JAMES P. ZILIAK

1

Introduction: Progress and Prospects for Appalachia

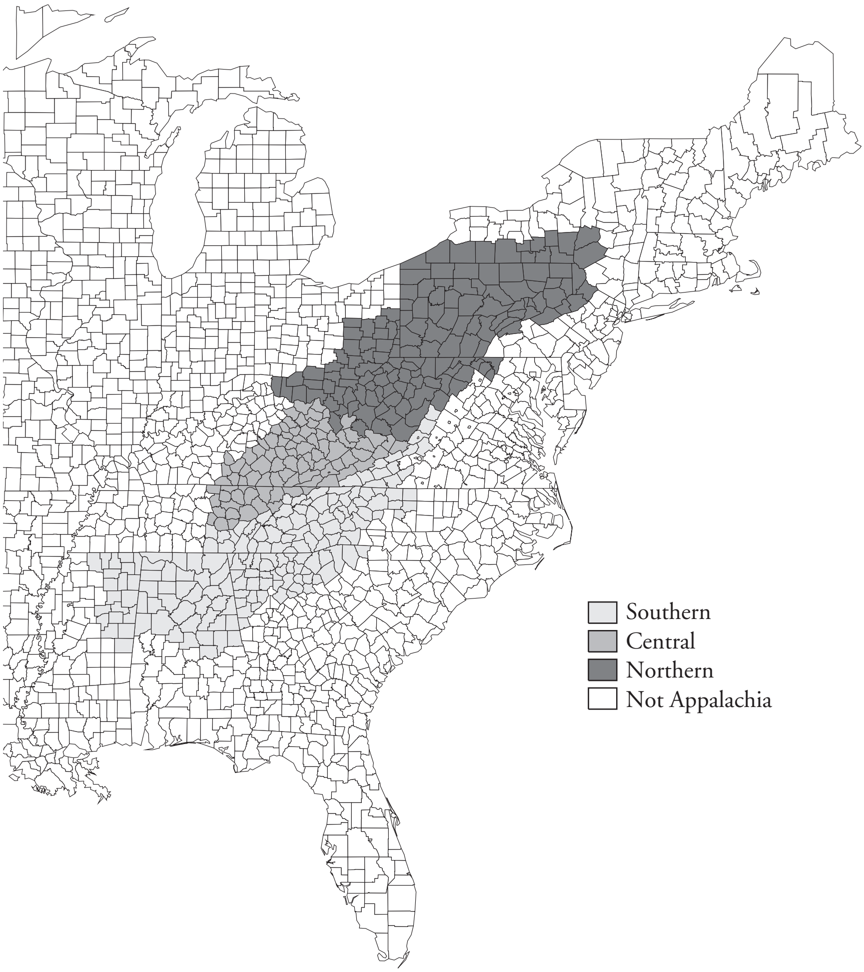
> Appalachia is a region apart—both geographically and statistically.
>
> President's Appalachian Regional Commission, 1964

> Much of the Southern Appalachians is as underdeveloped, when compared with the affluence of the rest of the nation, as the newly independent countries of Africa.
>
> Julius Duscha, 1960[1]

In April 1964 President Lyndon Johnson traveled to Martin County, Kentucky, in the heart of Appalachia to launch the nation's War on Poverty. Within a year—with passage of the Appalachian Regional Development Act of 1965 (ARDA)—Appalachia was designated as a special economic zone. The act created a federal and state partnership known as the Appalachian Regional Commission (ARC), whose mission is to expand the economic opportunities of the area's residents by increasing job opportunities, human capital, and transportation. The ARC-designated region is depicted by its 1967 boundaries and associated subregions in figure 1-1. The ARC region covers the Appalachian Mountains from southern New York to northern Mississippi and spans parts of twelve states and all of West Virginia. As of 2010, 420 counties were included in

1. Julius Duscha, "A Long Trail of Misery Winds the Proud Hills," *Washington Post,* August 7, 1960.

Figure 1-1. *Regions of Appalachia as of 1967*



Appalachia (23 more than in 1967), and over $23 billion had been spent on the region through the auspices of ARDA; roughly half of the funds were from ARC and the remainder were from other federal, state, and local programs.[2]

Five decades later, is there evidence of a convergence between Appalachia and the rest of the nation? As a place-based policy was ARDA effective at ameliorating hardship in the region? Or is Appalachia caught in a poverty trap? Do the

2. ARC (2009).

urban areas of the region offer growth opportunities for the highly skilled? If not, what policies could attract such workers and firms and at whose expense? The answers to these and related questions are important not only for a better understanding of the enduring legacy of the War on Poverty in Appalachia but also for antipoverty policy in general as the United States confronts a rising tide of poverty and inequality.

