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COMING OF AGE IN RURAL AMERICA: THE EDUCATIONAL AND OCCUPATIONAL OUTCOMES OF RURAL YOUNG ADULTS

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ABSTRACT

Many of the issues related to poverty in rural communities are unique to those communities, and do not mirror the issues associated with poverty in suburban and urban areas. The present study addresses some of the issues facing individuals who come of age in rural and persistently poor communities, which have received limited attention in the existing rural poverty literature. The present study addresses the impact of these factors on a variety of key outcomes influencing quality of life: education and cognitive skill, geographic mobility, individual and household income, unemployment, poverty, and family formation (marital status and childbearing). In addition, the effects of education and geographic mobility on later outcomes are addressed in the context of rurality and persistent poverty, and the effects of cognitive skill on selected outcomes are addressed in the context of rurality and geographic mobility.

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Chapter 1

Introduction

The prevailing stereotype of poverty in America is one of urban disadvantage. For most, the word "poverty" brings to mind images of drug use and crime, public housing units, dangerous and deteriorating schools, and joblessness, all set before an urban backdrop (Brooks 1997). This image of poverty continues to dominate the minds of the public as well as the minds of many sociologists, despite consistent findings of higher poverty rates in rural American than in the country's urban communities (Albrecht, Albrecht and Albrecht 2000, Brown and Hirschl 1995, Levernier 2003, Tickamyer and Duncan 1990, Brown and Hirschl 1995, Schiller 1998, Moen 1989, Cautley and Slesinger 1988).

While many of the problems associated with poverty, such as lower levels of education and poor health, may persist across all geographic landscapes, others are particular to urban poverty. For instance, crime, dangerous schools and problems associated with public housing are probably mostly issues related to urban poverty. Still other problems, such as social and spatial isolation and a lack of economic diversity (Tickamyer and Duncan 1990), disproportionately affect rural areas. While researchers are increasingly addressing the unique effects of poverty in rural areas, these issues have traditionally received less attention than many of the problems associated with urban poverty and are therefore less understood.

High poverty in rural communities is associated with a lack of "stable employment, opportunities for mobility, diversity of social structure, and investment in community." Social and economic isolation are also particularly prevalent problems in these communities (Tickamyer and Duncan 1990). Isolation which results from high community poverty may actually act to exacerbate the persistence of poverty, since a strong social infrastructure is important for successful economic development (Flora 1998). Research has also shown that high community poverty is related to lower levels of parental warmth (Pinderhughes et al., 2001). While researchers are increasingly addressing the deficit in studies addressing rural poverty, the existing literature has focused on the effect of the community in which an individual currently lives; there is a lack of research addressing the effect of rurality and poverty within the community in which one grows up or comes of age.

For rural communities, poverty at the community level tends to persist over time, to the degree that the local economy in some persistently poor areas responds only slightly to changes in the national economy (Brown and Warner 1991). Persistent poverty is very much a rural phenomenon. As of 2000, 340 of the country's 386 persistently poor counties (88%), those in which the poverty rate was 20 percent or higher in 1970, 1980, 1990, and 2000, were classified as nonmetro (USDA Economic Research Service 2004).

These persistently poor counties are generally clustered into one of several geographic regions: the "plantation belt" of the deep south, particularly southern North Carolina through Louisiana (predominantly black poverty); the Southwest, particularly Texas, New Mexico and Oklahoma (predominantly Hispanic and Native American

poverty); Alaska (predominantly Native American poverty); and Appalachia, particularly Kentucky and West Virginia (predominantly white poverty). A majority of persistently poor counties (54%) are counties with predominantly black poverty (Beale 2004). Research on persistent poverty in rural communities (e.g., Brown and Warner 2001, Glasmeier 2002) tends to focus on factors which predict persistent poverty at the community level rather than the effects of persistent poverty on the individuals living within these communities.

The analyses presented here will address some of the issues facing individuals who come of age in rural and persistently poor communities which have received limited attention in the existing rural poverty literature. The present study addresses the impact of these factors on a variety of key outcomes influencing quality of life: education and cognitive skill, geographic mobility, individual and household income, unemployment, poverty, and family formation (marital status and childbearing). In addition, the effects of education and geographic mobility on later outcomes are addressed in the context of rurality and persistent poverty, and the effects of cognitive skill on selected outcomes are addressed in the context of rurality and geographic mobility.

Chapter 2

Review of Literature

Poverty in Rural America. When poverty research experienced a surge among sociologists in the 1980s, most of the research being done was focused on the growth of poverty in urban areas, particularly among black residents of inner cities (Lichter and Egebeen, 1992; Tickamyer and Duncan, 1990; Jensen and Tienda, 1999; Hoppe, 1991). In the 25 years since, while researchers have given an increasing amount of attention to issues related to rural poverty, research in this area continues to be less prolific than research on urban and inner-city poverty. In fact, for many sociologists the word "poverty" has become almost synonymous with "urban poverty" (Brooks 1997).

Although rural poverty still receives less attention from researchers than urban poverty, a growing recognition of the differences between rural and urban poverty, as well as the changes that have taken place in rural economies, have led to increased interest in the unique problems faced by the rural poor (Cotter 2002). The extractive industries, such as farming, foresting and mining, which predominated the rural economy in the past, have given way first to manufacturing and then to a service economy (Tickamyer and Duncan 1990; Albrecht, Albrecht and Albrecht 2000). This increased reliance on low-wage service sector employment following the disappearance of industry has been described as similar to the shift in employment opportunities that has occurred in inner-city communities (Albrecht, Albrecht and Albrecht 2000).

It is important to acknowledge that rural communities are, themselves, very heterogeneous. Rural regions have developed very unevenly; some rural regions have been able to take advantage of natural and other resources and prosper, while others have not had the political or economic power to prosper. Those communities often have been exploited by companies located elsewhere. They have become, in a sense, "forgotten places" which are the product of unique historical circumstances. Workers in these communities have been described as a reserve army of underemployed and unemployed labor; they are rooted to the communities where their families settled generations ago, but are often unable to improve their circumstances due to the economic conditions which exist in those communities (Lyson and Falk 1993).

There have been three phases of poverty in the rural United States since World War II. During the first, from 1945 into the 1960s, rural communities experienced economic restructuring and rapid increases in productivity as a result of Great Society programs. However, the extractive industries which had previously predominated many rural communities (agriculture, forestry, fishing, and mining) experienced declines which led to an overall pattern of out migration. Pockets of rural poverty began to develop as a result of these declines.

This was followed by a more positive period from the late 1960s through the 1970s, when many rural communities experienced a great deal of optimism due to population growth and job expansion in the manufacturing and service sectors (Deseran 1993). Employment opportunities both expanded and diversified during this period, as the net flow of manufacturing jobs from metro to non-metro areas increased, traditional

rural industries such as mining, agriculture and energy boomed, and rural communities came to be viewed as an increasingly attractive place to live (Gorham 1992).

Unfortunately, this period of optimism was short lived; the 1980s saw a period of renewed pessimism as declines in industries common to rural communities (e.g., mining, energy, forestry, and manufacturing) exerted a negative effect. Unemployment increased dramatically, an increasing number of businesses failed, and the long-term trend of out migration and population loss returned (Deseran 1993). Unlike urban areas, where growth in a broad range of service sector fields often led to economic renewal, rural communities saw growth primarily in low-wage service sector jobs which provided few opportunities for advancement. Rises in low-wage employment have been especially pronounced for rural women, who make up nearly half of the rural work force (Gorham 1992).

It has long been recognized that poverty rates in non-metropolitan and rural areas are quite high (Tickamyer and Duncan, 1990, Lichter, Johnston and McLaughlin 1994). In fact, despite popular conceptions of poverty as a predominantly black, urban problem, recent census data show that the majority of poor people in the United States are white, and that the majority of the country's poor live outside the central city (Cotter 2002). Many researchers find that rural poverty rates are higher than those in either suburban or urban areas (Albrecht and Albrecht 2000, Brown and Hirschl 1995, Levernier 2003, Tickamyer and Duncan 1990, Brown and Hirschl 1995, Schiller 1998, Moen 1989, Cautley and Slesinger 1988, Cotter 2002). This is true both in families with no workers and families in which at least one member is working.

Among families with no workers, 14.6 percent are poor in urban areas compared to 20.6 percent in rural areas; for families in which at least one member is working, 13 percent in urban areas are poor compared to 17.7 percent in rural areas (Cotter 2002). Levernier (2003), for instance, finds a family poverty rate in non-metropolitan counties that is about 70% higher than the poverty rate in metropolitan counties.

Brown and Hirschl (1995) provide a clearer image the link between poverty and size of place by allowing a comparison between core urban counties (urban areas), fringe urban counties (suburban areas), and rural areas. Like Levernier, they find the poverty rates to be higher in rural areas than in areas of any other type. In the non-South, they report poverty rates of 8.6% in urban areas, 3.5% in suburban areas, and 9.1% in rural areas. In the South, they found a poverty rate of 9.4% in urban areas, compared to 6.4% in suburban areas and 16.8% in rural areas. These differences persist even when controlling for a variety of characteristics of rural households and labor markets.

Labor market characteristics more strongly mediate the differences between urban and rural poverty than do household characteristics. Rural families are 40 percent more likely than urban families to be in poverty when controlling for characteristics of families but just 19 percent more likely to be in poverty when controlling for characteristics of labor markets. This suggests that higher levels of poverty in rural than urban areas are due more to lack of economic opportunity in these areas than to characteristics of the individuals living in rural communities (Cotter 2002).

Rural poverty rates are also affected more strongly by changes in unemployment than urban poverty rates, since poor rural residents are more likely to be employed (Deseran 1993, Tickamyer 1992). Between 1973 and 1989, unemployment rates

explained only 22 percent of the poverty rates in metro areas, compared to nearly two thirds of the poverty rate in non-metro areas. Further, low earnings are becoming an increasing problem in rural communities. A growing percentage of rural workers, even those who work the equivalent of year-round, full time jobs, are earning poverty level wages (Deseran 1993). In 1984, more than two thirds of poor rural households had at least one worker, and more than a quarter had at least two workers (Tickamyer 1992) By 1987, 42 percent of rural workers received low wages, and this percentage has increased over time (Gorham 1992).

In addition, the characteristics of the rural poor differ from those of the urban poor in a number ways. While the urban poor are disproportionately black or Hispanic, poverty in rural areas is a problem much more likely to be experienced by whites (Brown and Hirschl 1995). As in urban areas, blacks and members of other minorities are who live in rural areas are more likely to be poor than whites in those same areas (Slack and Jensen 2002), and predominantly black rural areas are more likely to be poor than predominantly white rural areas (Coclough 1988, Levernier 2003). However, because rural areas tend to be less racially diverse than urban areas, a large percentage of the poor in rural areas are white, compared to urban areas. A recent study found that 24.6% of household heads in rural areas were members of racial minorities, compared with 28.0% in suburban areas and 65.9% in urban areas (Brown and Hirschl 1995).

Poverty among those working part- or full-time is more common in rural than in urban areas (Brown and Hirschl 1995, Jensen and Eggebeen 1994, Tickamyer 1992). Brown and Hirschl (1995) find that, in poor rural households, both the head of household and the head of household's spouse are more likely to be employed than is true for poor

households in other areas. In addition, the employment gap between rural and urban poor households has widened over time (Jensen and Eggebeen 1994). Unfortunately, employment seems to provide less protection against poverty in rural than in urban or suburban areas (Brown and Hirschl 1995).

The rural poor are also less likely to utilize welfare or other forms of social assistance than are the urban poor. Both metro and non-metro poor families have shown sharp increases in reliance on public assistance. Despite this increase and a narrowing gap between rural-urban reliance on public assistance, however, poor families in non-metro areas have continued to show less reliance on public assistance and food stamps than those in metro areas in both female-headed and couple-headed households (Jensen and Eggebeen 1994).

Family composition differs between the rural and urban poor as well. Poor households in rural areas are less likely to be headed by a single parent than is the case in urban areas. Brown and Hirschl (1995), for instance, found that 37% of poor households in rural areas are headed by a single parent, compared to 60% of poor suburban households and 51.9% of poor urban households.

Another issue particular to rural communities is a lack of variation in employment opportunities; there are typically many fewer industries in which rural residents can find employment than residents of other areas, leading to constrained job availability in rural communities (Haynie and Gorman 1999). Rural areas have historically been dominated by industries focused on natural resources, but this is no longer the case, as these extractive industries have experienced significant declines. Today, the majority of rural communities are dominated by manufacturing and service jobs (Deseran 1993).

The lack of employment opportunities in rural communities has been proposed as an explanation for a decreased sense of community and high anomie among rural youth who see few opportunities for occupational success within their communities, leading to high rates of high-school dropout, teen pregnancy, and violent death among rural adolescents (Bickel and McDonough 1997). In addition, compared to urban areas, increases in income inequality in rural areas are more strongly determined by economic restructuring (changes in the percentage of residents employed in various industries). This may be a result, in part, of the lower levels of economic diversity in rural communities found by McLaughlin (2002).

Women in rural areas are more likely than women in other areas to have less than a high school education, to be unemployed or out of the labor market, and to work in the service sector (Haynie and Gorman 1999). They also tend to have more children (Haynie and Gorman 1999) and to marry at a younger age (McLaughlin, Lichter and Johnston 1993). Counter to theoretical expectations, rural women with stronger economic resources (more education, higher incomes and fuller employment) are more likely to marry in a given year than those with weaker economic resources (McLaughlin, Lichter and Johnston 1993). Education (Haynie and Gorman 1999) and full-time employment (Haynie and Gorman 1999; Brown and Hirschl 1995) have a weaker impact on the prevention of poverty for rural than non-rural women.

In addition, McLaughlin (2006) has found differences between rural and urban areas in how income inequality has changed over time. While 73.2 percent of metropolitan communities experienced an increase in income inequality between 1990 and 2000, only 60.9 percent of rural communities experienced such an increase. In

addition, nearly all communities in which inequality did not increase actually experienced a decrease in inequality over the time period. Thirty-nine percent of nonmetro communities, compared to only 26.8 percent of metropolitan communities, experienced a decrease in income inequality during the decade between 1990 and 2000.

Another characteristic that distinguishes rural communities is the tendency for employment opportunities to be controlled by a small number of local elites. Duncan (1992), in a study of Appalachian workers, found that in many Appalachian communities jobs acted as a form of currency. Most of the desirable jobs in both the public and private sector were often controlled by a few powerful families within the community, and the reputation and social network of one's family was key in finding employment.

Other research has shown that rural communities have become more heterogeneous over time, and that many rural communities have experienced economic diversification. Unfortunately, this has not been the case for many other rural communities, which continue to depend on declining economies even as factories move overseas (Dobbs 1994).

While previous research has focused on the effects of living in a rural or persistently poor community on a variety of outcomes, little research has focused on the effects of living in a rural or persistently poor community during youth on later outcomes, regardless of whether the young person chooses to remain in the rural community of origin. The analyses presented here investigate precisely this: what is the impact of coming of age in a rural or persistently poor community on one's later academic, occupational and family outcomes? In addition, are the effects of growing up in a rural community different when that community is also persistently poor?

Theories of Poverty. Because the poor in rural areas are so dissimilar to those in urban communities, one might argue that "rural poverty is not urban poverty in a different setting" (Hodgkinson 1994) and should therefore be studied using different theoretical approaches than poverty in urban areas.

In the 1960s and 1970s, explanations for poverty typically fell into one of two categories: cultural or structural (Duncan 1999). Cultural explanations suppose that the poor embrace cultural values which are deviant or, at least, distinct from the cultural values upheld by society as a whole. These values lead to patterns of behavior which are not conducive to occupational success, and they are transmitted intergenerationally through socialization (Waxman 1977). According to these theories, the poor are discouraged by their own failures. They value immediate pleasures over responsible behavior, rejecting behavior that will help them achieve financial success. Rather than teaching their children values that will lead them to be successful, they pass on these same maladaptive values which they have adopted for themselves (Duncan 1999).

Structural explanations of poverty focus on the distribution of opportunities in a region rather than on cultural characteristics of the region (Duncan 1999). They acknowledge that the poor often behave differently from other segments of society. They argue, however, that these differences are not a result of a distinct set of values. Instead, it is argued that the poor have internalized the same general set of cultural values as the larger society, but the opportunity to realize these values, at least through socially sanctioned methods, is unavailable. The situations in which the poor find themselves are inevitable, a result of the position which they occupy in the overall social structure and the set of opportunities that accompanies that position. Alleviating poverty, then,

requires changes in the social structure rather than changes in the poor themselves (Waxman 1977).

Traditionally, the theories used to explain poverty in rural communities have also tended to fall into one of these two categories. Culture of poverty theory is the predominant cultural theory which has been used to explain poverty in both metro and non-metro communities. Introduced by Oscar Lewis in the 1960s, this theory was first developed as sympathetic to the poor, but later became part of a blaming-the-victim analysis of poverty. According to Lewis, the failure of the poor to act responsibly was a rational adaptation to their marginal status in a capitalist society which is highly individuated and class stratified. Ultimately, this theory leads to the idea that no policy will reduce poverty, as low SES is attributable to personal inadequacy and inferiority (Duncan 1999).

Lewis (1959) popularized culture of poverty theory as a way of explaining poverty in developing countries. According to this theory, poverty is a product of the inevitable structural inequality that results from capitalism. High poverty in a community leads to a variety of coping mechanisms, including high divorce rates and mother-centered (i.e., single-parent) families, sexual activity at an early age, and a strong orientation toward the present. Rather than acting as a cause of poverty, these conditions resulted as an adaptation to the conditions of poverty in which groups find themselves. According to Lewis, "by the time slum children are aged six or seven, they have usually absorbed the basic values and attitudes of their subculture and are not psychologically geared to take full advantage of changing conditions or increased opportunities which may occur in their lifetime." While this theory was developed to understand poverty in

developing countries, it has been adapted by others to understand poverty in the developed world.

Popular attitudes about the culture of Appalachia and its relationship to the economic success of its residents has been shaped by stereotypes of a place where time stands still, populated by stubborn, sullen and fatalistic people who have no interest in changing themselves in order to improve their lives. Stories of family feuds, bloodshed and moonshining have fueled the characterization of Appalachian residents as "fighting stock" not well suited to modern employment structures (Billlings and Blee 2000).

There is a general lack of empirical support for culture of poverty theory (Deseran 1993, Duncan 1999), and this theory has fallen out of favor with most social scientists. Culture of poverty theory has also been criticized for its tendency to "blame the victim" - in other words, to blame disadvantaged individuals for the disadvantaged situation in which they find themselves, when they are not actually to blame. However, others have argued that it is possible to include cultural elements in a theory of poverty without "blaming the victim" (Desearan 1993).

Another cultural theory which has been used to explain rural poverty is human capital theory. According to this theory, there is a strong link between human capital (most notably educational level) and labor force experiences. Individuals who have invested strongly in attaining human capital will be more productive employees, and will therefore earn higher wages and experience greater job security. On the other hand, individuals who have not attained sufficient human capital through education and work experience will be paid lower wages and will experience greater job insecurity and unemployment, leading to poverty. According to this theory, higher levels of poverty in

rural areas are a result of a less productive rural work force which is lacking in skills and motivation.

Human capital theory has been criticized for its limited focus on individual decision making (choosing not to invest adequately in schooling, training and work) in explaining poverty. Critics argue that the true problem is a lack of adequate jobs in rural communities rather than a lack of adequately skilled and motivated employees. Even those who do invest in education and work are often only weakly rewarded in rural communities, since employers in rural communities are either unwilling or unable to pay high wages. Ultimately, the decision of many rural residents not to invest in human capital may be a rational one; when rural workers are not rewarded for their human capital investments, they have fewer incentives to make those investments in the first place. The problem is further compounded by the "brain drain" phenomenon - the tendency toward out-migration among those rural youth who do attain high levels of social capital due to a lack of opportunity within the community of origin (Deseran 1993).

A further limitation of human capital theory for explaining poverty among rural residents is that, while employment rates are higher among the rural poor than among the urban poor, many rural poor are still excluded from the formal labor marked due to such issues as age, disability, a lack of jobs, and, in the case of women and minorities, employer discrimination. The theory is not particularly useful in explaining poverty among these groups (Deseran 1993).

Theories originally designed to understand urban poverty have sometimes been applied to an understanding of rural poverty as well. According to Wilson's spatial

mismatch theory (1987, 1996), which builds on culture of poverty theory, there are two primary factors which explain the deterioration of conditions in urban inner cities: changes in the economic structure and social composition of these neighborhoods. A decline in manufacturing jobs due to technological advances as well as the movement of businesses formerly located in inner cities to suburbs created a void of employment opportunities for inner-city residents. While the physical distance between inner-city residents and suburban jobs might not seem large, a lack of available transportation and other resources required to obtain and keep these jobs acts as a barrier.

In addition, as employment opportunities in these communities became increasingly scarce in the 1970s and 1980s, the socioeconomic makeup of inner-city communities shifted radically. Working and middle-class residents fled to more desirable locations, leaving behind only the most disadvantaged residents. This concentration of poverty led to social isolation, including a lack of social networks that might provide access to jobs, and a lack of positive role models.

