not at the price of rapid population growth, suburbanization and changes in the natural environment. Others want things to stay as they are. Even if issues of desired outcomes can be resolved, the best strategy for reaching those outcomes often is not clear.

For areas that have experienced declining population and employment levels, or that have high poverty and low income levels, development of human capital through improving educational opportunities and providing job-specific training and skills is one

avenue to encourage economic development. But, this strategy only works when the jobs that utilize the education and skills are available locally. If the jobs don't exist in the local area, then the investment in human capital moves away. On the other hand, it is hard to encourage growth in jobs, especially good jobs, if the local workforce doesn't have the requisite training or education levels. While we could argue about which comes first — jobs or workers, it seems that these two resources need to be developed simultaneously.

Strategies for local economic development have moved away from a heavy reliance on attracting a single big employer to a more diversified strategy. This more diversified strategy usually involves creating an industrial park, but recruitment for tenants goes beyond attracting an outside company. Efforts also focus on encouraging development of new locally-owned businesses through helping local residents with good ideas by offering incubator-type services to get the business off the ground. Assistance to help existing local businesses expand their markets or production also is offered. Working with local community colleges or vo-tech schools to offer job-specific training skills or job-retraining can be part of a strategy for attracting existing employers as well as improving skills of the available work force.

Unfortunately, many of the counties that most need this type of diverse development strategy do not have the resources to develop worker training/re-training programs, to establish an industrial park or to hire full-time development staff to put these programs in place. Human capital, especially individuals with leadership skills and the ability to encourage collaboration in support of community goals, may be limited.

The loss of better students as they attend colleges elsewhere, and the continued out-migration of higher-educated persons means that many persons who might take on leadership roles in the community have left. Those who remain and are willing to participate in community activities often are overwhelmed by the requests they receive and they become discouraged or burn-out. Programs that provide basic education and job training also should offer skills in leadership and how to become engaged in community activities to broaden the pool of people willing and able to become involved. These activities and the skills and confidence they can build are an important means of improving the human capital and the long-term viability of local communities.

These more distressed communities lack not only the financial capital to invest in the development of human capital and business retention and expansion, but they often also lack basic infrastructure. Good highways linking communities to major transportation routes are important, as is the availability of water and sewer systems. Small airports also can provide an important linkage. While good ground transportation also makes retail stores and professional services in neighboring cities more accessible and may place local stores and professionals at risk of losing their clientele, it remains an important part of broad development strategies.

The electronic super-highway was supposed to overcome the barriers introduced by physical space and isolation so that any area would have access to jobs and markets. But the proponents of this plan failed to recognize that even the electronic super-highway requires physical infrastructure. An infrastructure that is least likely to be found in the more isolated, rural, and poor parts of Appalachia. An additional problem is that

removing physical barriers to business means not only that rural areas might become more accessible, but that markets and workers in other countries become more accessible, as well. This places U.S. workers in more direct competition with workers in other countries for some types of jobs.

Clearly, the Region has many problems to overcome and issues to face if it plans to close the gap between the poorest counties in the Region and the most wealthy. The conversion of reclaimed strip mines to industrial park sites and local airports offers one means of using what might otherwise be considered wasteland. Roadbeds to these sites often already are in place, and landowners can work with the coal companies, the county, and federal officials to develop water and sewer systems for these locations as part of the approved reclamation plan.

Tourism is mentioned by many as part of a diversified economic development plan for the poorer parts of the Region. The natural beauty of these areas, the isolation of some parts, and the large tracts of federal forest lands lend themselves to tourism built around these assets. Other areas have a rich history that might form the basis for tourism. What seems important is for the existing assets and resources to be evaluated (human, physical, and financial), for citizens to become involved in deciding on the type of development they desire and how to attain it, and for neighboring areas to work together to achieve common goals.

Rapidly growing communities face an entirely different set of problems. Growth in communities usually is welcomed for bringing new jobs, better shopping, more people and greater tax revenues. Unfortunately, its negative consequences often occur before the community has time to recognize what is happening, plunging the community into battles over land use, zoning and planning, and how to pay for building new schools, roads, water and sewer systems to meet the demands of the increasing population. Urban sprawl, suburbanization, and loss of farm land, forest land, and open space have been identified as critical problems nationwide and in parts of Appalachia. The problems facing these rapidly growing counties and how they are resolved, provide residents, local and state governments in the Appalachian Region with a totally different challenge. In contrast to declining areas, however, these growing areas have many more human and financial resources on which they can draw to solve their problems. The difficulty will be in starting the process soon enough and in working to resolve the conflict inherent in determining land use and who will pay for needed services and infrastructure.

The challenges facing Appalachia are as diverse as the counties in the Region. Fortunately, there are similarities across groups of counties that can form the basis for broad strategies to help solve particular types of problems. These broad strategies must be flexible, however, so that the unique needs of each county can be met and available resources capitalized upon as the residents of these counties attempt to solve their own problems. Some strive to share fully in the nation's economic growth and high standards of living, while others struggle with minimizing the negative consequences of that economic and population growth.

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xl. Source: U.S. Bureau of the Census (1993).

xl. The Gini Coefficient and Theil Index vary between 0 and 1, with higher scores indicating greater average within-county inequality. The Gini has a straightforward interpretation: A coefficient of zero means that income is evenly across households (i.e., all households have the same income), while a Gini of 1 indicates that all income is concentrated in one family. In

1997, the top 20 percent of households in the United States accounted for 49.4 percent of all family income.