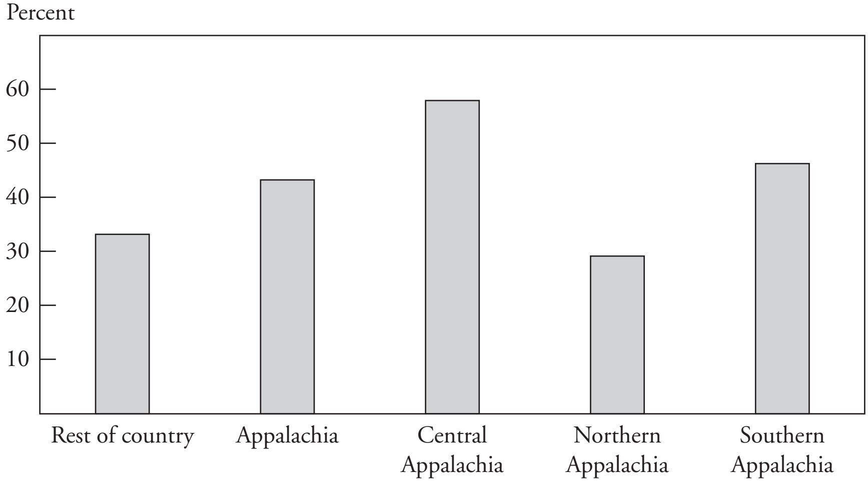
The authors in this volume look back over the past several decades to examine whether, where, and how progress has been made in terms of earnings, income, poverty, education, and health in Appalachia compared to the nation overall. They not only inform us of past successes and failures of policy and the broader social science research underpinning the analyses, but they also point us toward gaps in research knowledge as well as toward policy options going forward. The authors suggest that a new commitment to investment in human and physical capital through expanded prekindergarten programs, public health campaigns, and regionally focused infrastructure improvements in higher education and tourism-oriented industries is likely to offer the greatest long-term payoff for Appalachia and for similarly depressed regions of the nation.

A Region Apart

During the early 1960s poverty, and in particular Appalachian poverty, entered the American consciousness with the classic works of Michael Harrington's *The Other America* and Harry Caudill's *Night Comes to the Cumberlands.* Indeed, the case for action gained steam during the 1960 West Virginia presidential primary when the future president, John F. Kennedy, witnessed firsthand the stark deprivation facing the region. At the time more than half of West Virginians lived in poverty, many suffered from malnutrition, and basic amenities such as indoor plumbing were the exception in the rural areas. In 1960 county poverty rates were on average 10 percentage points higher in Appalachia than in the rest of the country (figure 1-2). In the Central Appalachian counties in Kentucky, Tennessee, Virginia, and West Virginia poverty rates approached 60 percent, or nearly double the rate outside Appalachia.

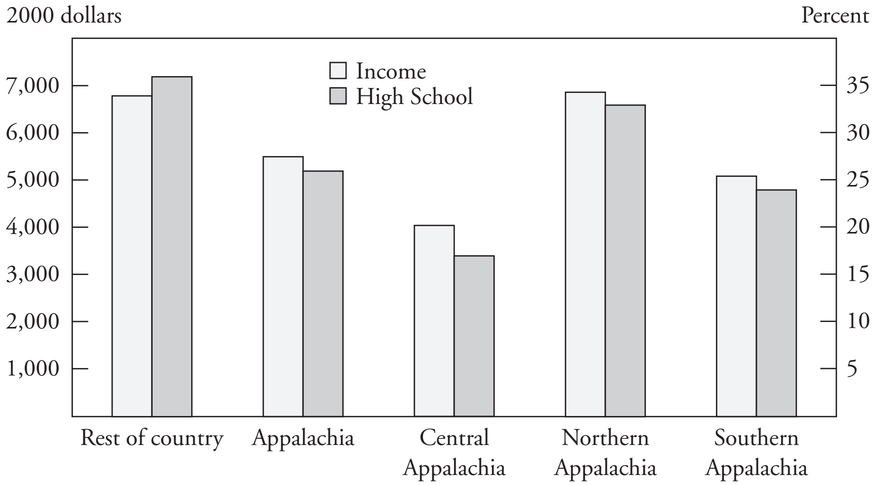
At the same time real per capita income in Central Appalachian counties lagged not only the nation as a whole but even its neighbors in the Northern Appalachian region by $2,800 per person (figure 1-3). Part of the reason for deep poverty and low incomes in Central Appalachia owed to the fact that high school completion rates, which stood at about 17 percent in 1960, were about 20 percentage points lower than the remainder of the country. The level of hardship led Kennedy in 1963 to establish the President's Appalachian Regional Commission