The spatial mismatch theory of poverty is echoed by Davidson (1990) in his description of the "rural ghettoes" that developed as a result of the Midwestern farm crisis in the 1980s. Describing communities characterized by poverty, unemployment, and despair, he points to the closing of stores and other businesses as well as the loss of physicians and teachers. In addition, he argues that the disappearance of these resources led to social isolation. Davidson identifies economically selective outmigration, particularly among educated youth, as well as the deterioration of community infrastructure as contributors to economic decline in these communities.

Culture of poverty theory is often criticized as "blaming the victim," and is therefore viewed negatively by many sociologists, including Wilson (1996). Others (Sherman 2006, Cohen 2001), however, argue that this theory need not place blame on the individual when embedded in the understanding that they are the result of structural characteristics of the communities in which these communities exist.

Sherman's (2006) ethnography of an isolated rural community in California finds evidence that social cohesion pushes residents of such communities to behave in ways accepted by the local community, even when it is contrary to their own interests. The community's primary industry, timber, has declined substantially since the passage of laws protecting the spotted owl, leading to a loss of jobs which represented about 40 percent of the community's payroll. Despite the high level of poverty in the community (the official poverty rate is 24 percent, the median household income is less than $23,000 per year, and two thirds of households have incomes of less than $30,000 per year), reliance on welfare or other forms of public assistance is highly frowned upon.

Many who are unemployed or underemployed rely heavily on subsistence activities such as hunting and fishing, and those with strong community ties are often able to find housing with free or very low rent or rely on family and friends for help in other ways. While accepting money from unemployment or disability insurance is seen as acceptable (if not desirable), relying on other forms of government assistance is seen as immoral by community members. Because community ties were so strong and jobs were so scarce, potential employers frequently had a great deal of information about the personal habits of job applicants and relied heavily on this knowledge when making decisions about jobs.

Community members who were known to have relied on welfare were seen as lazy and therefore unemployable; those who were known to have engaged in illegal activities such as using or selling marijuana had a similarly difficult time finding employment (Sherman 2006). Reliance on public assistance would greatly benefit many families in rural communities in the short term, and may even benefit the community as a whole. For instance, rural communities with higher reliance on public assistance were found in one study to be more likely to experience declines in income inequality (McLaughlin 2002). Yet, due to the potentially high long-term costs of relying on welfare even for a short period of time, many residents of rural communities see this option as a last resort (Sherman 2006).

While the processes operating in rural communities may be different from those in urban communities, the author connects her findings to similar research that has focused on urban poverty. She argues that "although we are long past accepting culture of poverty theories that blame the cultural characteristics of the poor for their own poverty….We have not invested much into newer theories to explain how culture and setting interact with poverty, particularly in the rural setting" (Sherman 2006:908). As with urban areas, it seems likely that there are social dynamics in rural communities which act to dampen the sometimes already grim economic prospects of rural residents.

Cohen (2001) employs Davidson's (1990) conceptualization of the rural ghetto as well as culture of poverty theory to understand poverty in a Southwestern Pennsylvania community. He likens the small Pennsylvania communities which once relied on the coal mining industry to a heavy reliance on low-wage service sector jobs as well as high poverty, unemployment and underemployment, and the persistence of poverty across

generations seen in many inner-city communities. Cohen also describes an Appalachian culture which is "individualistic, distrustful of strangers, suspicious of government, and rigidly traditional." One distinguishing characteristic of these communities is that, while regular employment is often lacking, informal economies such as those described by Duncan (1999) are common. Activities such as carpentry, home improvement, and firewood cutting are often used to supplement income (Davidson 1990).

There are also numerous structural explanations which have been offered for rural poverty, several of which will be described here. The economic organization perspective focuses on the organization of work - in other words, "the interplay between technical and administrative imperatives on the one hand, and relations among people, positions, and objects within the workplace on the other" (Baron and Bielby 1980:738). According to this theory, individual labor market outcomes are the result of structural constraints on the demand for labor rather than characteristics of the labor supply. The role of economic organization has been studied at the institutional level, focusing on industrial sectors or segments of the labor market, as well as the organizational level, focusing on companies as the unit of analysis.

At the institutional level, the economic organization perspective characterizes the economic organization of industries in terms of a segmented economy consisting of two or more segments which are differentiated based on the extent to which an industry is controlled by large corporations which act as monopolies and are therefore protected from market competition. Companies which have protection from market competition can typically offer higher wages, since they are able to increase their prices without damaging their profit margin. Conversely, industries characterized by high levels of

competition are much more likely to pay poverty-level wages. Empirical evidence suggests that part of the explanation for high poverty rates in rural areas is a concentration of competitive industries in rural communities. For instance, 79 percent of the manufacturing jobs in rural communities were in competitive industries, while only 20 percent of the manufacturing jobs in large metropolitan areas were in competitive industries. This theory is limited, however, in the sense that it does not apply well to informal work, which is common among poor rural residents (Deseran 1993).

Modernization theory is based on the premise that the best approach for disadvantaged rural communities to prosper economically is to emulate "more developed" areas. According to this theory, by attempting to create the same kinds of economic activities and the same kinds of social structures which characterize more developed urban areas rural communities can improve the economic opportunities available to their workers. While this theory is structural in nature, its largely conservative economic premise is no longer popular today among sociologists who study rural poverty (Falk and Lyson 1993).

Dependency theory argues that capitalists create surplus value largely by exploiting less developed areas of the world, such as disadvantaged rural communities. Because these exploited regions do not have the capital resources necessary to advance on their own, they have little choice but to rely on these exploitative jobs (Falk and Lyson 1993).

The similar internal colonialism model has been used to understand poverty in Appalachia. According to this model, Appalachia has experienced high levels of poverty as a result of the nature of its integration with the U.S. corporate economy, not as a result

of its isolation from this economy. Large corporations located elsewhere have exploited the people and resources of Appalachia through a system of absentee control with no concern for the lives of the people who live there. This exploitation of the land, resources and people of Appalachia has been legitimized largely through a popular acceptance of cultural theories of Appalachian poverty.

The greatest shortcoming of the internal colonialism model is its attempt to isolate absentee ownership as the principal cause of regional poverty. In the case of coal mining, for instance, even when coal ownership was local it was often characterized by low wages and severely lacking in job security and health and safety benefits. In fact, small locally owned coal companies often had conditions even worse than those of larger absentee-owned firms. In addition, some other regions with absentee ownership (e.g., Illinois) did not face the same problems as Appalachia (Billings and Blee 2000).

According to Mangione's social embeddedness perspective, work structures are embedded in systems of social regulation and structures based on reciprocity. In order to understand the employment structures of rural communities, it is necessary to understand not just the types of jobs available but also the structural and historical context in which work structures are situated as well as the reproductive strategies of households. According to this perspective, competitive markets do not have complete control over employment structures, since various groups (i.e. trade unions, interests groups, and the state) work to create regulations which prevent competitive markets from undermining the social order. In addition to competitive market behaviors, these regulations allow reciprocal and redistributive exchange relations which put the interests of the group before the interests of the individual.

The household, according to this perspective, is the most basic form of reciprocal relationship. Members of a household experience a set of mutual obligations which are aimed at ensuring the survival and thriving of each household member, and decisions about work activities are made with the welfare of the entire family in mind. The work activities of family members are embedded within household structures, which are embedded within competitive markets as well as larger reciprocal networks such as the welfare system. Families may depend on a combination of employment and other sources of income, including informal work, government aid, and assistance from kin in managing the financial system of the family.

Rural poverty will be high when rural families are faced simultaneously with a wage/income structure which provides low earnings and limited resources from other external sources. In recent years, an increased instability in the reciprocal networks available to the rural poor, such as an increase in female headed households and weakening of extended family ties, may have contributed to poverty. The work opportunities of the poor may also sometimes be consciously controlled by local elites who have power over local regulatory structures and can label particular types of individuals as unemployable. This perspective can incorporate informal work into an understanding of rural poverty more successfully than the economic organization perspective. According to the theory, both formal and informal work activities are regulated, but by different types of regulatory systems (Deseran 1993).

Other, newer theories have attempted to move beyond the culture/structure divide in understanding poverty in rural communities. Community theory, for instance, focuses on the interconnection between employment structures and cultural expectations. While

employment structures in rural communities have changed over time, leading to decreases in the availability of good work opportunities, rural workers and their families may often have deep commitments to their local communities and the social relations which characterize them. When an individual or family has adopted a particular type of work as a way of life, they do not readily give up those commitments regardless of changing conditions which lead to increasing poverty and restricted access to local resources such as land, forests, ore and fish (Deseran 1993).

The rational investment model is an extension of human capital theory which recognizes that structural factors are also at play in determining work experiences. According to this theory, while human capital is important in determining work opportunities, the expectations that people have regarding education, occupational aspirations and geographic mobility are developed through a rational decision making process. Decisions about human capital investments must be made in light of the short and long-term consequences of these investments, and individuals often have rational reasons for underinvestment. When the availability of high-paying jobs which will reward human capital investments is limited and declining, individuals may conclude that the potential returns to those investments are either too low or too uncertain to justify the sacrifices involved in making the investments. These forces are at work at a community level as well. For instance, when graduates often migrate to other communities, local school boards and other officials have limited interest in educating their youth, since such investments may benefit other communities at the expense of the local community (Deseran 1993).

Rural Migration. Beginning in the 1970s, researchers began to notice shifting demographic trends in the relative growth of metropolitan areas and smaller communities, both in the United States and abroad (Mitchell 2004; Elliott 1997). Smaller communities, seen by many as "relics of a previous area" (Mitchell 2004: 15), were growing at a faster rate than metropolitan areas for the first time since the Industrialization of the 19th century. While this trend toward "population turnaround," or "counterurbanization," was seen by some as the beginning of a long-term demographic shift, population growth in metropolitan areas had again outpaced population growth in non-metropolitan areas by 1980 (Mitchell 2004). The United States experienced a second population turnaround in the 1990s (Elliott 1997; Domina 2006), while in the late 1990s and into the first years of the 21st century non-metropolitan areas experienced substantially more out-migration than in-migration. In addition, researchers have now found evidence for smaller, sub-national population turnarounds as early as 1940 (Elliott 1997 – cite Wilson 1986 Social Forces when get article).

The 1980s saw a reverse in the rural-to-urban migration pattern, leading some to predict a widespread diffusion of the population (Frey 1987). However, this "population turnaround" was short-lived, and migration into rural areas is again outpaced by migration away from these areas (Lobao and Meyer 2001). While it is now clear that the population turnaround of the 1970s did not mark a permanent shift in U.S. migration patterns (Domina 2006), counterurbanization research has continued, and some scholars still predict long-term trends of deconcentration. According to Elliott (1997), scholars have proposed several explanations for these trends. Proponents of the "deconcentration perspective" have proposed that the United States is experiencing a new stage of social

development in which technological advances, such as those in the areas of transportation and communication, as well as the affluence of individual households have allowed both families and companies greater choice in where they will be located. Many people may prefer to live in a low-density environment, and changes in technology and affluence may allow families and corporations to "select from a wide range of city sizes without incurring increased production costs, reduced market gains, or fewer lifestyle options" (Wardwell 1980: 89).

A second explanation for the population turnaround is regional restructuring. This perspective focuses on the "apparent deindustrialization of the U.S. economy" (Elliott 1997: 23), theorizing that metropolitan areas which have been heavily reliant on traditional manufacturing will inevitably decline as the United States becomes increasingly reliant on a global economy. In contrast, metropolitan areas that act as corporate headquarters and/or rely on exportation of goods should continue to attract migrants (Elliott 1997).

Elliott (1997) and others propose a third explanation, "systemic maturation." The systemic maturation perspective proposes a three-stage process of urban development. In the first stage of development, "primary city expansion," economic growth is concentrated in a few urban centers. The successful development of secondary urban centers is largely dependent on creating strong social and economic ties with these primary cities. In the second stage of development, "intermediate-city growth," these primary and secondary urban centers develop into "territorially organized sub-systems, which are characterized by overlapping processes of local concentration and regional dispersion" (Elliott 1997: 23). Finally, in the third stage, "concentrated dispersion"

occurs in which the net flow of residents moves from large metropolitan areas down the metropolitan hierarchy, resulting in the growth of small cities and non-metro areas.

Stockdale (2004) argues that the focus on counterurbanization has led to imbalance in the research on changing rural populations, clouding the important issue of rural out-migration. While many researchers continue to study counterurbanization, others have pointed to trends of depopulation in rural areas. According to Stockdale, this trend developed in the 1850s and had dominated to this day. She describes four aspects of rural out-migration that have received attention in recent research: individual decision-making patterns (focused primarily on the out-migration of youth), the community consequences of out-migration, the benefits of out-migration for the individual migrant (or apparent lack thereof for rural residents in England), and the impact that returning out-migrants have on rural development.

Some rural communities may also experience migration patterns that do not correspond to theoretical expectations. For instance, in rural Alaskan communities, job opportunities are often limited and unemployment rates are generally higher than in urban communities. Yet, residence in rural communities seems to be strongly preferred by many Alaska residents, and Alaska is unusual in that the majority of residents live in rural communities.

Migration is common for Alaska residents, but the patterns differ from those in most other areas of the country. Young people often leave the state's rural areas for its urban communities, which are rich in educational and employment opportunities. Older Alaskans, however, tend to move back to the rural areas that they left after obtaining the skills and training necessary to secure employment. A comparison of employment

prospects in the urban and rural settings are an important factor in predicting whether women return to rural areas once they are older and more experienced. For men, however, return migration is often not dependent on improved job prospects, perhaps in part due to the more plentiful opportunities to engage in subsistence behavior in the rural setting (Huskey, Berman and Hill 2004).

Regardless of overall migration patterns, migration by level of education has not favored non-metropolitan areas in recent decades. Domina (2006) found that level of education was the primary predictor of migration between non-metropolitan and metropolitan areas across nearly three decades (measured in 1988-1989, 1995-1996 and 2003-2004). In all three time periods, the migration trends of those with low levels of education favored non-metropolitan areas, while the migration trends of those with high levels of education favored metropolitan areas. For instance, the likelihood of migration from a non-metropolitan area to a metropolitan area in 2003-2004 was just under two percent for residents with less than a high school degree, compared to about five percent for residents with a college degree. Conversely, the likelihood of moving from a metropolitan area to a non-metropolitan area was just under eight percent for residents with less than a high school degree compared to about 3.5 percent for those with a college degree.

Moreover, these trends have increased over time. While the likelihood of migration has remained relatively stable for those with low levels of education, the likelihood of an individual with a bachelor's degree moving from a non-metro area to a metro area has increased from about 1.5 percent in 1988-1989 to about five percent in 2003-2004. The likelihood of an individual with a bachelor's degree moving from a

metro to a non-metro area decreased from about 5 percent to less than 3.5 percent during the same period (Domina 2006).

For those who attain college degrees, the issue of migration may become particularly salient. Unlike urban areas, the employment opportunities for residents of rural areas are typically severely limited. Other than a few occupations such as medical professionals and educators, the job opportunities available in rural areas to those with college and graduate educations are lacking (Stallman and Johnson 1996).

For many, this may force difficult choices between leaving family and community ties behind in order to pursue personal betterment. Gottlieb and Joseph (2006) found that city size is an important predictor of migration decisions among recent college graduates who hold a college (bachelor's, master's or doctoral) degree in science or engineering. Not surprisingly, their results suggest that those with technology degrees tend to migrate to areas that are more populous. While some have argued that formal education and geographic mobility is the only choice for rural youth, others fear that this strategy is a threat to quality of life in rural areas (Howley, Harmon and Leopold 1996).

Various strategies have been implemented to discourage out-migration from rural communities. North Dakota and Iowa have implemented tax breaks to encourage residents to remain in rural communities, while Ohio has introduced tuition-relief plans to for college students who remain in rural communities. The U.S. Senate proposed The New Homestead Act in 2003, a bill that would "provide tax incentives and investment credits to people interested in moving to and starting business in depopulating rural areas" (Domina 2006).

Research has also explored the effects of migratory patterns on the economic well-being of rural communities; researchers have been concerned with the out-migration of poor rural residents and its impact on the urban economy since at least the 1960s (Burchinal and Siff 1964). The effects of both rural out-migration (the migration of rural residents to other communities) and rural in-migration (the migration of new residents into rural communities) have been studied, generally with the finding that rural migration patterns lead either to economic depression (Fitchen 1995, Jones 1999) or stagnation in rural areas (Nord, Luloff and Jensen 1995).

At the level of the individual, residential mobility is often explained as a result of economic opportunity (Schafft 2006). Decisions to migrate are typically conceptualized as a voluntary investment in various forms of human capital, including improved employment prospects and better schools. Theoretically, this should result in a rise in out-migration and a decrease in in-migration for economically distressed communities that have limited economic opportunities for potential residents (Schafft 2006).

However, these trends may fail to capture short-distance moves common among low-income residents of rural areas. Poverty-driven residential mobility is commonly motivated not by the optimization of economic interests but by other factors, such as the need for affordable housing. Further, this mobility may often not be voluntary (Schafft 2005). In a case study of residential instability among residents of a low-income community in New York, residential mobility among low-income families in impoverished areas was found to be driven by "chronic economic insecurity coupled with inadequate access to safe and affordable housing" (Schafft 2006: 228). More than 70 percent of moves were motivated primarily by some issue related to housing, compared

to only 3 percent of moves that were motivated primarily by a job opportunity. The single most common reason for moving was eviction, accounting for 11.4 percent of all moves. Rather than moving from impoverished rural areas to urban areas with greater opportunities for economic advancement, Schafft's findings suggest that poor rural families may frequently move over short distances either within the rural community or between impoverished rural communities. More than half of moves were between residences within the same county.

In addition to being motivated by economic distress, this type of residential mobility may also contribute to economic distress. Many of the respondents in had moved multiple times. The 22 families which were included in the study had experienced a combined total of 109 times in the past five years; only one family had not moved during the period, and on average families had moved six times in the past five years. This frequent residential mobility is problematic because it may contribute to the socioeconomic problems faced by the family, not only due to the high cost of moving but because it destabilizes social ties and often forces children to adapt to a new school, leading to potential academic problems.

In a field study of the effects of in-migration on an economically depressed rural community in New York, Fitchen (1995) found that the availability of inexpensive rental housing in the community acted as a pull for poor residents of nearby towns. Asserting that inmigration of poor residents is "quite patterned," she identifies a series of steps that lead to the inmigration of poor residents into already poor communities, acting to exacerbate poverty at the community level.

As the first step in the process, loss of employment in a rural community leads to an exodus among middle-class residents. This results in a surplus of housing which, coupled with high housing costs in surrounding urban areas, attracts poor residents from these communities. The promise of low-cost housing is often enough to draw poor residents from urban into rural areas even if their employment prospects are unlikely to improve, particularly if they have relatives in the area or feel that their children will have access to better schools.

Jones (1999) finds a similar pattern in his field study of youth outmigration in Scotland. While many youth in the study seemed strongly attached to their local communities, others (particularly those whose parents were "incomers") were held less strongly by community ties and therefore likely to leave the community. In fact, either moving into the community as a child or having parents who moved into the community (rather than being raised there) greatly increased the likelihood that the youth in his study left the community. While his primary focus was explaining why some youth stayed and others left, he also expressed concern that the outmigration of rural youth and the inmigration of poor people in their place may lead to negative consequences for rural communities.

Nord, Luloff and Jensen (1995), on the other hand, found somewhat different results. Consistent with the findings of other researchers, they found a disproportionate inmigration of poor residents into economically disadvantaged rural areas. However, they also found that a disproportionate number of poor residents migrated out of these areas, creating an equilibrium condition in which migration patterns do not affect the overall socioeconomic makeup of the community. While a great deal of previous

research as investigated differences in outmigration from rural and non-rural communities, research has not investigated the interplay between rurality and persistent poverty in the community of origin on predicting outmigration. The present study seeks to determine whether the effect of rurality on outmigration is different in persistently poor and non-poor communities.

Determinants of Educational Attainment. Educational attainment and geographic mobility are closely intertwined among young adults. A large number of people move away from their home communities after graduating from high school in order to attend college. Some students move in order to attend a particular college, while for others the decision about what school to attend may be motivated largely by the desire to either stay close to home or to move away from home.

Regardless, once the decision has been made it is likely to have at least some influence on decisions about where to live after completing college. Because students who do not choose to attend college do not deal with these issues, they have one less motivating factor pushing them to consider leaving the communities in which they grew up. In any case, the link between educational attainment and geographic mobility is complex; though it is clear that the two are linked, the causal direction is usually not clear and, in many cases, is probably bidirectional.

Educational attainment is generally understood to be influenced by a variety of personal, family, and community factors. Personal factors influencing educational attainment include gender, race, and ability. Community factors include school and neighborhood effects.

Males have historically had much higher levels of educational attainment than females. In more recent years, this trend has narrowed and in most cases even reversed. Women now receive higher levels of educational attainment than men except at the doctoral level, where as of 1997 women received only 40.8 percent of degrees. Differences in the subjects studied by men and women have decreased as well (Gamoran 2001).

Race is also an important predictor of educational attainment. Whites and Asians complete more schooling than members of other racial groups (Keane and Wolpin 2000, Gamoran 2001, Maruyama 2003). Although racial differences in academic achievement and attainment have also decreased, members of racial minorities still face disadvantages in therms of their educational attainment. In 1996, National Assessment of Educational Progress (NAEP) scores among 17-year-olds showed a black-white gap of .7 standard deviations in reading and .9 standard deviations in math (Hedges and Nowell 1999). Rates of college completion among blacks also continue to lag behind those of whites; in one study, 27.5 percent of whites but only 12.2 percent of blacks who were high school sophomores in 1980 had competed at least a bachelor's degree by 1992 (Anderson 1999).