Figure 1-2. *County Poverty Rates in Appalachia and Major Subregions, 1960*



Source: Author's calculations of 1960 Census data.

Figure 1-3. *County Real per Capita Income and High School Completion Rates for Appalachia and Major Subregions, 1960*



Source: Author's calculations of 1960 Census data.

(PARC) to develop a comprehensive economic development program for the region. The PARC, chaired by Franklin D. Roosevelt Jr., submitted its report to President Johnson in 1964. The report states, with no hint of exaggeration, that Appalachia was "a region apart."[3]

Congress agreed with PARC's basic assessment of Appalachia in the passing of ARDA as Public Law 89-4 on March 9, 1965. The act opens with the following language:

> The Congress hereby finds and declares that the Appalachian region of the United States, while abundant in natural resources and rich in potential, lags behind the rest of the Nation in its economic growth and that its people have not shared properly in the Nation's prosperity. The region's uneven past development, with its historic reliance on a few basic industries and a marginal agriculture, has failed to provide the economic base that is a vital prerequisite for vigorous, self-sustaining growth.[4]

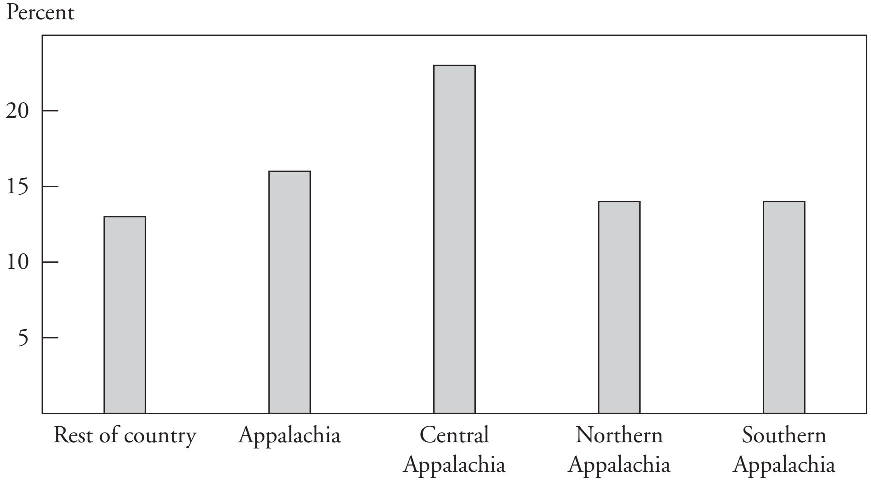
In addition to creating ARC, the act established several new transportation and human development programs, such as the Appalachian Development Highway System and regional health clinics and vocational education centers. The initial congressional appropriation to ARC was about $1.1 billion, with about three-fourths of it dedicated to highway construction. Although the initial investment in human development programs seemed low given the high levels of poverty in the region, Congress and the Johnson administration were simultaneously expanding the broader social safety net with the introduction of food stamps, Medicaid, Medicare, Head Start, and other targeted programs for low-income families, and thus from their perspective the additional funds made available in ARDA were to complement the wider investment in human capital.

Progress was made in the ensuing four decades to reduce the abject poverty found in much of Appalachia in the 1960s. By 2000 poverty rates had fallen in all of the United States, including Appalachia (figure 1-4), while real per capita incomes and high school attainment increased across the board (figure 1-5). Moreover there is some indication of convergence, as the Appalachian poverty rate in 2000 was about 20 percent higher than the rest of the country, down from 30 percent higher in 1960. Most notably, poverty rates in Central Appalachia plummeted from 58 percent in 1960 to 23 percent in 2000. Additionally, the high school attainment gap narrowed, especially between the rest

3. PARC (1964).

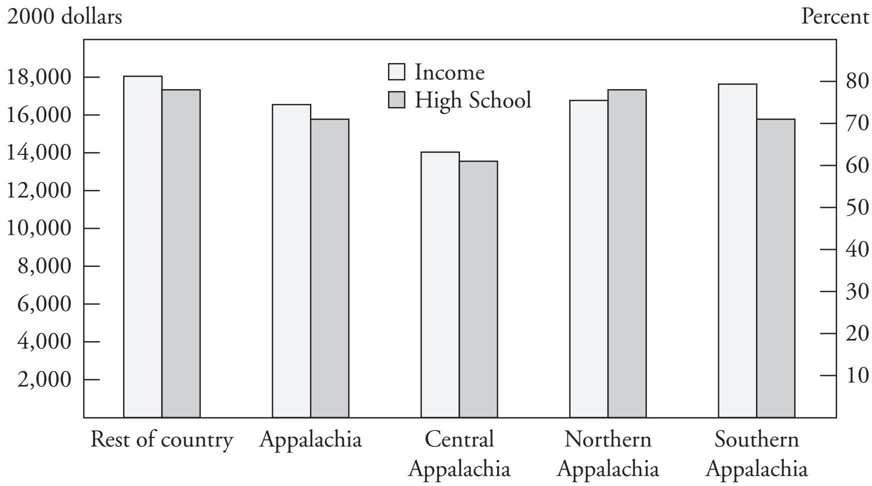
4. Bradshaw (1992), p. 41.

Figure 1-4. *County Poverty Rates in Appalachia and Major Subregions, 2000*



Source: Author's calculations of 2000 Census data.

Figure 1-5. *Country Real per Capita Income and High School Completion Rates for Appalachia and Major Subregions, 2000*



Source: Author's calculations of 2000 Census data.

of the nation and Northern and Southern Appalachia. There is little doubt that the progressive changes were palpable.

However, the region continues to lag behind the rest of the nation on many measures of economic development and health, and parts of Central Appalachia share lingering characteristics of a poverty trap. While levels of poverty fell dramatically in the Central region, the rate is still roughly double the rate of the rest of the nation. Real per capita incomes in the Central region are now $4,000 below those outside Appalachia, or $1,200 more than in 1960, and the gap in high school completion rates narrowed only slightly. Thus the shared regionwide convergence envisioned by the President's Appalachian Commission appears to have bypassed the Central region. And perhaps because of the searing portraits of grinding poverty in the books by Caudill and Harrington, to this day Appalachia, or at least the Central region, is often viewed as "the other America."

A number of excellent accounts of Appalachia and of ARC provide a rich historical and sociological background on the region and thus will not be reexamined here.[5] In contradistinction, there is a paucity of research by economists and demographers on Appalachia, and this is the point of departure for this book. Guided by rigorous theoretical underpinnings, the authors provide extensive evidence on earnings and inequality, human capital, health disparities, economic development programs, and poverty—and the way the Appalachian region has fared in relation to the country overall since the 1960s.

Progress against Poverty

Should policymakers subsidize firms, industries, or even regions (such as Appalachia)? Unlike most other OECD nations, policymakers in the United States have had an uneasy relationship with so-called place-based economic policy. Economists generally agree that industrial policy is often not welfare improving for local citizens. Instead, they argue in favor of investing in people, not in places or firms. And yet we regularly see governments engage in place-based investments, such as a city or state providing tax subsidies to a firm for locating an industrial plant in its jurisdiction.

One of the earliest, and subsequently longest running, efforts at regional economic development came about from passage of ARDA. However, there have been few attempts to formally test whether or not the program improved the lives of Appalachians. Thus the book begins with an evaluation of the effect of ARDA

5. See for example Caudill (1963); Bradshaw (1992); Duncan (1999); Billings and Blee (2000); Eller (2008).

on economic progress in Appalachia. In chapter 2 James Ziliak assembles county-level data from the 1960 and 2000 decennial censuses on poverty, per capita income, education, labor force growth, and other variables. His analysis improves upon prior efforts to evaluate ARDA by including data five years before passage of the act, thus placing the Appalachian and comparison counties on a prereform baseline (instead of postreform, as in earlier studies).[6]

Ziliak finds that ARDA reduced Appalachian poverty between 1960 and 2000 by 7.6 percentage points relative to the rest of the country and by 4 percentage points relative to border counties, with half to two-thirds of the effect realized within the first five years of the act's passage. These antipoverty gains were most pronounced in Central Appalachia, where poverty rates fell by 5–16 percentage points, depending on the comparison group. Additionally, he presents strong evidence of convergence in per capita income growth rates, resulting in 14 percent faster growth overall and about 25 percent faster growth in Central and Southern Appalachia compared to the rest of the country. The results suggest that ARDA did succeed in reducing hardship and boosting income growth. However, other forces caused the region—especially Central and Northern Appalachia, to diverge from the country in terms of income level.