Family characteristics which influence educational attainment include the socioeconomic status of the family as well as family compositon (Barrington and Hendricks 1989), parental education (Ensminger and Slusarick 1992), parental involvement (Menning 2002), and parental expectations (Barrington and Hendricks 1989). Socioeconomic status has long been seen as a principal factor in determining the level of attainment that one is likely to receive, with stronger effects on educational attainment than most other variables. Students who come from middle or upper class

homes tend to have relatively high levels of attainment, while students from lower class homes have lower levels of attainment (Maruyama 2003, Menning 2002, Conley 2001). In addition, family wealth can be an important factor in determining educational attainment (Conley 2001).

Family composition is believed to influence educational attainment largely as a result of the amount of attention that parents are able to give to their children. Children who come from single parent families and those with a large number of siblings are disadvantaged in that their parents are not able to provide as much personal attention or assistance as parents in families that are intact and include a small number of children. The expectations that parents have regarding the educational attainment of their children also seems to predict the levels of education that the children receive as well (Barrington and Hendricks 1989.

Community Effects on Educational Attainment. Community effects on educational attainment include factors at the neighborhood or social group level (Carbonaro 1998, Duncan 1994) and the community level (South, Baumer and Lutz 2003). Having affluent neighbors has found to be beneficial, and neighborhood racial composition has been found to be important for black students (Duncan 1994). Among black students, there is a positive relationship between having more affluent neighbors and having a higher value of education (Caballo, McLoyd and Toyokawa 2004). Intergenerational closure (the extent to which a child's parents know the parents of that child's friends) has also been found to be important for high school graduation (Carbonaro 1998). In addition, the educational behaviors of rural students' peers can influence their own educational aspirations and geographic mobility (South, Baumer and

Lutz 2003). Even at an early age, contextual conditions can have a significant impact on outcomes in later life; the social contexts of first graders predict educational attainment about as well as the same measures in adolescence (Entwisle, Alexander and Olson 2005).

One important community factor in predicting educational outcomes is economic disadvantage. One study, for instance, shows that school poverty has a detrimental impact on opportunities for high school graduates in Kentucky to pursue secondary education (Price and Reeves 2003). South, Baumer and Lutz (2003) attempted to explain lower levels of attainment in socioeconomically disadvantaged communities, finding that the educational behavior of peers, students' lower educational aspirations, and the increased likelihood of living in a poor neighborhood all act to decrease the likelihood of completing high school in these communities. Community level poverty is also related to lower educational aspirations (Crowder and South 2003), which may lead indirectly to lower educational attainment. There is also some evidence that performance is better for students in poor rural areas than for those in poor urban areas (Khattri, Riley and Kane 1997). Other research suggests that characteristics of the parental home may matter less in low-income areas (Fischer and Kmec 2004).

Residents of rural communities have also been found to have lower levels of educational attainment than residents of other types of communities (Lichter, Cornwell and Eggebeen 1993, Smith, Beaulieu, and Seraphine 1995, Roscigno and Crowley 2001, Stallman and Johnson 1996, Wilson, Peterson and Wilson 1993). Lower levels of educational investment at both the family and school level have been found to contribute to these lower levels of attainment (Rosigno and Crowley 2001). A lack of job

opportunities in fields requiring a college degree has also been found to contribute to lower levels of attainment in rural areas. Because the economic structure of communities that do not have a high percentage of managerial and professional occupations does not reward investments in education, young adults in these areas are less motivated to seek education beyond a high school degree (Stallman and Johnson 1996). Part of this may be explained by the more limited resources available in rural schools. These schools tend to have smaller budgets, fewer course offerings, fewer special programs, staff who are less qualified and receive lower pay, and more limited access to technological resources such as computers (Khattri, Riley and Kane 1997). Both families and schools in both rural and urban areas have fewer resources for students. Families have lower incomes, less parental education and more siblings per household; for rural schools, high concentrations of student poverty and lower per-pupil expenditures are common (Roscigno, Tomaskovic-Devey, and Crowley 2006). These negative qualities of rural schools may, however, be offset by smaller enrollments, a more positive school environment and more collaboration between schools and communities (Khattri, Riley and Kane 1997).

Choices about education and migration may also be particularly salient for rural students (Hektner 1995). Hektner (1995) finds that, because there are fewer educational and career opportunities available for students in rural areas, there is greater pressure to move away in order to seek higher education and pursue occupations. At the same time, they may feel conflicted; rural students are more likely than suburban or urban students to feel that both moving away and staying near home are important. This is supported by Kannapel and DeYoung (1999), who review research which finds that students in rural

West Virginia place higher priorities on staying close to friends and family than pursuing high-paying jobs, and that rural students in general often feel closely tied to their place of residence and are reluctant to leave for education or employment. While the residential attachments of rural students are related to identification with parents, adolescents – unlike adults – are not influenced by community ties such as church attendance and other activities. However, preferences for living in the home community but not preferences for living close to parents were predictive of adolescents' geographic mobility (Johnson, Elder and Stern 2005). Many students attempt to find a compromise between these two options by living near home and commuting sometimes as much as 80 miles to work (Hektner 1995).

In a case study of a rural student's experiences in his first-year writing course at a metropolitan university, Whiting (1999) raises concerns about the ability of instructors of college courses to understand the unique needs of rural students. She argues that schools fail in their goal of providing the same educational opportunities for everyone when it comes to rural students, who are often unprepared for either the new cultural experiences or the higher academic expectations of the metropolitan university. When university faculty fail to understand that many rural students come from politically conservative, economically disadvantaged backgrounds that typically do not match the backgrounds of the faculty themselves, they may misinterpret these students, leading to a greater likelihood of academic failure. While previous research has consistently shown that academic attainment is lower in rural communities than in non-rural communities, research has not investigated differences in educational attainment for those who grow up in rural communities versus those who grow up in non-rural communities. The present

study seeks to determine what effect coming of age in a rural community has on later educational attainment.

The Importance of Cognitive Skill. Cognitive ability has received relatively little attention from sociologists as a predictor of educational attainment, but it is also clearly a very important factor in determining how much education one receives. In recent years, an increasing number of researchers interested in educational and occupational outcomes have included this important variable in their models in order to understand the social factors that influence these outcomes once ability is controlled. Research has consistently shown that cognitive skills are important predictors of later earnings and other occupational outcomes (Kerchoff, Raudenbush and Glennie 2001, Rosenbaum 2001, Farkas 1996, England, Christopher and Reid 1999, Dyk and Wilson 1999, Farkas et al. 1990, Taubman and Wales 1974). The importance of cognitive skill for employment is dependent on the occupation. For occupations which require greater cognitive and interpersonal skills, the higher cognitive skills of employees have greater returns compared to occupations that require greater manual skills (Carbonaro 2005). Cognitive ability has also been found to influence job values (Halaby 2003).

Recent research has also shown that external factors are important in shaping the development of cognitive skill. For instance, Guo (1998) finds that long-term poverty has a detrimental effect on the development of cognitive skill. This is particularly true for poverty experienced during early childhood. Other research has shown that labor force experience has an influence on cognitive skill in adulthood (Kohn and Schooler 1983). The present study repeats previous research on the impact of cognitive skill on educational attainment and personal income as well as investigating whether there are

differences in these effects for those who do and do not remain in the community of origin. In addition, the present study investigates the effect of living in a rural or persistently poor county on cognitive skill.

Education and Occupational Outcomes. While obtaining an education may be desirable for a variety of reasons, the primary interest of this research (and the primary interest of many young people deciding how much education to seek out) relates to the effect of education on later occupational outcomes, such as income and the likelihood of experiencing bouts of unemployment. Though educational attainment is not by any means the only factor determining one's occupational success, research has overwhelmingly found that education plays a key role; higher levels of education leading to better occupational outcomes (Leigh and Gill 1997, Kerckhoff and Bell 1998, Kerckhoff, Raudenbush and Glennie 2001, Kane and Rouse 1995, Elman and O'Rand 2004).

In fact, Kerchoff, Raudenbush and Glennie (2001) found that the combined influences of cognitive ability and educational attainment completely explain the intergenerational effect of parents' education on the occupational earnings and status of their children. Though not true for all subgroups of the population, in their overall sample they also found educational attainment to be a stronger predictor of both occupational status and earnings than cognitive skill.

Kane and Rouse (1995) found a 4-7 percent annual wage benefit for each year completed at a 2- or 4-year college for men and a 7 to 10 percent annual wage benefit for women, not controlling for race or family background. Including these controls decreased the benefit for both men and women. However, the researchers found that

even completing a single semester at a 2-year institution was enough to provide a wage benefit which, over a 30-year career, more than offset both the actual cost of attending school and the opportunity cost of postponing employment. Non-degree vocational credentials, such as certification as a nurse assistant or beautician, appear to have positive effects on occupational outcomes as well (Kerchoff and Bell 1998). While the advantages of furthering one's education were found to diminish for those who return to school after having been in the labor force (Elman and O'Rand 2004), other research has shown that returning students enjoy earnings gains equal to or greater than those of traditional students.

Employment in Rural America. In addition to higher rates of poverty, individuals living in rural communities have been found to experience more negative employment outcomes. A greater proportion of individuals in rural Appalachian communities are unable to work due to a disability, a result of both more dangerous jobs (Duncan 1999) and poorer nutrition and health care (Rural and Appalachian Youth and Family Consortium, 1996). Incomes are lower in rural Appalachian communities as well, and increasing work hours has a less positive effect on income for Appalachian workers than workers in other areas. This is particularly true for females (Latimer 2007).

Rural communities which depend on extractive industries as the basis of their economies are at a particular disadvantage, with lower incomes and higher poverty rates than other rural communities (Tickamyer and Duncan 1990). Employees in these communities face higher rates of underemployment as well, primarily due to higher rates of underemployment in communities with economies dependent on agriculture, forestry or fishing (Slack and Jensen 2004). In addition, rates of both unemployment and

underemployment have been higher in rural communities in general for at least two decades (Economic Research Service 1997).

Even when employment is available, it is often less stable in rural communities (Tickamyer and Duncan 1990). Some research also suggests that spells of unemployment tend to be longer in rural communities (Swaim 1990), although this may not be true for all time periods (Hamrick 1999). Findlis, Jensen and Wang (2000) find that rural residents in the South are at a particular disadvantage, since they are less likely to move out of underemployment than even central city residents. They also find that it has become more difficult over time, especially for rural Southerners, to move out of underemployment and into adequate jobs.

Poor rural communities are often abandoned by the industries which have drained their natural resources (Glasmeier 2002), and tend to be located in poor regions and states which are often limited in what they are able to do to help the residents of these communities (Deavers, Hoppe and Ross 1986). Even when government and community leaders attempt to improve depressed rural economies through regional development, these attempts may often prove ineffective. Hunter, Boardman and Saint Onge (2003) studied the effect of using recreation and other amenities to attract tourism. They find that family incomes are higher in amenity-based communities that experience growth. However, because costs of living increase as well, it is not clear that this type of growth results in net gains for residents as a whole. Female-headed families and those headed by low-income individuals do appear to experience true economic gains in these communities, but it is not clear that the same is true for other groups.

Another potential source of growth that has increasingly been employed by rural communities, typically as a last resort, is to encourage new state prisons to locate in the community. While having a prison in one's community is typically seen as undesirable, the prospect of reliable government jobs at competitive wages can outweigh other concerns for communities with few other prospects for economic growth. Presumably, these gains would be felt directly by those employed by the prison as well as indirectly through growth in other local businesses. However, according to one study, these benefits do not materialize. Besser and Hanson (2004) found that outcomes were more negative for rural communities which gained a prison than for those which did not, controlling for other characteristics of the communities. Communities which acquired a new state prison in the 1990s experienced higher poverty and unemployment, lower wages, fewer housing units, and lower median housing values in 2000 than those which did not acquire a new state prison.

Similarly, Hunter and Sutton (2004) find that the presence of hazardous waste facilities does not ameliorated rural brain drain. Some have proposed that the presence of these facilities in rural areas provide employment opportunities, and this may be a factor in the decision among community members to house these potentially dangerous facilities within their communities. However, the researchers find no evidence that the presence of these facilities affects the age or education compositions of out-migrants in rural communities, regardless of the size of the community. The present study seeks to determine whether there are effects of rurality and persistent poverty on several outcomes related to occupation: personal and family income, unemployment, and poverty. In

addition, this study investigates whether the effects of rurality on occupational outcomes is different for persistently poor and non-poor rural communities.

Family Formation in Poor and Rural America. Rural communities are often seen as ideal places in which to raise a family, both among the general population and among those who actually live in rural communities. This conception is based, however, on several myths about the characteristics of rural communities: that rural residents are more self-sufficient, that they are safer and more nurturing environments for children, that rural families are "unchanging, close-knit, and nuclear," and that rural communities are more family oriented and are characterized by stronger ties between community members. While each of these myths may have some basis in fact, they are also largely false, and this conceptualization of family formation in rural communities ignores other problems such as the economic and educational disadvantages prevalent in rural communities (Struthers and Bokemeier 2000).

Attitudes about family formation have tended to be more traditional in rural areas than in non-rural areas (Albrecht and Albrecht 2004, Snyder 2006), although there is no effect of place of residence on sex role attitudes (Johnson 1999), rural women engage in sexual activity at an earlier age (Heaton 1989) and the differences between rural and suburban residents are often not strong (Snyder 2006). Rural women are more likely to marry than non-rural women (Snyder, Brown and Condo 2004, Heaton 1989, Meyers and Hastings 1995), and do so at earlier ages (McLaughlin, Lichter and Johnston 1993, Heaton 1989). According to McLaughlin, Lichter and Johnston (1993), rural women are 26 percent more likely to marry in a given year than women in other areas. They tend to marry at an earlier age (Snyder, Brown and Condo 2004) and, when given the choice,

prefer marriage over cohabitation (Snyder, Brown and Condo 2004). In addition, they are more likely to be married when they conceive (Albrecht and Albrecht 2004, Bennett, Bloom and Miller 1995); unmarried rural women who become pregnant are more likely to marry and to carry the pregnancy through to a live birth (Albrecht and Albrecht 2004).

While cohabitation is as common in rural communities as it is in other communities (Snyder, Brown and Condo 2004), nonmetro women are less likely to remain in cohabiting unions. Instead, they are more likely to either separate or marry within 24 months of entering cohabitation (Brown and Snyder 2006).

Fertility has traditionally been substantially higher in rural areas (Westoff 1954). While fertility differentials between rural and other types of communities declined between 1950 and 1990 they did not disappear, particularly for younger women, until more recently (Rindfuss and Sweet 1975, Meyers and Hastings 1995). Today, rural women have children at an earlier age (Heaton 1989) and are more likely to give birth as teens (Bennet, Bloom and Miller 1995), but at age 30 appear to have fertility rates equal to those of other women (Meyers and Hastings 1995) and their overall fertility is no different than that for women in other community types (Fugitt, Beale and Reibel 1991).

There are effects of community level economic disadvantage on marriage as well. For white young adults, residing in a disadvantaged area leads to first marriage at an earlier age, although this effect declines with age. On the other hand, for black young adults, residing in a disadvantaged area leads to first marriage at a later age (South and Crowder 2000). The likelihood of marrying as a result of nonmarital childbearing is particularly low for residents of rural communities (Bennett, Bloom and Miller 1995). The present study investigates the impact of rural and persistently poor community of

origin on both marital status and fertility in later life, as well as whether the effect of rural county of origin is different for persistently poor and non-poor counties.

Chapter 3

Research Questions

This chapter presents a conceptual model for the analyses in the present study in Figure 1. This model introduces the three waves of data included in the model, and the variables that are taken from each wave. In addition, it presents the hypothesized relationships between the variables included included in the analyses. As can be seen in Figure 1, characteristics of the county of origin and control variables are measured in the first wave of analysis (1979); these variables are used to predict cognitive skill, which is measured in 1980. In the second wave of analysis, educational attainment and geographic mobility in early adulthood are predicted using wave 1 variables and cognitive skill. Finally, in the third wave of analysis geographic mobility, employment outcomes (personal and family income, unemployment, and poverty) and family formation (martial status and fertility) in middle adulthood are predicted using variables from the previous waves.

In addition, a number of key questions which will be addressed in the present study are introduced below. These research questions describe the specific hypotheses regarding the effects of rural and persistently county of origin on the outcomes being predicted, and hypotheses regarding how rurality and persistent poverty interact. In the research questions presented here, it is important to note that “community of origin” refers to the community in which the respondent was living in 1979, when the respondent was between the ages of 14 and 17.

Figure **1**

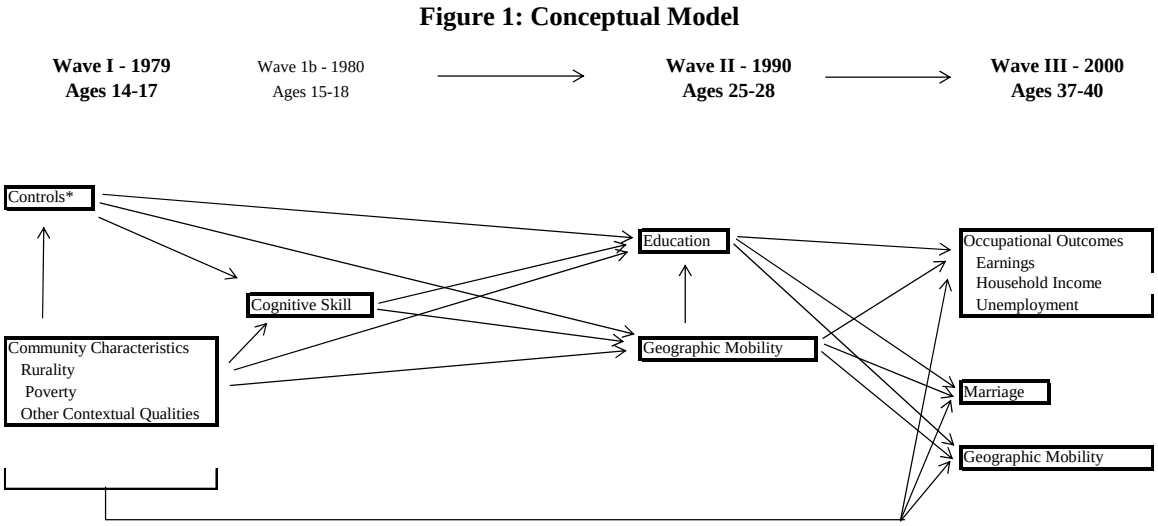

Figure **1**: Conceptual Model

Outcomes of Early Adulthood

Cognitive skill and educational attainment. **Question 1: What are the effects of rural county of origin on cognitive skill in adolescence and educational attainment in early adulthood?** Prior research has not addressed the possibility of differences in cognitive skill by size of place; the present study tests the hypothesis that cognitive skill is lower in rural communities than in non-rural communities. While this work is based on the assumption that any potential deficits in cognitive skill among rural youth are the result of more limited opportunities for developing these skills in rural areas, this hypothesis is not tested in the present study.

In addition, previous research (Lichter, Cornwell and Eggebeen 1993, Smith, Beaulieu and Searphine 1995, Rosigno and Crowley 2001, Stallman and Johnson 1996,

Wilson, Peterson and Wilson 1993) has consistently shown that educational attainment is lower in rural communities than in non-rural communities, but it is not clear from previous research whether growing up in a rural community depresses educational attainment. *The present study tests the hypothesis that youth who come of age in a rural community will have lower levels of educational attainment than those who come of age in non-rural communities.*

Question 2: What is the effect of persistently poor county of origin on cognitive skill in adolescence and educational attainment in early adulthood? Educational aspirations (Crowder and South 2003) and attainment (South, Baumer and Lutz 2003) are lower in economically disadvantaged communities, although the detrimental effects of community disadvantage may be smaller in rural than in urban communities (Khattri, Riley and Kane 1997). *The present study tests the hypotheses that youth who come of age in persistently poor counties have 1) lower levels of educational attainment and 2) lower cognitive skill than those who come of age in counties that are not persistently poor.*

Question 3: Is the effect of rurality on cognitive skill in adolescence and educational attainment on early adulthood different in persistently poor and non-poor counties of origin? *The present study tests the hypothesis that rural county of origin has a particularly negative effect on cognitive skill when the county of origin is also persistently poor. In addition, the hypothesis that educational attainment is more negatively affected by persistently poor rural county of origin than non-poor rural county of origin is tested.*

Question 4: What are the effects of high or low cognitive skill on educational attainment in early adulthood, and is this effect different for those who do and do not live in the county of origin in early adulthood*?* Cognitive skills have been found in previous research to have a positive effect on educational outcomes (Farkas 1996). *The present study tests the hypotheses that 1) high cognitive skill will have a positive effect on educational attainment in early adulthood, while 2) low cognitive skill will have a negative effect on educational attainment in early adulthood, and that 3) the effects of high cognitive skill will be stronger for those who leave the county of origin, while 4) the effects of low cognitive skill will be stronger for those who remain in the county of origin.*

***Geographic mobility*. Question 5: What is the effect of rural county of origin on the odds of remaining in the county of origin in early adulthood?** Prior research on geographic mobility in rural and non-rural communities has been mixed, with some studies suggesting trends toward rural-to-urban migration (Mitchell 2004, Frey 987) and others suggesting trends toward urban-to-rural migration (Domina 1996, Elliott 1997)**.** Research on rural and non-rural migration has tended to focus on migration patterns between rural and urban communities, rather than addressing differences in overall outmigration from rural and non-rural communities. *The present study tests the hypothesis that outmigration (living outside the county of origin in early adulthood) is higher for youth with a rural county of origin.* While this research is driven by the assumption that any greater odds of outmigration for rural youth is driven largely by more limited educational and economic opportunities in rural communities, this hypothesis is not tested in the present study.

Question 6: What is the effect of persistently poor county of origin on the odds of remaining in the county of origin in early adulthood? Existing research has not addressed the effect of persistent community poverty on migration patterns, although research has shown that high poverty communities tend to have higher out-migration among those with more education (Domina 2006) and higher in-migration among those with less education and among low-income families (Domina 2006, Schafft 2006, Schafft 2005). *The present study tests the hypothesis that outmigration (living outside the county of origin in early adulthood) is higher for youth with a persistently poor county of origin.* While this research is driven by the assumption that any greater odds of outmigration for youth from a persistently poor community is driven largely by more limited educational and economic opportunities in persistently poor communities, this hypothesis is not tested in the present study.

Question 7: Is the effect of persistent poverty in the county of origin on the odds of remaining in the county of origin in early adulthood different in rural and non-rural communities? The present study tests the hypothesis that the effects of persistent poverty on outmigration in early adulthood are different for rural and non-rural communities. Specifically, *the hypothesis that persistent poverty has a stronger effect on outmigration for youth from a rural county of origin is tested.*

Question 8: What are the effects of high and low cognitive skill on the likelihood of remaining in the county of origin in early adulthood, and are these effects different for youth who come of age in rural and non-rural counties? Previous research has not examined the influence of cognitive skill on geographic mobility. *The present study tests the hypotheses that 1) high cognitive skill will lead to a*

greater odds of geographic mobility in early adulthood, while 2) low cognitive skill will lead to a lower odds of geographic mobility in early adulthood. Further, the hypotheses that 3) the effects of high cognitive skill on the odds of geographic mobility will be stronger in rural than non-rural areas and that 4) the effects of low cognitive skill on the odds of geographic mobility will also be stronger are tested.

Outcomes of Middle Adulthood

Geographic mobility. **Question 9. What is the effect of rural county of origin on the odds of remaining in the county of origin in middle adulthood?** Previous research has been inconsistent regarding the effects of rurality on geographic mobility, partly because these trends change over time. The present study does not seek to make long-term conclusions about the effect of rurality on geographic mobility. Instead, conclusions will be drawn about geographic mobility from rural and non-rural communities only during the period of time relevant to the present research; *the hypothesis that geographic mobility is greater for respondents from rural communities of origin during this time period will be tested.*

Question 10. What is the effect of persistently poor county of origin on the odds of remaining in the county of origin in middle adulthood? There is no existing research investigating the impact of persistent county level poverty on geographic mobility. *The present study investigates the hypothesis that geographic mobility is higher for individuals who come of age in a persistently poor community.*

Question 11. Is the effect of persistent poverty in the county of origin on the odds of remaining in the county of origin in early adulthood different in rural and non-rural communities? The present study tests the hypothesis that geographic mobility out of rural communities will be different for those who originate in persistently poor and non-poor communities. Specifically, *the hypothesis that mobility will be higher in rural communities that are also persistently poor is investigated.*

Employment outcomes. **Question 12: What is the effect of rural county of origin on employment outcomes (personal and household income, unemployment,**

and poverty) in middle adulthood? Prior research has shown that income (Latimer 2007, Tickamyer and Duncan 1990), unemployment (Economic Research Service 1997) and poverty (Albrecht, Albrecht and Albrecht 2000, Brown and Hirschl 1995, Levernier 2003, Tickamyer and Duncan 1990, Brown and Hirschl 1995, Schiller 1998, Moen 1989, Cautley and Slesinger 1988) are higher in rural than non-rural areas. However, previous research has not addressed the impact of coming of age in a rural community on the later employment outcomes of youth. *The present study tests the hypotheses that 1) personal income and 2) household income are lower for youth who come of age in a rural county, while 3) unemployment and 4) poverty are higher for youth who youth who come of age in a rural county.*

Question 13: What is the effect of persistent poverty in the county of origin on employment outcomes in middle adulthood? Existing research has not addressed the impact of persistent community poverty on employment outcomes. *The present study tests the hypotheses that 1) personal income and 2) household income are lower for youth who come of age in a persistently poor county, while 3) unemployment and 4) poverty are higher for youth who youth who come of age in a persistently poor county.*

Question 14: Is the effect of persistent poverty in the county of origin on employment outcomes in middle adulthood different in rural and non-rural communities of origin? The present study tests the hypotheses that the effects of persistent community poverty on later 1) personal income, 2) household income, 3) unemployment and 4) poverty in middle adulthood are different for youth from persistently poor and non-poor counties of origin. Specifically, *it is hypothesized that*

persistent community poverty will lead to larger deficits in personal and household income for rural youth as well as higher unemployment and poverty for rural youth.

Question 15: What are the effects of high and low cognitive skill on personal income in middle adulthood, and are these effects different for respondents who do and do not live in the county of origin in early adulthood? Prior research has shown that cognitive skill predicts more positive earnings and other occupational outcomes (Kerchoff, Raudenbush and Glennie 2001, Farkas 1996, England, Christopher and Reid 1999, Dyk and Wilson 1999), Farkas et al. 1990, Taubman and Wales 1974), but the relationship between cognitive skill and geographic mobility has not been tested. *The present study tests the hypotheses that 1) high cognitive skill has a positive effect on personal income in middle adulthood, while 2) low cognitive skill has a negative effect on personal income in middle adulthood. In addition, the hypotheses that 3) the effect of high cognitive skill on personal income in middle adulthood will be stronger for those who do not live in the county of origin in early adulthood and 4) the effect of low cognitive skill on personal income in adulthood will also be stronger for those who do not live in the county of origin in early adulthood are tested.*

Question 16: Do educational attainment and geographic mobility in early adulthood mediate the effects of rural and persistently poor county of origin on employment outcomes? *The present study tests the hypotheses that the choices made by youth regarding 1) educational attainment and 2) geographic mobility in early adulthood will have important consequences for later occupational outcomes; specifically, that both educational attainment and geographic mobility in early adulthood will be associated with more positive occupational outcomes in middle adulthood. Further, the present*

study tests the hypotheses that these decisions will help to mediate any effects of 1) rural and 2) persistently poor county of origin on occupational outcomes in middle adulthood.

Family formation. **Question 17: What is the effect of rural county of origin on family formation (marital status and childbearing) in middle adulthood?** Research has found that marriage rates are higher in rural communities than in non-rural communities (Snyder, Brown and Condo 2004, Heaton 1989, Meyers and Hastings 1995), and that marriage occurs at an earlier age in rural communities (Snyder, Brown and Condo 2004). While fertility has traditionally been higher in rural areas (Westoff 1954, Rindfuss and Sweet 1975), this is not the case today (Meyers and Hastings 1995, Fuguitt, Beale and Reibel 1991). *The present study tests the hypotheses that youth who originate in a rural county will have 1) more positive marital outcomes (a lower odds of remaining single or being divorced) and 2) higher rates of childbearing than those who originate in a non-rural county during middle adulthood.*

Question 18: What is the effect of persistently poor county of origin on family formation in middle adulthood? Previous research has shown that living in a disadvantaged area leads to first marriage at an earlier age (South and Crowder 2001), but has not investigated the impact of community disadvantage on childbearing. *The present study tests the hypotheses that youth who originate in a persistently poor county will have 1) more negative marital outcomes (a higher odds of remaining single or being divorced) and 2) higher rates of childbearing than those who originate in a nonpoor county during middle adulthood.*

Question 19: Are the effects of persistent poverty in the county of origin on family formation in middle adulthood different in rural and non-rural communities

of origin? The present study tests the hypotheses that the effects of persistent poverty on 1) marital status and 2) childbearing are different in rural and non-rural communities. *Specifically, the hypotheses that persistent poverty will have more negative effects on marital status (a greater odds of being single or divorced) and will lead to sharper increases in childbearing in rural than in non-rural communities.*

Chapter 4

Methods

Data Sources. The primary data source used in the analyses presented here is the 1979 National Longitudinal Survey of Youth (NLSY79), a nationally representative sample of 12,686 men and women who were between the ages of 14 and 22 when data collection began in 1979. The NLSY79, which is sponsored by the U.S. Department of Labor's Bureau of Labor Statistics, was designed to measure labor market experiences but also includes measures for a wide variety of other outcomes, including educational attainment and family formation. The NLSY79 data are publicly available and can be obtained from the Bureau of Labor Statistics.

NLSY79 respondents have participated in annual interviews from 1979 to 1994 and biannual interviews beginning in 1996. With the exception of the 1987 wave, which was administered by telephone due to budget constraints, data were collected using face-to-face interviews. Paper and pencil instruments were replaced by computer-assisted instruments in 1993. Many of the variables employed in these analyses were measured in each survey year, allowing for the possibility of several methods of data analysis.

As of the 2000 wave, 63.3% of respondents had completed all 19 interviews, and the overall retention rate (excluding participants who were officially dropped from the sample due to budget constraints but including those who were deceased) remained close to 90%.

In addition to the main NLSY79 data file, the supplemental NLSY79 geocode file is used in these analyses. While data in the supplemental geocode file are available through the Bureau of Labor statistics, access to this restricted data file requires an application process as well as annual applications for contract renewal. Access is also subject to controls regarding where and how the data are used. Using FIPS codes, the geocode file identifies the county and state in which the respondent is living during each wave of the study. While the geocode file also contains contextual variables created from census data obtained from the City Reference File and the County & City Data Books, with the exception of region contextual data used in these analyses are taken directly from the sources of origin.

Contextual data are obtained from several sources. Rural-urban continuum codes, developed by the USDA's Economic Research Service (ERS) and available from the USDA, are used to measure rurality. In addition, a measure of persistent poverty is obtained from the ERS's 2004 County Typology Codes, also available from the USDA. These data sources are described in greater detail in the section explaining variable construction.

Several contextual measures were obtained from the Summary Tape Files 3C for the 1980 census. This dataset reports complete-count population and housing data for a variety of aggregate groupings, including states, counties, SMSAs, and congressional districts. It is based on the "long form" census, which was administered to half of housing units in communities with fewer than 2,500 residents and one in six households in other communities. The Summary Tape Files 3C is available from the U.S. Census Bureau.

Finally, the Higher Education General Information Survey (HEGIS) XIII: Institutional Characteristics of Colleges and Universities, 1978-1979 was used to obtain data for the number of two and four-year colleges located in the respondent's county of origin. Collected by the U.S. Department of Education's National Center for Education Statistics (NCES), HEGIS XIII is a comprehensive survey of public and private two-year and four-year accredited colleges and universities in the United States. HEGIS XIII data are available through the Interuniversity Consortium for Political and Social Research (ICPSR).

Sample. The NLSY79 consists of three independent probability samples, generated using multistage cluster sampling: a cross-sectional subsample of 6,111 young adults, a subsample of 5,295 Hispanic, black and economically disadvantaged white youth, and a military subsample of 1,280 youth. The cross-sectional sample is representative of non-institutionalized civilians born between January 1, 1957 and December 31, 1964 who were living in the United States in 1979. The oversample of minority and economically disadvantaged youth includes civilians who were born during the same time period and living in the United States in 1979, while the military subsample includes respondents born during this time period who were enlisted in one of the four active branches of the military as of September 30, 1978.

Because all but 201 of the respondents in the military subsample were dropped from the NLSY79 in 1984 due to funding limitations, all members of the military subsample were omitted from sample used in these analyses. A segment of the subsample of minority and economically disadvantaged young adults was also dropped

due to funding issues in 1990. However, the majority of this subsample was retained after 1990, so members of this subsample were included in the analysis.

In addition, the sample is limited to respondents who were 14 to 17 years of age in the first wave of the study. A primary objective of the analyses presented here is to investigate the effect of the context in which individuals come of age, rather than the context in which they place themselves as independent adults. It is important, therefore, to measure these contextual qualities before respondents leave the parental home. The sample used in these analyses includes 5,512 respondents.

Data structure. Three waves of NLSY79 data (the 1979 wave, the 1990 wave, and the 2000 wave) are employed in constructing most of the variables used in these analyses. Use of these three waves permits measures separated by approximately equal periods of time. The specific variables measured in each wave can be seen in the conceptual model presented in Figure 1.

The 1979 wave was used to measure characteristics of the respondent, as well as the respondent's family and community, before the transition into adulthood. Respondents were between the ages of 14 and 17 in this wave. Although the ASVAB exam was administered in 1980 rather than 1979, ASVAB score is treated as a wave 1 variable. In the 1990 wave, outcomes of early adulthood (education and geographic mobility) were measured. In 1990 all respondents in the sample were between the ages of 25 and 28. Finally, in the 2000 wave, outcomes of middle adulthood (geographic mobility, income, unemployment, poverty, marriage and childbearing) are measured. Respondents were between the ages of 35 and 38 in 2000.

Missing Data. Missing data were imputed using the multiple imputation routine written by Royston (2005) for the STATA program. The algorithms on which this routine was based were written by van Buuren et al. (1999). In multiple imputation, values are imputed for every missing case in each variable by calculating a predicted value on the basis of all other available data. Predicted values are generated using the regression model most appropriate for the variable's level of analysis (OLS regression for interval/ratio variables, ordinal logit for ordinal variables, and multinomial logistic regression for nominal variables), treating observed values from other available data as predictors and the variable being imputed as the outcome. There is also a random component to the imputation, comparable to the error in a regression model. This random component results in estimates which are somewhat different for every imputation. In cases where the available data are strong predictors of the variable being imputed, differences in predicted values for each imputation will be small; conversely, when the available data are not strong predictors of the variable being imputed differences between imputations in predicted values will be large. Ten imputations were generated for the data described here, essentially creating ten versions of the dataset, each with a different set of imputed values. Analyses are conducted using all ten imputed datasets, and all parameter estimates represent an average estimate across the ten imputations.

While listwise deletion assumes that data are missing completely at random, this assumption can be relaxed for data imputed using multiple imputation. In multiple imputation, data are assumed to be missing at random conditional on all other available data. In addition, compared to listwise deletion multiple imputation increases power by

including information from respondents who did not answer one or more questions. This is particularly important in a longitudinal dataset such as the NLSY, when data are missing due to both nonresponse for specific questions within a wave and nonresponse due to many respondents not participating in all waves. In the case of the present sample, only 22.9 percent of respondents gave complete information for all variables used in the analysis.

Variables. A description of each of the variables used in the analyses is provided below. For each variable, information is provided regarding how the variable was constructed. In addition, the description identifies the data source from which the variable was obtained and the year in which it is measured.

Many of the contextual variables used in these analyses are merged into the NLSY79 dataset using Federal Information Processing Standards (FIPS) codes. Each state and outlying area in the United States has been assigned a unique two digit FIPS code by the National Institute of Standards and Technology. Each county within a state has been assigned a three digit FIPS code which is unique among counties in that state. By combining the state and county FIPS codes to create a five digit code, it is therefore possible to uniquely identify every county in the United States.

The geocode file for the NLSY79 identifies the FIPS code of the county in which each respondent was living in each interview year. Because this standard coding system is included in most datasets which provide data at the county level, it can be used to merge a wide variety of contextual data into the NLSY79 data. For the present analyses, FIPS codes are used to merge county of origin characteristics into the dataset for each individual using the FIPS code for the county in which that individual was living in 1979.

Rural County of Origin. Rural county origin is a dichotomous variable coded as 1 for respondents who lived in a rural county in the first wave of the NLSY79 and 0 for respondents who lived in a non-rural county in the first wave. Rural county of origin was constructed by merging 1974 Rural-Urban Continuum (RUC) Codes into the NLSY79 data using FIPS codes for the county in which the respondent lived in 1979. RUC Codes are assigned by the Economic Research Service (Bureau of Labor Statistics). In these analyses, counties with RUC codes of 7 through 9 were classified as rural, while counties with RUC codes of 1 through 6 were classified as non-rural.

The RUC coding system first classifies counties as either metropolitan or non-metropolitan according to their official metro-nonmetro status, assigned by the Office of Management and Budget. Metropolitan counties are then assigned a RUC code on the basis of the population size of the Metropolitan Statistical Area (MSA) with which they are associated: 0 for central counties of metro areas of 1 million population or more, 1 for fringe counties of metro areas of 1 million population or more, 2 for counties in metro areas of 250,000 to 1 million population, or 3 for counties in metro areas of fewer than 250,000 population.

Non-metropolitan counties are assigned a RUC code on the basis of population size and adjacency to a metropolitan county. A non-metropolitan county is defined as adjacent to a metropolitan county if it physically adjoins one or more metropolitan counties and at least two percent of its labor force commutes to central metropolitan counties. Non-metropolitan counties are assigned a RUC code of 4 for counties with an urban population of 20,000 or more, adjacent to a metro area, 5 for counties with an urban population of 20,000 or more, not adjacent to a metro area, 6 for counties with an

urban population of 2,500 to 19,999, adjacent to a metro area, 7 for counties with an urban population of 2,500 to 19,999, not adjacent to a metro area, 8 for counties which are completely rural or with an urban population of less than 2,500, adjacent to a metro area, or 9 for counties which are completely rural or with an urban population of less than 2,500, not adjacent to a metro area.

An alternative measure of rurality, the Urban Influence Codes (UIC), identifies three community types: metropolitan, micropolitan, and noncore. Metropolitan areas are further subdivided on the basis of population size; micropolitan and noncore areas are further subdivided on the basis of population size, adjacency to a larger area, and, for noncore counties, whether the county has its own town. Whereas RUC codes place the greatest emphasis on place size when determining level of rurality, UIC codes place the greatest emphasis on adjacency. For instance, a noncore county adjacent to a large metropolitan area would be classified as less rural than a micropolitan county adjacent to a small metropolitan area. Results of analyses not shown suggest similar effects of rurality on outcomes of interest regardless of whether RUC or UIC codes are used to measure rurality.

Persistently Poor County of Origin. County level persistent poverty is a dichotomous variable coded as 1 for respondents who were living in a persistently poor county in 1979 and 0 for respondents who did not live in a persistently poor county in 1979. This variable was constructed using data from the 2004 County Typology Codes, also assigned by the Economic Research Service. A county is defined as persistently poor if at least 20 percent of residents fell under the official poverty line in the previous four census years (1970, 1980, 1990, and 2000). While a persistent poverty measure for

non-metropolitan areas are available as early as 1979, persistent poverty measures for metropolitan areas are available only from the 2004 County Typology Codes.

The use 2004 codes to identify counties which were persistently poor in 1979 presents some obvious problems. While data from the 1970 and 1980 censuses should reflect past and present conditions in the counties relatively well, data from the 1990 and 2000 censuses reflect future conditions. Because it is important for these analyses to identify both metro and non-metro counties characterized by persistent poverty in order to fully separate the effects of living in rural versus nonrural communities and the effects of living in poor versus nonpoor communities, the 2004 codes are used rather than the 1979 codes.

While the use of census data from 1990 and 2000 to classify counties on persistently poor in 1979 is not ideal, this variable is probably not as poorly representative of 1979 conditions as it appears at first glance. High poverty has clustered in the same geographic "pockets" of the country over long periods of time, and it is likely that in the majority of cases counties which have had high poverty rates in the four decades between 1970 and 2000 also had high poverty rates in previous decades. Unfortunately it is not possible to compare the 1979 and 2004 persistent poverty measures, since they are calculated differently. Unlike the 2004 measure, which counts a county as persistently poor if at least 20 percent of residents were poor in each of the previous four census years, the 1979 measure counts a county as persistently poor if the county ranked in the lowest per capita income quintile in each of the previous four census years.

Percent black in county of origin. The percentage of residents in the respondent's county of origin who are black is obtained from census data. This variable is merged into the NLSY79 dataset using FIPS codes.

Percent college in county of origin. The percentage of residents in the respondent's county of origin who have college degrees is also obtained from census data and merged into the NLSY79 dataset using FIPS codes.

Region. Dummy variables were created for the region of the country in which the respondent lived in 1979. Respondents were identified as living in one of four regions: *Northeast* (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, or Vermont), *North Central* (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, or Wisconsin), *South* (Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, or South Carolina), or *West* (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, Tennessee, Texas, Virginia, or West Virginia). South was the reference category for all analyses.

Number of two-year colleges. Data from the HEGIS XIII survey were used to construct a variable measuring the number of accredited two-year colleges located in the respondent's county of origin. A dummy variable was first constructed for each college in the sample, identifying whether it was a two-year institution on the basis of the "institution type" it was assigned in the HEGIS survey. Institution type was classified as one of the following: 1 university, 2 other four-year, 3 two-year, 4 other four-year branch,

5 two-year branch campus, 6 two-year of other four-year, or 7 none of the above. Institutions coded as type 3, 4 or 6 were counted as two-year colleges.

This dummy variable identifying whether the college was a two-year institution was used to create a variable counting the number of two-year schools for each county in the country. Finally, this count of two-year schools for each county was merged into the NLSY79 data for each respondent using the FIPS code for the county in which the respondent lived in 1979 to create a measure of the number of two-year colleges in the respondent's county of origin.