It is well documented that inequality of earnings has increased since the 1970s, with the most pronounced increase in the 1980s.[7] In this literature, understanding the role of skill levels, and the market returns to those skills, has been at the core of the research effort. This literature links the growth in inequality to expanding wage premiums paid to college graduates, rising returns to unobserved skills, and the skill composition of the workforce, among others. Recent work suggests a polarization of the earnings structure in the United States: the rich are gaining and the middle class is falling further behind.[8] The inequality research to date, however, is comparatively silent on earnings inequality within and between geographic regions, including whether the polarization of the earnings distribution within and between regions holds equally or whether it differs between urban and rural areas. Knowledge of differences in inequality within and between regions is important for understanding widening inequality in general and for considering regional policy responses in particular.

In chapter 3, Dan Black and Seth Sanders use a special tabulation of the 1960–2000 internal long form of the decennial census to construct county-level earnings profiles of men at multiple points of the distribution. They find that in

6. See for example Isserman and Rephann (1995); Glaeser and Gottlieb (2008).
7. Bound and Johnson (1992); Katz and Autor (1999); Lemieux (2006).
8. See for example Autor, Katz, and Kearney (2006).

1960 prime-age working men in Appalachia earned 80 percent as much as their peers in the rest of the country. Some forty years later that ratio has barely moved. But breaking down the era into two twenty-year time periods tells a different story. In 1980 men in Appalachia earned 85 percent of those outside the region, an increase attributable to the boom in the coal industry in the 1960s and 1970s. In the subsequent two decades inflation-adjusted income among men in Appalachia continued to grow, but without the engine of a booming coal sector, it lagged growth in the rest of the country and so sank to 81 percent in 2000. This same pattern holds in Central Appalachia but not in Northern and Southern Appalachia: wages were stable in the North between 1960 and 1980 and then fell thereafter, while in the South they increased progressively across the four decades.

Even more provocative, Black and Sanders find that there are large differences between rural and urban areas in earnings distribution and that this is the principal reason that Appalachia's earnings distribution differs from the rest of the country. The bottom half of the earnings distribution increased in rural counties between 1960 and 1980 both in absolute terms and relative to the bottom half in urban areas. But between 1980 and 2000 urban areas exhibited far more polarization of earnings than rural areas. Echoing the findings in chapter 2, Black and Sanders argue that a key factor underlying these trends in earnings is slower growth in educational attainment, especially at the baccalaureate and professional levels, suggesting that a key to long-term improvement in the economic status of Appalachian men is to invest more in the types of advanced education needed to compete in the global economy.

In addition to macroeconomic forces placing upward pressure on poverty and inequality, secular changes in the structure of the American family are another possible causal mechanism. It is widely known that children growing up in a single-parent family (usually the mother) are at much great risk of poverty than children growing up with both parents present (nationally, poverty rates among single-parent, female-headed families are three times higher their two-parent counterparts). But in 1960 only 5 percent of children were born to single women, while in 2004, that share was 36 percent.[9]

In chapter 4, Daniel Lichter and Lisa Cimbaluk document that recent changes in family structure, especially the rise in female-headed families, have placed upward demographic pressure on poverty rates nationally and that Appalachian families and children have not been immune to the economic consequences of declining marriage rates, high rates of nonmarital fertility, and rising numbers of female-headed families, especially in rural areas. They find

9. Cancian and Reed (2009).

that the implications of these family changes for family poverty are larger in Appalachia than in non-Appalachia areas, independent of regional differences in employment opportunities, industrial structure, demographic variables, and other factors. Moreover, family effects, notably those associated with changing female roles, are estimated to be larger than those for conventional economic and human capital variables. Their simulations suggest that from 1990 to 2009 changes in family poverty would have been roughly 15–20 percent lower than the observed poverty rate if Appalachian families had not changed since 1990. This suggests that, in addition to policies that encourage economic growth, policies that encourage healthy marriages may help reduce poverty.

Future Challenges for Appalachia

Research increasingly indicates that poor health in childhood may be important in transmitting health disparities across the income distribution later in life and that these links are especially pronounced among individuals from lower socioeconomic backgrounds. Indeed, this process likely starts from poor maternal health while the child is in utero. The fetal origins hypothesis implies that conditions in utero affect not only birth weight but features such as basic metabolism, which in turn affect future health. This may be particularly problematic for families in Appalachia, who tend to be poorer and in worse health than other Americans.

In chapter 5, Janet Currie and Mariesa Herrmann provide an exhaustive review of the social science research that links childhood socioeconomic status with adult outcomes. They supplement their review with a detailed analysis of health trends both between Appalachia and the nation overall and within Appalachia. They find that Appalachians, especially Central Appalachians, are in poor health relative to other Americans and that health disparities start before birth from maternal behaviors. For example, the incidence of low birth weight is 95 per 1,000 in Central Appalachia compared to 83 per 1,000 outside the region. Moreover, although African Americans are generally in poorer health relative to white Americans, disparities between Appalachia and the rest of the country are much greater for whites in the region than blacks. In rural Appalachia 25 percent of women smoked during pregnancy in 2005, compared to about 12 percent in the country as a whole, and smoking is a leading cause of low birth weight. Maternal obesity may also be a factor. Obese women are at higher risk for many complications of pregnancy and delivery, and their infants are more likely to be higher than normal birth weight, which has been linked to higher body weight in later life and metabolic disorders such as diabetes. Although Currie and

Herrmann do not have data on obesity rates in Appalachia, obesity-related correlates such as chronic hypertension do tend to be higher in Appalachia. Because many poor health outcomes trace their roots to childhood deprivation, it will be difficult to eradicate adult health disparities without significant efforts to improve child health. This suggests an increasing role for public health campaigns to combat maternal smoking and obesity.

The past two decades have witnessed a flurry of new research on the role of cities in economic development.[10] The research confirms that in cities ideas travel faster, transportation is more efficient, education is enhanced, and workforce specialization allows for higher per capita incomes. In general, these economies of scale are greater the larger the city. Smaller cities and rural areas tend to have less diverse economies, often based on a single industry, which in turn makes them more vulnerable to boom and bust cycles when that industry suffers.

In chapter 6 Matthew Kahn surveys the economic research on the association between economic development and urban areas and the attendant implications for the types of place-based policies that might be effective in promoting economic growth in Appalachia. Kahn observes that the fundamental development challenge that Appalachia faces is that its cities are comparatively small and located far from the high-amenity coasts. Moreover, relative to the rest of the nation, its educational attainment is low and its local economies have not specialized in the high-technology sector. Based on the findings of Black and Sanders in chapter 3, this in turn implies that returns to skill are lower in Appalachia. These drawbacks are reflected in migration data Kahn presents, which show that skilled workers are voting with their feet: those who grew up in the region are leaving and those living elsewhere do not move there. This is more evident among those with higher educational attainment; the college educated are even more likely to leave and less likely to move in than those with only high school degrees or less.

While there is debate within the economics community about whether local efforts to stimulate an economy benefit those who live there or simply encourage in-migration, Kahn argues that the evidence suggests that in Appalachia the benefits might accrue to residents. Research on the phenomenon of coal price swings finds that Appalachians leave the area during depressed times but people who live outside don't come in during boom times.[11] However, there is evidence that during coal booms out-migration falls and some prime-working-age men who had left the region return. This leads Kahn to advocate a homegrown strategy for

10. Glaeser (1998).

11. Black, McKinnish, and Sanders (2005).

Appalachia—of educating its young people and encouraging a significant number to stay in the region through economic opportunity, social networks, and family. Valuable lessons for encouraging the growth of Appalachia's medium-sized cities that emphasize improving household quality of life can be learned from cities, such as Pittsburgh, that have reinvented themselves as high-skill, consumer cities.

That there has been economic progress in Appalachia in an absolute sense since the 1960s is unequivocal. The results in chapters 2 through 6 make clear that real earnings and incomes are higher, extreme poverty is abated, health outcomes overall are better, workers are more skilled, and infrastructure has been modernized. And yet in a relative sense there are some unsettling developments. This is especially true in Central Appalachia, where real earnings and per capita income levels have diverged from the rest of the nation, and health disparities such as low birth weight, smoking during pregnancy, and chronic hypertension have widened. Although poverty has fallen, it remains persistently high in this region.