Number of four-year colleges. The HEGIS XIII survey was also used to determine the number of accredited four-year colleges and universities located in the respondent's county of origin. The variable measuring institution type described above was used to create a dummy variable identifying whether the school was a four-year college. Because institutions coded as 2 or 4 were primarily specialized schools (e.g., schools for engineering or nursing) rather than standard four-year colleges, only schools coded as 1 were counted as four-year schools.

This dummy variable identifying whether the college was a four-year institution was then used to create a variable counting the number of four-year schools for each county in the country. Finally, this count of four-year schools for each county was merged into the NLSY79 data for each respondent using the FIPS code for the county in which the respondent lived in 1979 to create a measure of the number of two-year colleges in the respondent's county of origin.

Male. For the variable identifying sex, male respondents are coded as 1 and female respondents are coded as 0. A separate variable measuring respondent's sex is

available for most survey years. The variable available for the 1979 wave is derived from information gathered during the 1978 household prescreening. Sex was typically determined by the interviewer through visual observation; respondents were directly asked their sex only when interviewers could not visually determine sex. In most subsequent waves, sex of respondent was recorded again using the same process. However, the original 1979 variable identifying sex remains the most authoritative, since there are no missing data for this variable and errors made in initially recording sex were later corrected for 42 cases.

Race. Self-identified race is measured using dummy variables to identify respondents as white, black, Hispanic, or another race. This measure is constructed from a variable in which respondents are asked to choose their racial/ethnic origin from a list of more than twenty categories. Respondents who offered more than one racial/ethnic category were asked to choose the category with which they most closely identified.

In the present analyses, respondent's race was classified as white if they identified their racial/ethnic origin as English, French, German, Greek, Irish, Italian, Polish, Portugese, Russian, Scottish, Welsh, or American. Respondents were classified as black if they identified their primary racial/ethnic category as black. Respondents were classified as Hispanic if they reported that their primary racial/ethnic background was Cuban, Chicano, Mexican, Mexican-American, Puerto Rican, or other Hispanic. Respondent's race was coded as Asian if they reported that their primary racial/ethnic background was Chinese, Filipino, Asian Indian, Japanese, Korean, or Vietnamese. Finally, respondent's race was classified as other if they reported that their primary

racial/ethnic background was None, Hawaiian/Pacific Islander, Indian-American, Other Spanish, or Other. White is the reference category for all analyses.

Number of siblings. This variable measures the number of siblings the respondent reported having in 1979. Respondents who reported in an earlier variable that they were uncertain of the identities of their siblings were asked for this variable to report as siblings "whomever you consider as your brothers and sisters." Half siblings are thus reported as siblings by some but not all respondents.

Frequency of religious attendance. Frequency of religious attendance was respondent's self-reported frequency of attending religious services in 1979. The variable is coded as follows: 0 never, 1 infrequently, 2 once a month, 3 two to three times per month, 4 once a week, or 5 more than once a week.

Never moved. Respondent's geographic mobility prior to 1979 is measured using a dummy variable which is coded as 1 if the respondent has always lived in the same community and 0 if the respondent has ever moved to a new community between birth and 1979. In the 1979 survey, respondents were asked: "Some people live in the same place all of their lives, while others move from time to time. How about you – have you lived here in this (city/town/county) all of your life?"

Mother's education. Mother's education, reported by the respondent in 1979, is the highest grade completed by the respondent's mother. Mother's education was truncated for respondents whose mother had completed more than eight years of college.

Father's education. Father's education, also reported by the respondent in 1979, is the highest grade completed by the respondent's father. Father's education was

truncated for respondents whose father had completed more than eight years of education.

Mother's work status. Mother's work status is measured as an ordinal variable coded as 0 if the respondent's mother or stepmother did not work in 1978, 1 if the respondent's mother worked part time, and 2 if she worked full time. This variable is constructed using two variables from the NLSY79. If respondents reported that their mother or stepmother did not work at all in the previous year in a variable which asked whether the mother had worked all year, part of the year or not at all, mother's work status was coded as 0. In a separate variable, respondents who reported that their mother or stepmother had worked part or all of the previous year were asked whether she had worked fewer than 35 hours per week or more than 35 hours per week. For respondents who reported that their mother had worked fewer than 35 hours per week, mother's work status was coded as 1; mother's work status was coded as 2 for respondents whose mother had worked more than 35 hours per week.

Father's work status. Father's work status is measured as an ordinal variable coded as 0 if the respondent's father or stepfather did not work in 1978, 1 if the respondent's father worked part time, and 2 if he worked full time. This variable is constructed using two variables from the NLSY79. If respondents reported that their father or stepfather did not work at all in the previous year in a variable which asked whether the father had worked all year, part of the year or not at all, father's work status was coded as 0. In a separate variable, respondents who reported that their father or stepfather had worked part or all of the previous year were asked whether he had worked fewer than 35 hours per week or more than 35 hours per week. For respondents who

reported that their father had worked fewer than 35 hours per week, father's work status was coded as 1; father's work status was coded as 2 for respondents whose father had worked more than 35 hours per week.

Parents' income. Parents' income is determined using a variable in the 1979 questionnaire which measures total net family income for the previous year. This variable is constructed for the NLSY79 using a series of questions asking respondents about income for all household members age 14 and older from a wide variety of income sources. Parents' income is truncated for households with incomes in approximately the top two percent.

Age. Respondent's age is derived from a variable measuring self-reported age as of the 1979 interview date. This variable was used to restrict the sample to those respondents who where between 14 and 17 years old in the first survey wave. In addition, this variable is used as a control for analyses which include AFQT score.

AFQT score. Respondent's attained cognitive skill is measured using revised Armed Forces Qualification Test (AFQT) score. AFQT score, a percentile ranking of respondents designed to measure "trainability," is used to determine enlistment eligibility for the Armed Forces. AFQT score is also commonly used by researchers as a measure of cognitive skill or, in some cases, IQ.

In 1980, approximately 94 percent of NLSY79 participants completed the Armed Services Vocational Aptitude Battery (ASVAB) as part of an effort on the part of the military to update norms for assigning scores. The ASVAB consists of a battery of ten tests which measure knowledge and skill in a variety of areas. Scores for a subset of these tests can be used to create an unofficial AFQT score. The NLSY79 reports two

AFQT scores: the original 1980 percentile ranking and a revised score which uses respondent's original 1980 ASVAB scores but assigns percentile rankings on the basis of the revised 1989 norms. The analyses presented here used the revised score.

To calculate revised AFQT score, a verbal composite score was first calculated by summing raw scores for the word knowledge and paragraph comprehension subtests. Raw verbal, math knowledge and arithmetic reasoning scores were then converted to standard scores. The standard verbal score was multiplied by two and added to the standard scores for math knowledge and arithmetic reasoning, and finally the summed standard score is converted to a percentile score. Because AFQT is not age normed for respondents under the age of 17, age is used as a control variable in all analyses which include AFQT score.

Low and high AFQT. In some analyses, dummy variables are created for respondents with low and high AFQT scores. The dummy variable for low AFQT score is coded 1 for respondents with scores in the lowest decile for the sample and 0 for all other respondents. The dummy variable for high AFQT is coded 1 for respondents with scores in the highest decile for the sample and 0 for all other respondents. Moderate AFQT score is the reference category. These measures are used in analyses which assess the effect of AFQT on selected outcomes (geographic mobility in 1990, education, and respondent's income). Dummy variables for AFQT are used in these analyses to allow for nonlinearity of the effects of AFQT on these outcomes.

Living in county of origin (1990). A dummy variable measuring whether the respondent was living in the county of origin was created for 1990. If the FIPS code for the county in which the respondent lived in 1990 matched the FIPS code of the county in

which the respondent lived in 1979, this variable was coded as 1. If the two FIPS codes did not match, this variable was coded as 0.

Years of education. Years of education was measured in 1990 using a variable in which respondents were asked to report the highest grade or year of regular school for which they had completed and gotten credit. Six respondents with missing data due to a valid skip for this variable were given the value for the previous year. Years of education was truncated for respondents with more than eight years of college.

Living in county of origin (2000). A dummy variable measuring whether the respondent was living in the county of origin was created for 2000. If the FIPS code for the county in which the respondent lived in 2000 matched the FIPS code of the county in which the respondent lived in 1979, this variable was coded as 1. If the two FIPS codes did not match, this variable was coded as 0.

Respondent's income. Respondent's income is measured in 2000 using a variable which asks respondent income from wages, salary, commissions, and tips for all jobs in the previous year. This variable is truncated for respondents whose income was in approximately the top two percent.

Household income. Household income is determined using a variable in the 2000 questionnaire which measures total net family income for the previous year. This variable is constructed for the NLSY79 using a series of questions asking respondents about income for all household members age 14 and older from a wide variety of income sources. Household income is truncated for households with incomes in approximately the top two percent.

Percentage of weeks unemployed, 1990 to 2000. This variable records the percentage of weeks from 1990 to 2000 that respondents reported being unemployed. In each wave of the NLSY survey, respondents were asked to report the number of weeks for which they were unemployed in the previous year. For each year between 1990 and 2000, this number was divided by 52 to determine the percentage of the year for which the respondent was unemployed. The percentage of weeks unemployed for each year was summed for each respondent then divided by the number of years for which the respondent had valid data to create a variable measuring the percentage of weeks unemployed over the entire time period.

Percentage of years in poverty, 1992-2000. This variable records the percentage of years between 1990 and 2000 for which respondents' household income fell below the official poverty line. This measure was constructed using a series of variables created for the NLSY79 for each survey year which dichotomize respondents on the basis of whether they lived in a household which was in poverty during the previous year, based on their reported household income. To create the measure of percentage of years spent in poverty, a variable counting the number of years in which the respondent's household income fell below the poverty line was created. This count was then divided by the number of years for which the respondent had valid data.

Marital status. Marital status was measured as the respondent's marital status as of 2000. This measure is constructed from a variable which classifies respondents as never married, married, separated, widowed, or divorced. Because only a very small percentage of respondents (approximately half of one percent) were widowed in 2000, it was not possible to treat widowed respondents as a separate category. Widowed

respondents were therefore merged with married respondents, since widowhood, unlike the other response categories, is an involuntary state. In other words, respondents who are widowed are unmarried involuntarily, whereas respondents in other categories are presumably unmarried by choice. In all analyses, the married/widowed category was treated as the reference category.

Number of biological children. Number of biological children is the number of children ever born to the respondent.

Statistical analysis. The analyses presented in here are divided into two sections. The effects of two county-of-origin characteristics, rurality and persistent poverty, are the main focus of these analyses. The first set of analyses investigates the effect of these county-of-origin characteristics on three outcomes of early adulthood: AFQT score, living in the county of origin, and years of education. AFQT score was measured in 1980, when respondents were between 15 and 19 years of age. Living in county of origin and years of education were measured in 1990, when respondents were between 25 and 28 years of age. The effect of AFQT score on living in county of origin and years of education is also measured in this set of analyses.

The second set of analyses investigates the effect of these community-of-origin characteristics on seven outcomes of middle adulthood: living in county of origin, respondent's income, household income, percentage of weeks unemployed, percentage of years in poverty, marital status, and number of biological children. Living in county of origin, respondent and household income, marital status, and number of biological children were measured in 2000. Percentage of weeks unemployed and percentage of

years in poverty are derived from measures taken between1990 and 2000. This section also measures the effect of AFQT on respondent's income.

All analyses described here are conducted using the full sample with multiple imputation. Multiple imputation is used to eliminate effects of selective attrition and nonresponse as well as to increase the statistical power of the analyses by allowing the full sample to be used in all analyses.

Outcomes of early adulthood. The first set of analyses focuses on three outcomes of early adulthood: AFQT score, living in the county of origin, and years of education. This section begins with two sets OLS regression analyses which investigate the effect of rural and persistently poor county of origin on AFQT score. These analyses are unique in that, unlike all other analyses presented here, the outcome variable is measured only a year after the predictors. In all other analyses the outcome is measured between one and two decades after the predictors in the model. The first stepwise regression analysis assesses the effect of these two variables on AFQT, controlling for personal and family characteristics as well as other contextual qualities of the county of origin. The second stepwise regression adds an interaction term for rurality by persistent poverty.

The effect of rurality and persistent poverty on living in the county of origin is assessed in the next set of models, followed by a model assessing the effect of AFQT on living in the county of origin. Each of these analyses is conducted using logistic regression. As with AFQT, the first stepwise logistic regression analysis assesses the effect of rurality and persistent poverty on living in the county of origin and the second stepwise regression adds an interaction term for rurality by persistent poverty, controlling for personal and family characteristics as well as other contextual qualities of the county

of origin. The third stepwise linear regression assesses the effect of AFQT on living in the county of origin, controlling for personal and family characteristics as well as contextual qualities of the respondent's county of origin.

Finally, in the third set of analyses, the effect of rurality and persistent poverty on years of education is assessed using OLS regression, followed by a model assessing the effect of AFQT on education using OLS regression. The first stepwise regression assesses the effect of rurality and persistent poverty in the county of origin on years of education in 1990; the second stepwise regression adds an interaction term for rurality by persistent poverty. The third stepwise regression assesses the effect of AFQT on years of education, controlling for personal and family characteristics as well as contextual qualities of the respondent's county of origin.

Outcomes of middle adulthood. The second set of analyses investigates the effect of rurality and persistent poverty on seven outcomes of middle adulthood: living in county of origin, respondent's income, household income, percentage of weeks unemployed, percentage of years in poverty, marital status, and number of biological children. The first set of analyses predicts living in county of origin in 2000 with rurality and persistent poverty of county of origin using two stepwise logistic regression analyses. These analyses control for family and personal characteristics as well as other contextual characteristics of county of origin. Years of education and living in county of origin in 1990 are controlled as well.

Next, two sets of analyses assess the effect of rurality and persistent poverty on respondent's income and household income. Both sets of analyses begin with a stepwise OLS regression predicting the effect of rurality and persistent poverty on income,

controlling for personal and family characteristics as well as other contextual characteristics of the county of origin and years of education. These analyses are then repeated for both respondent's income and household income with the addition of an interaction term for rurality by persistent poverty. For respondent's income, this is followed by a stepwise regression for the effect of AFQT, controlling for personal and family characteristics, contextual characteristics of the county of origin, and years of education.

Two sets of stepwise OLS regressions are used to predict percentage of weeks spent unemployed and percentage of years spent in poverty. In each case, two stepwise OLS regressions are conducted. The first presents the effect of rurality and persistent poverty on the outcome variable, controlling for personal and family characteristics as well as other contextual characteristics of the family of origin and years of education. The second adds an interaction term for rurality by persistent poverty.

Marital status is then predicted using multinomial logistic regression, with married/widowed as the reference category. A stepwise multinomial logistic regression analysis assesses the effect of rurality and persistent poverty in the county of origin on the likelihood of respondents being in each of the other marital categories, compared to their likelihood of being married or widowed. This analysis controls for personal and family characteristics as well as other contextual characteristics of the county of origin and years of education. A second stepwise multinomial logistic regression adds an interaction term for rurality by persistent poverty.

Finally, the effect of rurality and persistent poverty in the county of origin on number of biological children is assessed, using OLS regression. Two stepwise OLS

regression analyses are presented. The first analysis assesses the effect of rurality and persistent poverty on number of biological children controlling for personal and family characteristics as well as other contextual qualities of the county of origin and years of education. The second stepwise analysis adds an interaction term for rurality by persistent poverty.

Chapter 5

Outcomes of Early Adulthood

Table 1 presents descriptive statistics separately for respondents who lived in rural counties in the first wave of the study and those who lived in non-rural counties in the first wave of the study. Descriptive statistics are also presented for the total sample. The descriptive statistics presented in Table 1 are based on imputed data for all respondents in the cross-sectional sample and the sample of minority and economically disadvantaged white youth who were between the ages of 14 and 17 in 1979. All models presented here utilize the same sample used in the descriptive statistics, using multiple imputation for all variables in the models.

Table 2 presents the results of an OLS regression predicting respondents' AFQT score in 1980. Model 1 presents the total effect of rural county of origin on AFQT score. This model suggests a small negative effect of rural county of origin on AFQT score which is significant at the 0.10 level ($b = -2.697$, $p<0.10$). Respondents with a rural county of origin had AFQT scores 0.09 standard deviations below that of those with a non-rural county of origin.

In Model 2, controlling for persistent poverty in the county of origin, rural origin has a positive effect on AFQT score that is not statistically significant ($b = 0.381$). Persistent poverty in the county of origin has a statistically significant negative effect ($b = -15.43$, $p<0.01$) on AFQT score. Respondents with a persistently poor county of origin

had AFQT scores 0.54 standard deviations lower than those who did not have a persistently poor county of origin.

Model 3 adds controls for other contextual effects of the county of origin. Rurality has no effect on AFQT score in this model (b = 2.371). The effect of county level persistent poverty (b = -5.238) is still significant but much weaker. Whereas the effect of this variable on AFQT was slightly more than half a standard deviation in the second model, it is now only about a sixth of a standard deviation. A higher percentage of black residents in the county of origin is negatively associated with AFQT. Conversely, AFQT score is higher for respondents whose county of origin had a higher percentage of residents with a college degree. While there was no difference in AFQT score for respondents whose county of origin was in the West and those in the South, respondents who lived in the Northeastern or North Central regions had a small but statistically significant advantage over respondents in AFQT score compared to those who lived in the South.

Table **1**

Table **1**: Descriptive Statistics for Respondents From Rural and Non-Rural Counties of Origin

Table 1. Descriptive Statistics for Respondents From Rural and Non-Rural Counties of Origin.

	Rural		Non-rural		Total	
	Mean	SD	Mean	SD	Mean	SD
County of Origin Characteristics						
Persistent Poverty	0.29	0.44	0.06	0.23	0.08	0.27
% Black	15.04	17.31	14.52	14.35	14.58	14.70
% College	9.81	4.25	15.84	5.85	15.19	5.97
Region						
South*	0.58	0.49	0.34	0.47	0.36	0.48
West	0.08	0.28	0.19	0.39	0.18	0.39
Northeast	0.05	0.22	0.22	0.41	0.20	0.40
North Central	0.29	0.45	0.25	0.43	0.25	0.44
# of Two-Year Colleges	1.09	1.78	3.23	5.49	3.00	5.26
# of Four-Year Colleges	0.09	0.32	0.53	0.89	0.48	0.86
Personal and Family Characteristics						
Male	0.53	0.50	0.51	0.50	0.51	0.50
Race						
White*	0.57	0.49	0.52	0.50	0.52	0.50
Black	0.27	0.44	0.26	0.43	0.26	0.43
Hispanic	0.03	0.19	0.15	0.36	0.14	0.35
Other Race	0.14	0.33	0.08	0.28	0.09	0.28
# of Siblings	4.00	2.87	3.66	2.70	3.70	2.72
Religious Attendance	2.57	1.69	2.46	1.71	2.47	1.71
Never Moved	0.53	0.50	0.48	0.50	0.49	0.50
Mother Education	10.34	2.85	10.75	3.30	10.70	3.26
Father Education	9.63	3.86	10.78	4.05	10.66	4.04
Mother Wk. Status	1.02	0.89	1.01	0.91	1.01	0.91
Father Wk. Status	1.60	0.73	1.72	0.67	1.70	0.68
Parents' Income**	11.84	10.20	16.60	13.03	16.08	12.83
Age	15.60	2.27	15.66	2.26	15.65	2.26
Early Life Outcomes (1992)						
AFQT Score	33.05	28.81	34.88	28.80	34.68	28.81
Living in County of Origin	0.52	0.50	0.61	0.49	0.60	0.49
Years of Education	12.27	2.43	12.63	2.60	12.59	2.58
Later Life Outcomes (2000)						
Living in County of Origin	0.46	0.50	0.52	0.50	0.51	0.50
Respondent's Income	26045.44	30773.51	29869.27	33731.55	29456.62	33447.68
Household Income	42432.20	45849.51	51058.28	54262.31	50127.39	53476.63
% of Weeks Unemployed, 1992-2000	0.02	0.03	0.02	0.03	0.02	0.03
% of Years in Poverty, 1992-2000	0.04	0.09	0.05	0.09	0.05	0.09
Marital Status						
Married or widowed*	0.62	0.48	0.58	0.49	0.58	0.49
Never Married	0.19	0.38	0.21	0.39	0.21	0.39
Separated	0.07	0.26	0.06	0.23	0.06	0.24
Divorced	0.13	0.32	0.15	0.36	0.15	0.36
# of Biological Children	1.77	1.34	1.82	1.43	1.81	1.42
	N = 601		N = 4981		N = 5582	

* Denotes reference category.