In chapter 7 Steven Durlauf explores whether or not there are the footprints of a poverty trap in Appalachia. He begins by describing exactly what is and what is not a poverty trap: a poverty trap can be suspected when poverty is persistent, is not self-correcting, and is perpetuated by the institutions and culture of the region. There is an important distinction between the first two characteristics and the third. The first two refer specifically to the income process: how much income people make and the duration of those income levels. These two characteristics often reflect the supply of and demand for human capital and the interaction of these two sides of the labor market. The third characteristic, though, refers to the supernumerary reasons that account for an income deficit. Examples of the latter include the diversity of work opportunities (or lack thereof, in the case of coal towns), the concentration of control over physical and financial capital, the level of participation in the political process, and amenities such as arts and recreation. Although regions per se are not the usual scale at which poverty traps are studied, there are several aspects of the socioeconomic environment in Central Appalachia that are consistent with a poverty trap.

Understanding the causal channels generating a trap is the first step for designing a possible policy response. For example, if a shortage of skilled labor is the problem, then a policy response might be to enhance opportunities for formal schooling and training or to foster the in-migration of skilled labor. But if the trap largely emanates from institutional barriers, then political reforms affecting the distribution of resources and political participation may be warranted. Durlauf notes that empirical work is scarce on this fundamental issue and calls for new research on the roots of persistent poverty in Appalachia.

Missing Markets and Other Appalachian Challenges

The chapters in this volume suggest that the residents of Appalachia, and in particular those of Central Appalachia, suffer from deficits in human capital and health capital. The region faces a shortage of highly educated workers and high-tech employers, leading some researchers to speculate that there is a "missing market" of skill in the region.[12] In a somewhat ironic turn of events, this deficit is particularly pronounced in the urban areas of the region. The irony stems from the fact that many policymakers and advocates in the early 1960s pushed for a massive infusion of resources into the rural areas, but out of fear of pork-barrel spending the ARDA legislation directed that "investments shall be concentrated in areas where there is a significant potential for future growth and where the returns will be the greatest."[13] In practice this meant the urban areas of the region.

Moreover, on nearly every barometer of good health, Appalachians (particularly white Appalachians) come up short. One might be led to believe that once again the deficits arise from a missing market, in this case health markets. Expectant women in Central Appalachia are twice as likely to have to travel to a hospital out of the county to give birth than a pregnant woman in the rest of the nation (and one-third more likely than in rural America in general), which suggests poor access to care. However, there is little difference in prenatal care in the first trimester or in delivery by C-section, which counters the access problem. Again, though, expectant women in Appalachia have significantly lower education, once again pointing to a human capital shortage. One health market that does appear to be in chronic short supply is dental care, which is largely served by volunteer efforts such as the Remote Area Medical Volunteer Corps, though this group serves only of fraction of the need.

So what is to be done? On the research front the list of potential projects is extensive. For example, it would be fruitful to move beyond descriptive trends of health outcomes and behaviors to a more formal analysis of possible underlying determinants of health capital. There is broad scope for both experimental and nonexperimental health evaluations. To wit, field experiments pervade the research agenda among economists in the developing country context, and yet this effort has completely bypassed opportunities in depressed areas here in

12. Bollinger, Ziliak, and Troske (2011).
13. Bradshaw (1992).

America, such as Appalachia. In a related vein, the analysis of ARDA's effectiveness could be broadened to assess which types of grants for specific human development investments paid off for Appalachia. The results of this work could then guide such policy interventions as early childhood investments, along the lines of the Perry Preschool Project and with an evaluation component. Moreover, fundamental research into the existence of and mechanisms behind poverty traps in the region is crucial. One recent effort to link income growth in the latter part of the twentieth century to data on institutional structure, culture, and human capital from the late nineteenth century seems promising.[14]

The broad policy prescriptions seem clear. Substantial investment in education from prekindergarten through higher education, coupled with incentives to retain the recipients of the investments, are needed for Appalachia to have any chance of catching up to the rest of the nation, as was so strongly desired by the President's Appalachian Regional Commission nearly fifty years ago. Likewise, substantial investment in health is essential, especially maternal health, in order to reduce disparities between future generations of Appalachian children and the rest of the country. Public health campaigns highlighting the dangers of smoking while pregnant are one option; direct taxation is another, especially given that cigarette excise taxes in the Appalachian states are the lowest in the nation.