** In thousands of dollars.

Table **2**: OLS Regression on Predicting AFQT Score (1980)

Table 2. OLS Regression Predicting AFQT Score (1980)

	(1)	(2)	(3)	(4)	(5)
Rural*	-2.697+	0.381	2.371	0.780	3.062*
Persistent Poverty*		-15.430**	-5.238**	1.391	1.845
% Black*			-0.418**	-0.156**	-0.168**
% College*			0.459**	0.439**	0.035
*Region**					
West			-1.702	1.118	0.048
Northeast			4.673**	4.384**	2.900*
North Central			6.692**	5.912**	3.601**
Male				-0.745	-1.150
Race					
Black				-22.380**	-16.110**
Hispanic				-20.000**	-4.562**
Other Race				-5.417**	-3.262*
# of Siblings				-2.136**	-1.058**
Relig. Frequency				1.491**	0.847**
Mother Education					1.686**
Father Education					1.518**
Mother Wk. Status					-0.227
Father Wk. Status					-0.001
Parents' Income**					0.299**
Constant	43.250**	43.670**	38.420**	43.300**	4.094
R-squared	0.001	0.014	0.073	0.210	0.341

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

In Model 4, when controls for personal characteristics are added, neither rural nor persistently poor county of origin was significantly associated with AFQT score. The negative effect of the percentage of black residents in the county of origin is reduced substantially, from 0.23 standard deviations to 0.08 standard deviations, but remains statistically significant (b = -0.156, p<.01). The effect of region remains very similar; there is no effect of county of origin in the West compared to South, but there is a small positive effect of coming from a Northeast or North Central county compared to a

Southern county. Of the variables measuring personal characteristics, all are significant except being male. Members of all racial minorities, (black, Hispanic and other) have significantly lower AFQT scores than whites. There is a small but statistically significant negative effect of number of siblings on AFQT score and a small but significant positive effect of religious attendance.

Finally, in Model 5 we see that there is now a small but statistically significant positive effect of rural county of origin ($b = 3.062$, $p<0.05$) when family socioeconomic status is added to the model. While this represents a rural advantage of only 0.11 standard deviations, it is notable that the significant negative effect seen in Model 1 is reversed when controlling for other variables. As in the previous model, there is no effect of persistently poor county of origin ($b = 1.845$). The effect of percentage of black residents in the county remains negative and statistically significant. Once family SES is controlled, the percentage of residents in the county with a college degree no longer has a significant effect on AFQT score ($b = 0.035$). The small positive effect of county of origin in the West or Northeast persists, as do the negative effects of number of siblings and minority status. Religious attendance continues to be positively associated with AFQT score. Parents' education and income have positive effects on AFQT score, while parents' work status has no effect.

Table 3 presents the results of an OLS regression predicting AFQT score, including interaction effects for rural county of origin by persistently poor county of origin. This interaction is statistically significant at the 0.10 level or higher in all models. In the first model, when no control variables are included, there is no effect of rural county of origin on AFTQ score. There is a statistically significant negative effect of

persistently poor county of origin (b = -12.230, p<0.01), as well as a significant interaction for rural county of origin by persistently poor county of origin (b = -8.317, p<0.05). Thus, while living in a nonpoor rural area has a nonsignificant effect on AFQT score, living in a persistently poor rural area has a negative effect on AFQT score. Compared to respondents from persistently poor non-rural counties of origin, the AFQT score of respondents from persistently poor rural counties of origin is 0.23 standard deviations lower.

Table **3**

Table **3**: OLS Regression on Predicting AFQT Score (1980), with Interaction

Table 3. OLS Regression Predicting AFQT Score (1980), with Interaction

	(1)	(2)	(3)	(4)
Rural*	1.629	3.371+	3.232+	5.492**
Persistent Poverty*	-12.230**	-2.812	7.812**	8.181**
Rural X Persistent Poverty	-8.317*	-6.380+	-16.160**	-15.960**
% Black*		-0.415**	-0.149**	-0.161**
% College*		0.462**	0.446**	0.042
*Region**				
West		-1.668	1.327	0.260
Northeast		4.766**	4.633**	3.140**
North Central		6.703**	5.907**	3.591**
Male			-0.784	-1.189
Race				
Black			-22.450**	-16.150**
Hispanic			-21.180**	-5.7620**
Other Race			-5.499**	-3.340*
# of Siblings			-2.149**	-1.075**
Relig. Frequency			1.495**	0.851**
Mother Education				1.679**
Father Education				1.511**
Mother Wk. Status				-0.243
Father Wk. Status				-0.026
Parents' Income**				0.303**
Constant	43.580**	38.240**	42.960**	3.920
R-squared	0.015	0.074	0.213	0.344

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

When other contextual effects are added in Model 2, rural county of origin is significant (b = 3.371, p<0.10) but there is no effect of persistent poverty (b = -2.81). The interaction is significant (b = -6.380, p<0.10). Respondents who come from a rural, non-poor county of origin have a statistically significant advantage (b = 3.371, p<.10). Those who come from a persistently poor rural county of origin, on the other hand, have lower AFQT scores. Respondents whose county of origin is both rural and persistently poor have a predicted AFQT score 0.18 standard deviations below that of respondents from a non-poor rural county of origin. The nonsignificant effect of persistent poverty in this model suggests that the negative effect seen in the first model was actually a result of other contextual characteristics of the county of origin.

With the addition of personal characteristics in Model 3, both rural (b = 3.232, p<0.10) and persistently poor (b = 7.812, p<0.01) county of origin have a positive effect on AFQT score, while the interaction is negative and statistically significant (-16.160, p<0.01). Respondents from non-poor rural counties of origin had significantly higher AFQT scores than respondents from non-poor non-rural counties (b = 3.232, p<0.10). The effect of persistent poverty was positive and statistically significant (b = 7.812, p<0.01). While this appears to suggest that a positive effect of persistent county level poverty exists for respondents with a non-rural county of origin, it may instead reflect the suppressed effect of some unmeasured variable that is strongly associated with persistently high poverty in non-rural communities, such as the presence of ethnic enclaves or poor but upwardly mobile immigrant “gateway communities” in these counties. The interaction term for this model is statistically significant (b = 16.160,

$p<0.01$). Residents of poor rural communities thus have average AFQT scores 0.16 standard deviations below that for residents of non-poor rural communities.

Finally, with the inclusion of parents' SES in Model 4 there is a statistically significant positive effect of rural county of origin ($b = 5.492$, $p<.01$) as well as a positive effect of persistently poor county of origin ($b = 8.181$, $p<0.01$) on AFQT score. The interaction for this model is negative and statistically significant ($b = -15.960$, $p<0.01$). These results are very similar to those of the previous model. Non-poor rural county of origin has a small positive effect on AFQT score, while poor rural county of origin has a small negative effect on AFQT score. Again, while the model suggests that residents of persistently poor non-rural counties have an AFQT advantage, this may be due to the effect of an unmeasured variable that is characteristic of persistently poor non-rural communities.

Table 4 presents the results of a logistic regression predicting living in the county of origin in 1990. In Model 1, the total effect of rurality on living in the county of origin is presented. For this model, the odds of living in the same county in 1990 for respondents with a rural county of origin ($b = 0.757$, $p<0.05$) is significantly lower than the odds of living in the same county for respondents with a non-rural county of origin. Respondents with a rural county of origin are therefore less likely to remain in the county of origin than respondents with an non-rural county of origin.

In Model 2, the effect of persistently poor county of origin is added to the regression equation. In this model, the effect of rural county of origin changes only

Table **4**

Table **4**: Logistic Regression (Odds Ratios) Predicting Living in County of Origin in 1990

Table 4. Logistic Regression (Odds Ratios) Predicting Living in County of Origin in 1990

	(1)	(2)	(3)	(4)	(5)
Rural*	0.757*	0.743*	0.737*	0.777+	0.772+
Persistent Poverty*		1.102	0.974	0.776	0.770
% Black*			1.010**	1.003	1.001
% College*			0.981**	0.985*	0.995
*Region**					
West			1.400**	1.334*	1.386*
Northeast			1.447**	1.385**	1.471**
North Central			1.138	1.129	1.225+
Male				0.953	0.943
Race					
Black				1.641**	1.230+
Hispanic				1.976**	1.270+
Other Race				0.895	0.821
# of Siblings				1.031*	0.985
Relig. Frequency				0.924**	0.942**
Never Moved				1.742**	1.785**
Mother Education					0.974
Father Education					0.969*
Mother Wk. Status					0.927+
Father Wk. Status					0.985
Parents' Income**					1.005
AFQT Score					0.987**
Age					0.984
Constant	1.324**	1.320**	1.316*	1.108	4.886**

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

slightly (b = 0.743, p<0.05). Persistently poor county of origin has no significant effect on living in the county of origin.

Other contextual characteristics of the county of origin are added in Model 3. The effect of rural county of origin remains significant (b = 0.737, p<0.05) and decreases only slightly. While persistently poor county of origin has no effect on living in the county of origin, all other contextual effects are significant. Respondents were less likely to move away from communities with a larger percentage of black residents but more likely to move away from communities with a larger percentage of college educated respondents. Respondents from a county of origin in the South were less likely to remain in the county of origin than respondents in the West (b = 1.400, p<0.0) or the Northeast (b = 1.447, p<0.01); the effect for North Central county of origin (b = 1.138) was not statistically significant.

When personal characteristics are added in Model 4, the effects of variables in Model 3 remain substantially unchanged. The odds of living in the county of origin is lower for respondents from a rural county of origin (b = 0.777, p<0.10) than from a non-rural county of origin. A higher percentage of college educated residents in the county of origin is associated with a decreased odds of living in the county of origin (b – 0.981, p<0.05). Regional variation in odds of living in the county of origin remain similar to those in the previous model as well: county of origin in the West or North Central states is associated with an increased odds of living in the same county compared to Southern states, while there is no difference for respondents from North Central counties of origin. The effect of percent black in the county of origin is no longer significant, likely because this variable acted as a proxy of respondent's own race. Once race was added to the

model, this variable was no longer significant. With the exception of gender, all personal characteristics have a significant effect on odds of living in the county of origin. Black ($b = 1.641$, $p<0.01$) and Hispanic ($b = 1.976$, $p<0.01$) respondents were more likely than whites to remain in the county of origin, though there was no effect for other race ($b = 0.895$). Having more siblings is associated with a greater odds of living in the county of origin ($b = 1.031$, $p<0.05$). Interestingly, more frequent religious attendance in 1979 is associated with a lower odds of living in the county of origin ($b = 0.924$, $p<0.01$), possibly because individuals who attend religious services are more likely to be active in general and therefore more likely to engage in activities (such as moving to a new community) which require action. Not surprisingly, respondents who had never moved to a new community between birth and 1979 had a greater odds ($b = 1.74$, $p<0.01$) of living in the same community in 1979 than those who had previously moved.

Finally, when parental SES and AFQT score included in the equation in Model 5 the decreased odds of living in the county of origin for respondents with a rural county of origin remain ($b = 0.772$, $p<0.10$). There was no effect of persistent poverty ($b = 0.770$). As in the previous model, there is no effect of the percentage of residents in the county who were black, and the effect of the percentage of residents with a college degree is no longer significant ($b = 0.995$). The odds of living in the county of origin is now smaller for respondents with a Southern county of origin than for any other region, including North Central ($b = 1.225$, $p<0.19$). As in the previous model, black ($b = 1.641$, $p<0.01$) and Hispanic ($b = 1.976$, $p<0.01$) respondents were less likely to remain in the county of origin than white respondents. Religious attendance is associated with a lower odds of living in the county of origin ($b = 0.942$, $p<0.01$), whereas never having moved to a new

community since birth is associated with a higher odds of living in the county of origin. Father's education is associated with lower odds of living in the county of origin ($b = 0.969$, $p<0.05$), as is mother's work status ($b = 0.927$, $p<0.10$). A higher AFQT score ($b = 0.987$, $p<0.01$) is also associated with a lower odds of living in the county of origin.

Table 5 presents the results of a logistic regression predicting living in the county of origin in 1990, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here. This suggests that the models in Table 5 offer no improvement in predicting whether respondents were living in the county of origin in 1990, compared to the models presented in Table 4.

Table 6 presents a logistic regression predicting living in the county of origin in 1990, including dummy variables for low and high AFQT score. Model 1 presents the total effect of AFQT score on the odds of living in the county of origin in 1990, controlling only for age. This model shows significant effects of both low and high AFQT score on the odds of living in the county of origin. Not surprisingly, respondents with AFQT scores in the lowest decile have greater odds of living in the county of origin ($b = 1.506$, $p<0.01$) than those with moderate AFQT scores while respondents with AFQT scores in the highest decile have lower odds of living in the county of origin ($b = 0.536$, $p<0.01$) than those with moderate AFQT scores.

Model 2 adds the effects of rurality and persistent poverty. In this model, the odds of living in the county of origin for respondents with a low AFQT score ($b = 1.518$, $p<0.01$) and high AFQT score ($b = 0.561$, $p<0.01$) remain substantially unchanged. As seen in previous analyses, respondents from rural areas of origin have lower odds ($b =$

0.746, p<0.05) of living in the county of origin, while there is no significant effect of persistent poverty in the county of origin (b = 0.935) on geographic mobility. There is no effect of age on odds of living in the county of origin.

Table **5**

Table **5**: Logistic Regression (Odds Ratios) Predicting Living in County of Origin in 1990, with Interaction

Table 5. Logistic Regression (Odds Ratios) Predicting Living in County of Origin in 1990, with Interaction

	(1)	(2)	(3)	(4)
Rural*	0.714*	0.718*	0.719*	0.739*
Persistent Poverty*	0.995	0.913	0.626*	0.684+
Rural X Persistent Poverty	1.299	1.183	1.694	1.338
% Black*		1.010**	1.003	1.001
% College*		0.981**	0.985*	0.995
*Region**				
West		1.399**	1.325*	1.381*
Northeast		1.443**	1.375**	1.465**
North Central		1.137	1.129	1.225+
Male			0.954	0.944
Race				
Black			1.645**	1.233+
Hispanic			2.065**	1.303+
Other Race			0.897	0.822
# of Siblings			1.032*	0.985
Relig. Frequency			0.923**	0.942**
Never Moved			1.746**	1.787**
Mother Education				0.969*
Father Education				0.974
Mother Wk. Status				0.927+
Father Wk. Status				0.985
Parents' Income**				1.005
AFQT Score				0.987**
Age				0.984
Constant	1.324**	1.323*	1.119	4.930**

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

Table **6**

Table **6**: Logistic Regression (Odds Ratios) for Predicting Living in County of Origin in 1990, with AFQT

Table 6. Logistic Regression (Odds Ratios) for Predicting Living in County of Origin in 1990, with AFQT

	(1)	(2)	(3)	(4)	(5)	(6)
Low AFQT Score	1.506**	1.518**	1.540**	1.368**	1.230*	1.165
High AFQT Score	0.563**	0.561**	0.563**	0.594**	0.636**	0.656**
Age	0.995	0.993	0.994	0.982	0.975	0.977
Rural*		0.746*	0.754*	0.795+	0.779+	0.772
Persistent Poverty*		0.935	0.919	0.793	0.771	0.719+
% Black*			1.006*	1.003	1.003	1.003
% College*			0.985*	0.984*	0.989	0.989
*Region**						
West			1.403**	1.295+	1.322*	1.311*
Northeast			1.552**	1.499**	1.488**	1.476**
North Central			1.251*	1.244*	1.240*	1.250*
Male				0.946	0.951	0.955
Race						
Black				1.490**	1.511**	1.519**
Hispanic				1.645**	1.304+	1.344*
Other Race				0.855	0.842	0.838
# of Siblings				1.009	0.988	0.988
Relig. Frequency				0.944**	0.948*	0.949*
Mother Education					0.968+	0.968+
Father Education					0.956**	0.957**
Mother Wk. Status					0.922+	0.922+
Father Wk. Status					0.981	0.983
Parents' Income**					1.005	1.004
Rural X Low AFQT						1.699+
Rural X High AFQT						0.659
Constant	1.488	1.584	1.471	2.137	5.925**	5.780**

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

In Model 3, controls for other contextual effects are added. Again, the odds of living in the county of origin for respondents with low ($b = 1.540$, $p<0.01$) and high ($b = 0.563$, $p<0.01$) AFQT scores change only slightly. The same is true for the effects of rural and persistently poor county of origin on odds of living in the county of origin. While there is no effect of persistent poverty ($b = 0.919$) on geographic mobility, respondents from rural counties of origin have lower odds of living in the county of origin ($b = 0.754$, $p<0.05$) than those whose county of origin is not rural. There is no significant effect of age. All other contextual factors have significant effects on geographic mobility as well. A higher percentage of black residents in the county of origin is associated with a greater odds of living in the county of origin ($b = 1.006$, $p<0.05$), while the odds of living in the county of origin decreases when rates of college education are higher in the county of origin. Respondents whose county of origin is in the West ($b = 1.403$, $p<0.01$), Northeast ($b = 1.552$, $p<0.01$) or North Central ($b = 1.251$, $p<0.05$) United States have significantly greater odds of living in the county of origin, compared to those living in the South.

Model 4 adds personal and family characteristics to the model. While the effect of low or high AFQT score on the odds of living in the county of origin is partially mediated by personal and family characteristics, both effects remain significant. As in previous models, respondents with low AFQT scores have greater odds of living in the county of origin ($b = 1.368$, $p<0.01$) compared to those with moderate scores, while respondents with high AFQT scores have lower odds of living in the county of origin ($b = 0.594$, $p<0.01$) compared to those with moderate scores. There is no effect of age. The decreased odds of living in the county of origin for respondents for respondents with a

rural county of origin (b = 0.795, p<0.10) remain significant at the 0.10 level. As in previous models, there is no effect of persistently poor county of origin. While the effect of percent black in the county of origin (b = 1.003) is no longer significant when respondent's own race is controlled, all other contextual effects remain significant at least at the 0.10 level. There is no effect of being male (b = 0.946) or number of siblings (b = 1.009) on geographic mobility. Both blacks (b = 1.490, p<0.01) and Hispanics (b = 1.645, p<0.01) have greater odds than whites of living in the county of origin, although respondents of other races (b = 0.855) are not statistically different than whites. As seen in previous analyses, greater frequency of religious attendance (b = 0.944, p<0.01) is associated with lower odds of living in the county of origin.

When parents' SES is added to the equation in Model 5, the effects of low (b = 1.230, p<0.05) and high (b = 0.636, p<0.01) AFQT score on the odds of living in the county of origin are again partially mediated but remain statistically significant. The same is true for rural county of origin; while the odds increase slightly to 0.779, the effect remains significant at the 0.10 level. While the effect of region persists, with significantly lower odds of geographic mobility for respondents with a county of origin in the South compared to the West (b = 1.332, p<0.05), Northeast (b = 1.488, p<0.01) or North Central (b = 1.240, p<0.05) United States, the effects of other contextual factors are not significant. Both blacks (b = 1.488, p<0.01) and Hispanics (b = 1.304, p<0.10) had greater odds of remaining in the county of origin than whites, while the effect of other race was not significant. As in Model 4, respondents with more frequent religious attendance had lower odds of remaining in the county of origin (b = 0.948, p<0.05). Effects for age, male, and number of siblings were not significant. Both mother's (b =

0.968, $p<0.10$) and father's ($b = 0.956$, $p<0.01$) years of education is negatively associated with the odds of remaining in the county of origin. While mother's work status ($b = 0.922$) is significant at the 0.10 level, there is no effect of father's work status. As seen in previous analyses, there is no effect of parents' income on likelihood of remaining in the county of origin.

Finally, Model 6 adds interaction effects for rural county of origin and high or low AFQT score. While the interaction effect for rural by low AFQT score ($b = 1.699$) is significant at the .10 level, the effect for rural by high AFQT score ($b = 0.659$) is not statistically significant. The low significance of these effects is likely due to low statistical power. For all three of the variables included in this set of interactions (rural county of origin, high AFQT, and low AFQT), dummy variables are used in which most respondents (approximately 90% in each case) are in the reference category. Therefore, the seemingly substantive effect for the interaction of rural county of origin by high AFQT score may represent a true interaction in the population in spite of the fact that this interaction is not statistically significant in the model. When these interaction terms are included, we see that the effects of high or low AFQT on geographic mobility are stronger for respondents from a rural county of origin than for respondents from a non-rural county of origin. For respondents with higher AFQT scores, those from a rural county of origin had an odds ratio of 0.656, while those from a non-rural county of origin had an odds ratio of 0.432. While the interaction is not significant, high-AFQT respondents from a rural county of origin had lower odds ratios for remaining in the county of origin than those from a non-rural county of origin. For respondents with low AFQT scores, those from a rural county of origin had an odds ratio of 1.979, while those

from a non-rural county of origin had an odds ratio of 1.165. In this case, for low-AFQT respondents the odds of living in the county of origin are greater for both rural and non-rural residents, but the effect is not significant for non-rural residents.

Table 7 presents an OLS regression predicting years of education in 1990. Model 1 shows the total effect of rural county of origin on years of education. When other factors are not controlled, rural county of origin ($b = -0.385$, $p<0.01$) is associated with lower levels of education. However, this effect is relatively small, representing only a 0.15 standard deviation decrease in years of education.

When persistently poor county of origin is added in Model 2, the effect of rural county of origin is partially mediated but remains significant ($b = -0.253$, $p<0.10$). In addition, persistently poor county of origin ($b = -0.677$, $p<0.01$) has a significant negative effect on years of education. This represents a deficit of 0.26 standard deviations in years of education for respondents with a persistently poor county of origin.

In Model 3, other contextual characteristics of county of origin are added. Controlling for persistent poverty and other contextual characteristics of the county of origin, the effect of rural county of origin on years of education is no longer significant ($b = 0.096$). The effect of persistently poor county of origin ($b = -0.303$, $p<0.10$) remains statistically significant, but now represents a deficit of only 0.12 standard deviations in years of education for respondents from a persistently poor county of origin. Percent black in county of origin ($b = -0.10$, $p<0.10$) is associated with significantly lower education, while percent college degree in county of origin ($b = 0.061$, $p<0.01$) is associated with significantly higher education. In addition, there are significant regional differences in education. Compared to residents whose county of origin was in the South,

those whose county of origin was in the West (b = -0.402, p<0.01) had lower education; respondents with a Northeastern (b = 0.294, p<0.05) or North Central (b = 0.274, p<0.05) county of origin had significantly more education than those whose county of origin was in the South.

Table **7**

Table **7**: OLS Regression Predicting Years of Education in 1990

Table 7. OLS Regression Predicting Years of Education in 1990

	(1)	(2)	(3)	(4)	(5)	(6)
Rural*	-0.388**	-0.253+	0.096	0.084	-0.000	0.054
Persistent Poverty*		-0.677**	-0.303+	-0.337+	0.091	0.022
% Black*			-0.010**	-0.007+	-0.003	0.004
% College*			0.061**	0.065**	0.063**	0.019**
*Region**						
West			-0.402**	-0.313*	-0.014	-0.108
Northeast			0.292*	0.341**	0.404**	0.142
North Central			0.274*	0.348**	0.400**	0.005
# of Two-Year Colleges				-0.012	-0.007	-0.010
# of Four-Year Colleges				-0.089	-0.039	-0.045
Male					-0.047	-0.050
Race						
Black					-0.306**	1.141**
Hispanic					-0.839**	1.061**
Other Race					-0.141	0.225+
# of Siblings					-0.223**	-0.064**
Relig. Frequency					0.286**	0.167**
Living in County of Origin						-0.437**
Mother Education					0.968+	0.968+
Father Education					0.956**	0.957**
Mother Wk. Status					0.922+	0.922+
Father Wk. Status					0.981	0.983
Parents' Income**					1.005	1.004
AFQT Score						0.046**
Age						-0.106**
Constant	13.090**	13.100**	12.160**	12.080**	12.050**	9.932**
R-squared	0.002	0.005	0.029	0.031	0.124	0.485

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

Model 4 adds two additional characteristics of county of origin, number of two- and four-year colleges. The effect of number of colleges on years of education is not significant. Adding these variables does not substantially change the effects of other variables, compared to Model 3.

In Model 5, personal and family characteristics were added. With the addition of these variables, neither rural (b = -0.000) nor persistently poor (b = 0.091) county of origin has a significant effect on education. In addition, the effect of percent black (b = -0.003) is no longer significant. Percent college (b = 0.063, $p<0.01$), on the other hand, continues to have a positive effect on years of education, and regional differences persist for Northeast (b = 0.404, $p<0.01$) and North Central (b = 0.400, $p<0.01$) county of origin. Several personal and family characteristics had significant effects on education in this model as well. While there was no effect of being male, both blacks (b = -0.306, $p<0.01$) and Hispanics (b = -0.839, $p<0.01$) had somewhat lower levels of education than whites in this model. Number of siblings (b = -0.223, $p<0.01$) had a significant negative effect on education, while frequency of religious attendance (b = 0.286, $p<0.01$) had a positive effect.

Finally, in Model 6 parents' SES, living in county of origin in 1990 and AFQT score are added to the regression equation predicting years of education in 1990. As in the previous model, there is no significant effect of rural (b = 0.054) or persistently poor (b = 0.022) county of origin on years of education. Living in the county of origin in 1990 (b = -0.437, $p<0.01$) has a negative effect on years of education, while AFQT score (b = 0.046, $p<0.01$) has a positive effect on education. While there is no effect of percent black (b = 0.004), percent college (b = 0.019, $p<0.01$) in the county of origin is associated

with greater levels of education. When these variables are added to the model, the race effects seen in Model 5 reverse. There is now a positive effect of being black (b = 1.141, p<0.01) or Hispanic (b = 1.061, p<0.01) on years of education, compared to whites. In addition, unlike the previous model, there is a positive effect of being another race (b = 0.225, p<0.10) on education compared to whites. The effects of number of siblings (b = -0.064, p<0.01) and frequency of religious attendance (b = 0.168, p<0.01) are reduced but remain significant. In addition, there are positive effect for both mother's (b = 0.104, p<0.01) and father's (0.089, p<0.01) years of education as well as parents' income (0.017, p<0.01). Father's work status (-0.138, p<0.01) is negatively associated with years of education. The regional effects seen in previous models are explained in this model, and as in previous models there is no significant effect of number of colleges in the county of origin or being male. There is also no effect of mother's work status.

Table 8 presents an OLS regression predicting years of education, including an interaction effect for the interaction between rural county of origin by persistently poor county of origin. The interaction term between rural and persistently poor county of origin is significant for all models. In Model 1, the effect of this interaction is tested with no control variables. There is a negative but non-significant effect of rural county of origin (b = -0.148); the negative effect of persistently poor county of origin (b = -0.408) is significant at the 0.10 level. For respondents from rural counties that are not persistently poor (b = -0.148), there is no significant effect of rural county of origin on years of education. Respondents from counties that are both rural and persistently poor (b = -1.255) had 0.43 standard deviations fewer years of education than those from rural counties that were not persistently poor.

Table **8**

Table **8**: OLS Regression Predicting Years of Education in 1990, with Interaction

Table 8. OLS Regression Predicting Years of Education in 1990, with Interaction

	(1)	(2)	(3)	(4)
Rural*	-0.148	0.217	0.208	0.140
Persistent Poverty*	-0.408+	-0.012	0.643**	0.249
Rural X Persistent Poverty	-0.699*	-0.852*	-1.380**	-0.568+
% Black*		-0.006	-0.002	0.005
% College*		0.065**	0.064**	0.0190**
*Region**				
West		-0.310*	-0.004	-0.103
Northeast		0.356**	0.427**	0.152
North Central		0.356**	0.406**	0.008
# of Two-Year Colleges		-0.011	-0.005	-0.009
# of Four-Year Colleges		-0.100	-0.053	-0.051
Male			-0.051	-0.051
Race				
Black			-0.313**	1.136**
Hispanic			-0.941**	1.017**
Other Race			-0.148	0.222+
# of Siblings			-0.224**	-0.064**
Relig. Frequency			0.286**	0.167**
Living in County of Origin				-0.436**
Mother Education				0.104**
Father Education				0.089**
Mother Wk. Status				-0.061
Father Wk. Status				-0.139*
Parents' Income**				0.018**
AFQT Score				0.046**
Age				-0.105**
Constant	13.100**	12.050**	12.020**	9.912**
R-squared	0.005	0.032	0.126	0.485

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

When other contextual characteristics are controlled in Model 2, there is a positive but nonsignificant effect of rural county of origin (b = 0.217) as well as a negative but nonsignificant effect of persistently poor county of origin (b = -0.012). There was, however, a statistically significant interaction between rural and persistently poor county of origin. For respondents whose county of origin was both rural and persistently poor, years of education was 0.42 standard deviations lower than for those whose county of origin was rural but not persistently poor.

In Model 3, personal and family characteristics were added. The effect of rural county of origin (b = 0.208) remains positive but nonsignificant, while the effect of persistently poor county of origin is now positive and significant (b = 0.643, $p<0.01$). It is important to note, however, that the effect of persistent poverty in the county of origin is positive only for respondents who come from non-rural counties of origin. As with AFQT score, this effect appears to suggest a positive effect of persistent county level poverty for respondents with a non-rural county of origin, but may instead reflect the suppressed effect of some unmeasured variable that is strongly associated with persistently high poverty in non-rural communities, such as the presence of ethnic enclaves or poor but upwardly mobile immigrant "gateway communities" in these counties. Respondents who come from a non-poor rural county of origin are predicted to have 0.29 standard deviations more education than respondents who come from a poor rural county of origin.

Finally, in Model 4 parents' SES, living in the county of origin in 1990, and AFQT score are added. In this model there is a positive but nonsignificant effect of rural county of origin (b = 0.140). The effect of persistent poverty (b = 0.249) remains

positive but is no longer significant, while the interaction between rural and persistently poor county of origin ($b = -0.568$, $p<0.10$) remains significant. As in the previous model, persistent poverty has a negative effect on years of education for respondents from a rural county of origin but not for respondents from a non-rural county of origin. Among respondents whose county of origin is rural, a persistently poor county of origin results in 0.12 standard deviations less education compared to a non-poor county of origin.

Table 9 presents an OLS regression predicting years of education in 1990, including dummy variables for low and high AFQT scores. Model 1 displays the total effect of AFQT score, controlling only for age. In this model, there is a negative effect of low AFQT score ($b = -1.784$, $p<0.01$) on years of education and a positive effect of high AFQT score ($b = 2.317$, $p<0.01$) on years of education. Thus, respondents with AFQT scores in the bottom decile had 0.69 standard deviations less education than those with moderate AFQT scores, while respondent with AFQT scores in the highest decile had 0.90 standard deviations more education than those with moderate AFQT scores. There was also a small but statistically negative significant effect of age ($b = -0.122$, $p<0.01$), such that each additional year of age represents a 0.05 standard deviation decrease in years of education. This may represent increasing average years of education for the population as a whole.

Table **9**

Table **9**: Logistic Regression (Odds Ratios) Predicting Years of Education in 1990, with AFQT

Table 9. Logistic Regression (Odds Ratios) Predicting Years of Education in 1990, with AFQT

	(1)	(2)	(3)	(4)	(5)	(8)
Low AFQT Score	-1.784**	-1.781**	-1.839**	-1.743**	-1.338**	-1.609**
High AFQT Score	2.317**	2.317**	2.311**	2.142**	1.772**	1.919**
Age	-0.122**	-0.125**	-0.136**	-0.098**	-0.082**	-0.083**
Rural*		-0.322**	-0.045	-0.091	0.071	0.055
Persistent Poverty*		0.015	-0.072	-0.001	0.055	0.061
% Black*			0.008**	0.002	-0.000	-0.000
% College*			0.045**	0.044**	0.020**	0.021**
*Region**						
West			-0.393**	-0.147	-0.206+	-0.206+
Northeast			0.049	0.212+	0.136	0.138
North Central			-0.106	0.059	-0.042	-0.047
Male				-0.012	-0.055	-0.059
Race						
Black				0.739**	0.941**	0.928**
Hispanic				0.096	0.959**	0.938**
Other Race				0.069	0.172	0.170
# of Siblings				-0.115**	-0.068**	-0.069**
Relig. Frequency				0.201**	0.174**	0.173**
Living in County of Origin				-0.622**	-0.536**	-0.529**
Mother Education					0.122**	0.121**
Father Education					0.107**	0.105**
Mother Wk. Status					-0.064	-0.062
Father Wk. Status					-0.135*	-0.131*
Parents' Income**					0.019**	0.019**
County of Origin X High AFQT						-0.327+
County of Origin X Low AFQT						0.400*
Constant	14.750**	14.810**	14.260**	13.780**	11.030**	11.070**
R-squared	0.315	0.316	0.330	0.384	0.446	0.448

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

In Model 2, the effects of rural and persistently poor county of origin are added to the model. The effects of low (b = -1.781, p<0.01) and high (b = 2.317, p<0.01) AFQT score change only slightly in this model. While there is a negative effect of rural county of origin (b = -0.322, p<0.01), there is no effect of persistently poor county of origin (b = 0.015). Age (b = -0.125, p<0.01) continues to have a significant effect on years of education.

Model 3 adds other contextual characteristics of the county of origin. When these characteristics are controlled, the effects of both low (b = -1.839, p<0.01) and high (b = 2.311, p<0.01) AFQT change only slightly. However, the effects of rural (b = -0.045) and persistently poor (b = -0.072) county of origin have no effect on education. The negative effect of age (-0.136, p<0.01) persists as well. Percent black (b = 0.008, p<0.01) and percent college (b = 0.045, p<0.01) in the county of origin are both positively associated with years of education. While there is an effect of county-of-origin region for West (b = -0.393, p<0.01) compared to South, there are no significant effects for other regions.

Model 5 adds controls for personal and family characteristics. The effects of low (b = -1.743, p<0.01) and high (b = 2.142, p<0.01) AFQT score remain significant, as does the negative effect for age (b = -0.098, p<0.01). Rural and persistently poor county of origin have no effect on education. While the effect of percent college in the county of origin remains significant (b = 0.044, p<0.01), the effect of percent black is no longer significant when respondent's own race is controlled. There is no longer an effect of Western or North Central county of origin, but the coefficient for Northeast (b = 0.212) is significant at the 0.10 level. Black respondents (b = 0.739, p<0.01) have higher levels of

education than whites, although there are no significant effects for other racial groups. There is also no significant effect of male. Both number of siblings ($b = -0.115$, $p<0.01$) and living in the county of origin ($b = -0.633$, $p<0.01$) have significant negative effects on years of education, while more frequent religious attendance ($b = 0.201$, $p<0.01$) results in higher levels of education.

In Model 5, parents' SES is added to the regression equation predicting years of education. The addition of parents' education attenuates the effects of low ($b = -1.338$, $p<0.01$) and high ($b = 1.772$, $p<0.01$) AFQT score somewhat, but both remain statistically significant. Thus, respondents with AFQT scores in the lowest decile attain 0.52 standard deviations less education than those with moderate scores, while respondents with AFQT scores in the highest decile attain 0.67 standard deviations more education than those with moderate scores. Age (-0.082, $p<0.01$) remains significant as well. There are no effects of rural or persistently poor county of origin, or for percent black in the county of origin. Percent college in the county of origin ($b = 0.020$, $p<0.01$) continues to be a significant predictor of years of education. The effect of West ($b = -0.206$) compared to South is significant at the 0.10 level, but no other region-of-origin differences exist. Both black ($b = 0.941$, $p<0.01$) and Hispanic ($b = 0.959$) respondents had higher levels of education than whites, but the effect of other race was not significant. Number of siblings ($b = -0.068$, $p<0.01$) and living in the county of origin ($b = -0.536$, $p<0.01$) have negative effects on years of education, while frequency of religious attendance ($b = 0.174$, $p<0.01$) and mother's ($b = 0.122$, $p<0.01$) and father's ($b = 0.107$, $p<0.01$) education have positive effects on years of education. There is no effect of mother's work status but a negative effect of father's work status ($b = -0.135$, $p<0.05$)

on years of education. Parents' income ($b = 0.019$, $p<0.01$) has a positive effect on years of education.

Finally, Model 6 adds interaction terms for living in the county of origin by low and high AFQT score. In this model, low AFQT score ($b = -1.338$, $p<0.01$) has a negative effect on years of education while high AFQT score ($b = 1.919$, $p<0.01$) has a positive effect on years of education. The interaction terms for living in the county of origin by low AFQT score ($b = -0.327$, $p<0.10$) and living in the county of origin by high AFQT score ($b = 0.400$) are both significant. Thus, for respondents with low AFQT scores, those who live in the county of origin in 1990 attain 0.05 standard deviations more education than those who no longer live in the county of origin. For respondents with high AFQT, those who live in the county of origin in 1990 attain 0.33 standard deviations less education than those who no longer live in the county of origin. The small effect of living in the county of origin for respondents with low AFQT scores may reflect involuntary geographic mobility among individuals living in poverty. The negative effect of remaining in the county of origin for respondents with high AFQT scores may reflect a decision (either conscious or unconscious) on the part of some high-ability individuals to prioritize remaining close to family and friends over pursuing an advanced degree.

Chapter 6

Outcomes of Middle Adulthood

Table 10 presents a logistic regression predicting living in the county of origin in 2000. Model 1 displays the total effect of rural county of origin on living in the county of origin in 2000. While rural respondents were significantly less likely to live in the county of origin in 1990, by 2000 the effect of rural county of origin (b = 0.845) is no longer significant. However, this may reflect low statistical power due to the fact that nearly 90 percent of respondents lived in non-rural counties in 1979 rather than a true lack of effect in the population.

In Model 2, the effect of persistently poor county of origin is added. Neither rural (b = 0.854) nor persistently poor (b = 0.948) county of origin is a significant predictor of living in the county of origin in 2000.

When other contextual characteristics of the county of origin are controlled in Model 3, the odds of living in the county of origin in 2000 is significantly lower for respondents with a rural county of origin (b = 0.854, $p<0.05$) compared to those with a non-rural county of origin. There is no effect of persistently poor county of origin (b = 0.846). A higher percentage of residents in the county of origin with a college degree (b = 0.977, $p<0.01$) is associated with a lower odds of living in the county of origin in 2000. However, other contextual effects – region and percent black – have no effect on geographic mobility.

Model 4 adds controls for personal and family characteristics. In this model, the lower odds of remaining in the county of origin persists for respondents with a rural county of origin ($b = 0.797$, $p<0.10$). Respondents with a persistently poor county of origin ($b = 0.687$, $p<0.01$) now have significantly lower odds of living in the county of origin compared to those whose county of origin was not persistently poor, indicating a suppressed effect for this variable in previous models. Neither percent black ($b = 0.995$) nor percent college educated ($b = 0.991$) in the county of origin were significant predictors of living in the county of origin in 2000, and there were no regional differences in the odds of living in the county of origin in 2000. The odds of living in the county of origin for males was 0.853 ($p<0.05$) times the odds for females. Both black ($b = 1.630$, $p<0.01$) and Hispanic ($b = 1.621$, $p<0.01$) respondents had greater odds of living in the county of origin in 2000 than white respondents, but the effect for other race was not significant. Number of siblings ($b = 0.992$) and number of siblings (1.003) were not significantly associated with living in the county of origin. Not surprisingly, the odds of living in the county of origin in 2000 was greater for respondents who lived in the county of origin in 1990 ($b = 1.800$, $p<0.01$) and the odds of living in the county of origin in 2000 was lower for respondents with more years of education in 1990 ($b = 0.837$, $p<0.01$).

Table **10**

Table **10**: Logistic Regression (Odds Ratios) Predicting Living in County of Origin, 2000.

Table 10. Logistic Regression (Odds Ratios) Predicting Living in County of Origin in 2000

	(1)	(2)	(3)	(4)	(5)
Rural*	0.845	0.854	0.759*	0.797+	0.807
Persistent Poverty*		0.948	0.846	0.687*	0.683*
% Black*			1.004	0.995	0.994+
% College*			0.977**	0.991	0.992
*Region**					
West			1.088	1.063	1.083
Northeast			1.040	1.072	1.073
North Central			0.980	1.050	1.058
Male				0.853*	0.849*
Race					
Black				1.630**	1.479**
Hispanic				1.621**	1.410*
Other Race				0.867	0.844
# of Siblings				0.992	0.980
Relig. Frequency				1.003	1.000
Living in County of Origin				1.800**	1.794**
Years of Education (1992)				0.837**	0.872**
Mother Education					1.003
Father Education					0.975
Mother Wk. Status					0.948
Father Wk. Status					1.002
Parents' Income**					1.006
AFQT Score					0.994**
Age					1.004
Constant	0.906**	0.907*	1.245+	8.492**	8.027**

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

Finally, in Model 5 controls are added for parents' SES and AFQT score. Controlling for all of these characteristics, the effect of rural county of origin on living in the county of origin is again nonsignificant (b = 0.807). However, the effect of persistently poor county of origin (b = 0.683, $p<0.05$) remains significant, suggesting a lower odds of remaining in the county of origin if the county of origin was persistently poor. While percent black in the county of origin (b = 0.994, $p<0.010$) is a significant predictor of living in the county of origin there is no effect of percent college in the county of origin (b = 0.992), and there are no regional differences in odds of living in the county of origin. As in the previous model, males (b = 0.849, $p<0.05$) have a lower odds than females of living in the county of origin. Black (b = 1.479, $p<0.01$) and Hispanic (b = 1.410, $p<0.05$) continue to have odds of living in the county of origin greater than those for whites, while there is no effect of other race (b = 0.844). Living in the county of origin in 1990 (b = 1.794, $p<0.01$) is associated with greater odds of living in the same county of origin in 2000, while years of education in 1990 (b = 0.872, $p<0.01$) and AFQT score (b = 0.994, $p<0.01$) are associated with lower odds of living in the county of origin in 2000. Other variables – age, number of siblings, frequency of religious attendance, and parents' education, work status, and income – have no statistically significant effect on odds of living in the county of origin in 1990.

Table 11 presents the results of a logistic regression predicting living in the county of origin in 2000, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here, with the exception of an effect at the 0.10 level in Model 3. A lack of reliably significant

effects for the interaction term suggests that the models in Table 11 offer no improvement in predicting whether respondents were living in the county of origin in 2000, compared to the models presented in Table 10.

Table 12 displays the results of an OLS regression predicting respondent's income in 2000. Model 1 presents the total effect of rural county of origin on respondent's income. In this model, there is a significant negative effect of rural county of origin ($b = -3727$, $p<0.10$) on respondent's income. This represents a 0.11 standard deviation deficit in income for respondents with a rural county of origin, compared to those with a non-rural county of origin.