Who should pay for these policy investments? Is a federal recommitment to ARC needed to oversee policy implementation? Or, as Matthew Kahn suggests, should local governments in Appalachia adopt a homegrown strategy? These are challenging questions, the answers to which are often contingent upon difficult equity and efficiency trade-offs. General economic policies that promote growth in the major border cities of Charlotte, Atlanta, Pittsburgh, Cleveland, and Washington are likely to reap important benefits for Northern and Southern Appalachia. However, given its comparative isolation, Central Appalachia may require direct federal intervention to encourage economic growth and alleviate persistent hardship. The evidence makes clear that inaction should not be considered an option, given the enduring challenges facing the region. It is hoped that the research discussed in this volume will serve as a guide to future research and will lead to policies that will improve the lives of the residents of Appalachia.

14. Islam, Minier, and Ziliak (2010).

References

ARC (Appalachian Regional Commission). 2009. *Performance and Accountability Report* (www.arc.gov/publications/FY2009PerformanceandAccountabilityReport.asp).

Autor, David, Lawrence Katz, and Melissa Kearney. 2006. "The Polarization of the U.S. Labor Market." *American Economic Review Papers and Proceedings* 96, no. 2: 189–94.

Billings, Dwight, and Kathleen Blee. 2000. *The Road to Poverty: The Making of Wealth and Hardship in Appalachia.* Cambridge University Press.

Black, Dan, Terra McKinnish, and Seth Sanders. 2005. "The Economic Impact of the Coal Boom and Bust." *Economic Journal* 115, no. 503: 449–76.

Bollinger, Christopher, James Ziliak, and Kenneth Troske. 2011. "Down from the Mountain: Skill Upgrading and Wages in Appalachia." *Journal of Labor Economics* 29, no. 4: 819–57.

Bound, John, and George Johnson. 1992. "Changes in the Structure of Wages in the 1980s: An Evaluation of Alternative Explanations." *American Economic Review* 82, no. 3: 371–92.

Bradshaw, Michael. 1992. *The Appalachian Regional Commission: Twenty-Five Years of Government Policy.* University Press of Kentucky.

Cancian, Maria, and Deborah Reed. 2009. "Family Structure, Childbearing, and Parental Employment: Implications for the Level and Trend in Poverty." In *Changing Poverty, Changing Policies,* edited by Maria Cancian and Sheldon H. Danziger, pp. 92–121. New York: Russell Sage.

Caudill, Harry. 1963. *Night Comes to the Cumberlands: A Biography of a Depressed Area.* New York: Little, Brown.

Duncan, Cynthia. 1999. *Worlds Apart: Why Poverty Persists in Rural America.* Yale University Press.

Eller, Ronald. 2008. *Uneven Ground: Appalachia since 1945.* University of Kentucky Press.

Glaeser, Edward L. 1998. "Are Cities Dying?" *Journal of Economic Perspectives* 12, no. 2: 139–60.

Glaeser, Edward, and Joshua Gottlieb. 2008. "The Economics of Place Making Policies." *BPEA,* no. 1: 155–253.

Harrington, Michael. 1962. *The Other America.* New York: Scribner.

Islam, Tonmoy, Jenny Minier, and James Ziliak. 2010. "On Persistent Poverty in a Rich Country." Center for Poverty Research, University of Kentucky.

Isserman, Andrew, and Terance Rephann. 1995. "The Economic Effects of the Appalachian Regional Commission." *Journal of the American Planning Association* 61, no. 3: 345–65.

Katz, Lawrence, and David Autor. 1999. "Changes in the Wage Structure and Earnings Inequality." In *Handbook of Labor Economics,* edited by Orley Ashenfelter and David Card, vol. 3A, pp. 1463–555. Amsterdam: Elsevier–North Holland.

Lemieux, Thomas. 2006. "Increasing Residual Wage Inequality: Composition Effects, Noisy Data, or Rising Demand for Skill?" *American Economic Review* 96, no. 3: 461–98.

PARC (President's Appalachian Regional Commission). 1964. *Appalachia: A Report by the President's Appalachian Regional Commission.* Washington: Government Printing Office.