Table **11**

Table **11**: Logistic Regression (Odds Ratios) Predicting Living in County of Origin in 2000, with Interaction

Table 11. Logistic Regression (Odds Ratios) Predicting Living in County of Origin in 2000, with Interaction

	(1)	(2)	(3)	(4)
Rural*	0.799+	0.707*	0.729*	0.746+
Persistent Poverty*	0.802	0.711*	0.542**	0.555**
Rural X Persistent Poverty	1.546	1.577	1.802+	1.673
% Black*		1.004	0.995	0.994+
% College*		0.976**	0.991	0.992
*Region**				
West		1.086	1.055	1.076
Northeast		1.033	1.062	1.064
North Central		0.979	1.049	1.057
Male			0.854*	0.850*
Race				
Black			1.634**	1.483**
Hispanic			1.697**	1.468**
Other Race			0.870	0.846
# of Siblings			0.993	0.981
Relig. Frequency			1.002	0.999
Living in County of Origin			1.805**	1.799**
Years of Education (1992)			0.838**	0.872**
Mother Education				1.002
Father Education				0.975
Mother Wk. Status				0.949
Father Wk. Status				1.003
Parents' Income**				1.006
AFQT Score				0.994**
Age				1.003
Constant	0.912*	1.262+	8.469**	8.093**

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

Table **12**

Table **12**: OLS Regression Predicting Respondent's Income in 2000

Table 12. OLS Regression Predicting Respondent's Income in 2000

	(1)	(2)	(3)	(4)	(5)
Rural*	-3727+	-1938	1867	171	1253
Persistent Poverty*		-8962**	-4571+	-2024	-2313
% Black*			-151**	-11	4
% College*			761**	470**	362**
*Region**					
West			-4338*	-3451+	-3676+
Northeast			298	-2346	-3239+
North Central			2015	-712	-2320
Male				20785**	20699**
Race					
Black				-9187**	-1990
Hispanic				-1060	4518*
Other Race				-5515**	-3872*
# of Siblings				49	250
Relig. Frequency				365	299
Years of Education (1992)				4846**	3171**
Mother Education					225
Father Education					-117
Mother Wk. Status					-1056
Father Wk. Status					893
Parents' Income**					342**
AFQT Score					188**
Age					-52
Constant	33588**	33832**	23404**	-45552**	-39304**
R-squared	0.001	0.005	0.021	0.241	0.268

N = 5582

** p<0.01, * p<0.05, + p<0.1

Coefficients are rounded to nearest dollar.

* Contextual variables for county of origin.

** In thousands of dollars.

When persistently poor county of origin is controlled in Model 2, the effect of rural county of origin (b = -1938) is no longer significant. There is, however, a significant negative effect of persistently poor county of origin (-8962, $p<0.01$) on respondent's income. This represents a 0.27 standard deviation decrease in income for respondents with a persistently poor county of origin.

In Model 3, controls for other contextual characteristics of the county of origin are added to the regression equation. When these controls are added, the effect of rural county of origin (b = 1867) reverses signs but is not significant. While the effect of persistently poor county of origin (b = -4571) is partially moderated, it remains significant at the 0.10 level, suggesting a 0.14 standard deviation deficit in income for respondents with a persistently poor county of origin. Percent black in the county of origin (b = -151, , $p<0.01$) is associated with lower income, while percent college in the county of origin b = 761, $p<0.01$) is associated with higher income. While income was lower for respondents with a county of origin in the West (b = -4338, $p<0.01$) than those in the South

Model 4 adds personal and family characteristics to the equation predicting respondent's income. Once these controls are added, neither rural (b = 171) nor persistently poor (b = -2024) county of origin is a significant predictor of income. Percent black is also no longer a significant predictor of income; although the effect of percent college is partially mediated by personal and family characteristics, this variable remains significant (b = 470, $p<0.01$). The regional differences seen in the previous model remain substantially the same as well; respondents with a Western county of origin

had lower income (b = -3451, p<0.10) compared to those with a Southern county of origin, but there were no significant differences compared to South for other regions. Male respondents (b = 20,785, p<0.01) had a higher income than female respondents, representing an additional 0.62 standard deviations in income for males compared to females. Both black (b = -9187, p<0.01) and "other race" (b = -5515, p<0.01) respondents had lower income than white respondents, though there was no significant effect for Hispanic respondents compared to whites. While more years of education (b = 4846, p<0.01) is associated with greater income, neither number of siblings (b = 49) nor frequency of religious attendance (b = 365) has a significant impact on income.

Finally, in Model 5 parents' SES and AFQT score are included in addition to the variables used in Model 4. Again, there are no effects for rural (b = 1253) or persistently poor (b = -2313) county of origin on respondent's income. However, the effect of rural county of origin on income remains in the positive direction. While percent black in the county of origin has no effect on respondent's income, percent college b = 362, p<0.01) is associated with greater income. In this model, respondents with counties of origin in the West (b = -3676, p<0.10) or Northeast (b = -3239, p<0.01) had incomes significantly below those of respondents in the South, whereas there was no significant effect for those in the North Central states (b = -2320). As in the previous model, males (b = 20699, p<0.01) have greater incomes than females. In this model, on average males make 0.62 standard deviations more income than women. While the negative effect of being black on income (b = -1990) is no longer significant, Hispanic respondents (b = 4518) are predicted to have greater incomes than whites, controlling for other characteristics. Respondents of another race (b = -3872) had significantly lower income than whites. As

in the previous model, years of education in 1990 (b = 3171, p<0.01) was a significant predictor of income. In addition, parents' income (b = 342, p<0.01) and AFQT score (b = 188, p<0.01) both lead to higher income for respondents. There was no significant effect for number of siblings or religious frequency. In addition, parents' education, parents' work status and age did not significantly predict income.

Table 13 presents the results of an OLS regression predicting respondent's income in 2000, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here. This lack of significant effects for the interaction term suggests that the models in Table 13 offer no improvement in predicting respondent's income in 2000, compared to the models presented in Table 12.

Table 14 presents the results of an OLS regression predicting respondent's income in 2000, with dummy variables for AFQT. Model 1 displays the total effect of AFQT on respondent's income, controlling only for age. In this model, there is a significant negative effect of low AFQT score (b = -11200, p<0.01) on respondent's income and a significant positive effect of high AFQT score (b = 19530, p<0.01) on income. Thus, respondents in the lowest decile for AFQT score made 0.33 standard deviations less income than those with moderate AFQT scores, while those with AFQT scores in the highest decile made 0.58 standard deviations more income than those with moderate AFQT scores. These differences are particularly striking when compared to mean income for respondents in 2000. While the mean annual income for all respondents in 2000 was $29,457, the expected income for respondents with low AFQT scores is only

$18,257; for those with high AFQT scores, the expected income is $48,987. Age (b = -510) had no significant effect on income.

Table **13**

Table **13**: OLS Regression Predicting Respondent's Income in 2000, with Interaction

Table 13. OLS Regression Predicting Respondent's Income in 2000, with Interaction

	(1)	(2)	(3)	(4)
Rural*	-1782	2108	-386	751
Persistent Poverty*	-8564**	-3987	-3484	-3618
Rural X Persistent Poverty	-1039	-1539	3672	3280
% Black*		-150**	-13	3
% College*		762**	468**	361**
*Region**				
West		-4329*	-3497+	-3719+
Northeast		321	-2405	-3291+
North Central		2018	-713	-2321
Male			20794**	20708**
Race				
Black			-9168**	-1970
Hispanic			-784	4763*
Other Race			-5494**	-3854*
# of Siblings			54	255
Relig. Frequency			362	297
Years of Education (1992)			4855**	3176**
Mother Education				225
Father Education				-118
Mother Wk. Status				-1052
Father Wk. Status				898
Parents' Income**				340.7**
AFQT Score				188**
Age				-56
Constant	33821**	23360**	-45576**	-39259**
R-squared	0.005	0.021	0.241	0.268

N = 5582

** p<0.01, * p<0.05, + p<0.1

Coefficients are rounded to nearest dollar.

* Contextual variables for county of origin.

** In thousands of dollars.

Table **14**

Table **14**: OLS Regression Predicting Respondent's Income in 2000, with AFQT

Table 14. OLS Regression Predicting Respondent's Income in 2000, with AFQT

	(1)	(2)	(3)	(4)	(5)	(6)
Low AFQT Score	-11200**	-11001**	-11090**	-5729**	-4618**	-3570
High AFQT Score	19530**	19449**	19072**	8642**	7659**	11731**
Age	-510	-521	-585	89	44	37
Rural*		-2426	838	-14	1277	1037
Persistent Poverty*		-3936+	-2936	-2216	-2323	-2291
% Black*			-18	7	-5	-7
% College*			633**	475**	371**	373**
*Region**						
West			-4091+	-3856*	-3758+	-3695+
Northeast			-1380	-2736	-3176+	-3004+
North Central			-712	-1526	-2348	-2418
Male				20857**	20642**	20636**
Race						
Black				-6004**	-3046+	-2843+
Hispanic				1235	4045*	4109*
Other Race				-4758**	-4012*	-4021*
# of Siblings				199	258	240
Relig. Frequency				401	283	272
Years of Education (1992)				3832**	3397**	3294**
Mother Education					949	1004
Father Education					-71	-94
Mother Wk. Status					-1036	-1067
Father Wk. Status					949	1004
Parents' Income**					343**	346**
Living in County of Origin						684
County of Origin X High AFQT						-8488*
County of Origin X Low AFQT						-1986
Constant	38662**	39190**	31532**	-35794**	-37605**	-36439**
R-squared	0.098	0.099	0.108	0.253	0.265	0.269

N = 5582

** p<0.01, * p<0.05, + p<0.1

Coefficients are rounded to nearest dollar.

* Contextual variables for county of origin.

** In thousands of dollars.

When rurality and persistent poverty in the county of origin are controlled in Model 2, the effects for low (b = 11001, p<0.01) and high (b = 19449, p<0.01) income change only slightly. As in the previous model, there is no effect of age. While rural county of origin has no significant effect on respondent's income in this model (b = -2426, p<0.01), the negative effect of persistently poor county of origin (b = -3936) is significant at the 0.10 level.

In Model 3, other contextual characteristics of the county of origin are added. Again, the effects of low (b = -11090, p<0.01) and high (b = 19072, p<0.01) AFQT score change only slightly. As in previous models, there is no significant effect of age (b = -585) or rural county of origin (b = 838). Unlike the previous model, there is also no significant effect of persistently poor county of origin (b = -2936). While the effect of percent black in the county of origin has a nonsignificant (b = -18) effect on respondent's income, there are significant effects of both percent college (b = 633, p<0.01) and region. While respondents with a county of origin in the Northeast (b = -1380) or North Central (b = -712) United States were not significantly different from those with a county of origin in the South, there is a negative effect of county of origin in the West (b = -4091, p<0.01).

Personal and family characteristics of the respondent are added to the regression equation in Model 4. When these variables are added, the effects of low (b = -5729, p<0.01) and high (b = 8642, p<0.01) income are partially mediated but remain significant. There is no effect of rural or persistently poor county of origin, or of percent black in the county of origin. The effect of percent college educated in the county of origin (b = 475, p<0.01) remains significant, as does the regional difference for those

with a county of origin in the West (b = -3856, p<0.05). While there is no effect of number of siblings (b = 199) or frequency of religious attendance in 1979 (b = 401) on respondent's income in 2000, all other family and personal characteristics are significantly associated with income. On average, males have a $20,857 yearly income advantage compared to females (p<0.01). Smaller effects exist for black (b = -6004, p<0.01) and "other race" (b = -4758, p<0.01) respondents compared to Whites, although there was no effect for Hispanic respondents (b = 1235). Finally, years of education in 1990 (b = 3832, p<0.01) has a positive effect on income in 2000.

Model 5 adds variables measuring parents' SES. The effects of low (b = -4618, p<0.01) and high (b = 7659, p<0.01) AFQT score remain significant. While smaller than the effects seen in Model 1 (a deficit of 0.14 standard deviations in income for those with low AFQT scores and an advantage of 0.23 standard deviations in income for those with high AFQT scores), the effect of AFQT on income is substantial even when other factors are controlled. Like AFQT, the effects of other variables are similar to those for the previous model. There is no effect of age (b = 44), rural (b = 44) or persistently poor (b = -2323) county of origin, or percent black in the county of origin (b = -5). The effect of percent college educated in the county of origin remains significant (b = 371, p<0.01). Regional differences persist as well; in this model both West (b = -3758, p<0.10) and Northeast (b = -3176, p<0.10) county of origin are associated with lower incomes than a county of origin in the South. The male advantage seen in the previous model changes only slightly (b = 20642, p<0.01); race differences in income persist as well. While Hispanics have higher incomes than whites when other factors are controlled (b = 4045, p<0.05), blacks (b = -3046, p<0.10) and those of other races (b = -4012, p<0.05) have

lower incomes on average than whites even when other factors are controlled. While parents' education and work status do not affect respondent's income, there is a significant effect of parents' income ($b = 343$, $p<0.01$).

Finally, Model 6 includes interaction effects for low and high AFQT score by living in the county of origin in 1990. Whereas the effect of high AFQT score remains significant in this model ($b = 11731$, $p<0.01$), there is no significant main effect of low AFQT score on respondent's income ($b = -3570$). The interaction for low AFQT score by living in the county of origin ($b = -1986$) is not significant (there is only a 0.04 standard deviation in income between low-AFQT respondents who lived in the county of origin compared to those who did not), and there is no significant effect of living in the county of origin in 1990 on income there is no significant main effect of low AFQT score ($b = 684$). However, the inclusion of these two variables may reduce the statistical power for detecting the effect of low AFQT on income. The effect of the interaction between county of origin and high AFQT is clearer. While high AFQT is associated with higher income regardless of whether the respondent lives in the county of origin in 1990, the benefit of high AFQT score is larger for those who do not remain in the county of origin ($11,731 per year) than for those who do remain in the county of origin ($3,927); this represents a 0.23 standard deviation income advantage for those who do not remain in the county of origin.

Table 15 displays an OLS regression predicting household income in 2000. In Model 1, the total effect of rural county of origin on household income is investigated.

Table **15**

Table **15**: OLS Regression Predicting Household Income in 2000

Table 15. OLS Regression Predicting Household Income in 2000

	(1)	(2)	(3)	(4)	(5)
Rural*	-10005**	-7003*	-567	-2031	-69
Persistent Poverty*		-15042**	-6889+	-2742	-3044
% Black*			-324**	-2	18
% College*			1299**	812**	606**
*Region**					
West			-8210*	-4437	-5016
Northeast			404	-2409	-3934
North Central			607	-2551	-5215*
Male				4466*	4247*
Race					
Black				-21468**	-9503**
Hispanic				-4790	5915+
Other Race				-4809+	-1959
# of Siblings				-272	196
Relig. Frequency				1168*	1051+
Years of Education (1992)				7929**	5044**
Mother Education					366
Father Education					382
Mother Wk. Status					-1825+
Father Wk. Status					2453*
Parents' Income**					491**
AFQT Score					296**
Age					195
Constant	58765**	59174**	43206**	-56460**	-55238**
R-squared	0.003	0.008	0.028	0.204	0.236

N = 5582

** p<0.01, * p<0.05, + p<0.1

Coefficients are rounded to nearest dollar.

* Contextual variables for county of origin.

** In thousands of dollars.

When no other variables are controlled, respondents from a rural county of origin had an income deficit of $10,005 annually (b = -10005, p<0.01), a 0.19 standard deviation difference.

Controlling for persistently poor county of origin in Model 2, the effect of rural county of origin remains significant (b = -7003, p<0.01). In addition, there is a negative effect of persistently poor county of origin (b = -15042, p<0.01) on household income representing a 0.28 standard deviation income disadvantage for respondents from a persistently poor county of origin.

When other contextual characteristics of the county of origin are controlled in Model 3, the effect of rural county of origin (b = -567) is no longer significant. The effect of persistent poverty (b = -6889) is partially mediated but remains significant at the 0.10 level. Percent black in the county of origin (b = -324, p<0.01) has a negative effect on household income, while percent college educated (b = 1299, p<0.01) has a positive effect. While there are regional differences for county of origin in the West (b = -8210, p<0.05) compared to the South, there is difference for respondents with a Northeast or North Central county of origin.

Model 4 adds controls for personal and family characteristics. When these variables are added, there is no significant effect of rural (b = -2031) or persistently poor (b = -2742) county of origin. The effect of percent black (b = -2) is explained in this model as well, although the effect of percent college in the county of origin (b = 812, p<0.01) remains significant. There are no regional differences in household income in this model. Male respondents have significantly higher household income than females (b = 4466, p<0.01). Race differences in household income exist as well. Compared to

white respondents, black respondents reported significantly lower household income in 2000 (b = -21486, p<0.01). Hispanics were not significantly different from whites, but there is a significant negative effect of other race (b = -4809, p<0.10). While number of siblings has no effect on household income in this model (b = -274), both frequency of religious attendance in 1979 (b = 1168, p<0.05) and years of education (b = 7929, p<0.01) are positively associated with household income.

Finally, in Model 5 parents' SES and AFQT score are included in the model. Again, there are no significant effects of rural (b = -69) or persistently poor (b = -3044) county of origin. While percent college educated in the county of origin (b = 606, p<0.01) continues to be a significant predictor of household income, there is no effect of percent black in the county of origin (b = 18). Respondents with a North Central county of origin (b = -5215, p<0.05) had significantly lower household incomes than those with a county of origin in the South, there were no differences between South and other regions. As in the previous model, male respondents (b = 4247, p<0.05) had higher household incomes than female respondents. While racial differences in household income persist in this model, there are differences in the effect of race compared to the previous model. The black-white income gap (b = -9503, p<0.01) is partially mediated by parents' SES and AFQT score, but remains significant. Whereas there was a negative but nonsignificant effect of being Hispanic in the previous model, there is now a significant positive effect (b = 5915, p<0.10). Unlike the previous model, there is no effect of other race (b = -1959). The effects of frequency of religious attendance (b = 1051, p<0.10) and years of education (b = 5044, p<0.01) persist, and number of siblings (b = 196) continues to have no effect on income. While there is no effect of parents'

income, mother's work status in 1979 is negatively associated with household income in 2000 ($b = -1825$, $p<0.10$) and father's work status is positively associated with household income ($b = 2453$, $p<0.05$). In addition, both parents' income ($b = 491$, $p<0.01$) and AFQT score ($b = 296$, $p<0.01$) are positively associated with household income in 2000. There is no effect of age ($b = 195$).

Table 16 presents the results of an OLS regression predicting household income in 2000, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here. This lack of significant effects for the interaction term suggests that the models in Table 16 offer no improvement in predicting household income in 2000, compared to the models presented in Table 15.

Table 17 presents the results of an OLS regression analysis predicting percentage of weeks unemployed between 1990 and 2000. As seen in Model 1, the total effect of rural county of origin ($b = 0.148$) on unemployment is not significant.

Model 2 adds the effect of persistently poor county of origin on unemployment. While the effect of rural county of origin on unemployment changes from positive to negative, it remains nonsignificant. There is, however, a statistically significant effect of persistently poor county of origin ($b = 1.060$, $p<0.01$) on unemployment. On average, persistently poor county of origin is associated with a 0.35 standard deviation increase in unemployment.

In Model 3, controls are added for other contextual effects of the county of origin. While there is no effect of rural county of origin, the effect of persistently poor county of

origin (b = 0.679, p<0.01) is partially mediated but remains significant. Percent black in the county of origin is associated with greater unemployment (b = 0.026, p<0.01), while percent college educated in the county of origin is associated with less unemployment (b = -0.031 , p<0.01). Compared to respondents with a county of origin in the South, unemployment is significantly greater for county of origin in all other regions.

Table **16**

Table **16**: OLS Regression Predicting Household Income in 2000, with Interaction

Table 16. OLS Regression Predicting Household Income in 2000, with Interaction

	(1)	(2)	(3)	(4)
Rural*	-7731*	-1217	-3442	-1419
Persistent Poverty*	-16918**	-8471	-6443	-6550
Rural X Persistent Poverty	4865	4149	9300	8806
% Black*		-326**	-6	14
% College*		1297**	806**	602**
*Region**		-8231*	-4554	-5130
West				
Northeast		345	-2558	-4073
North Central		601	-2554	-5217*
Male			4489*	4272*
Race				
Black			-21422**	-9451**
Hispanic			-4093	6572+
Other Race			-4759+	-1910
# of Siblings			-260	209
Relig. Frequency			1160*	1044+
Years of Education (1992)			7950**	5058**
Mother Education				364
Father Education				381
Mother Wk. Status				-1815+
Father Wk. Status				2468*
Parents' Income**				487**
AFQT Score				298**
Age				185
Constant	59225**	43324**	-56518**	-55112**
R-squared	0.008	0.029	0.205	0.237

N = 5582
** p<0.01, * p<0.05, + p<0.1
Coefficients are rounded to nearest dollar.
* Contextual variables for county of origin.
** In thousands of dollars.

Table **17**

Table **17**: OLS Regression Predicting Percentage of Weeks Unemployed, 1992-2000

Table 17. OLS Regression Predicting Percentage of Weeks Unemployed, 1992-2000*

	(1)	(2)	(3)	(4)	(5)
Rural**	0.148	-0.064	-0.09	-0.041	-0.055
Persistent Poverty**		1.060**	0.679**	0.465*	0.468*
% Black**			0.026**	0.005	0.003
% College**			-0.031**	-0.020**	-0.018*
*Region***					
West			0.442**	0.319*	0.316*
Northeast			0.450**	0.514**	0.503**
North Central			0.249*	0.351**	0.373**
Male				0.398**	0.386**
Race					
Black				1.650**	1.460**
Hispanic				0.554**	0.372+
Other Race				0.087	0.044
# of Siblings				0.032+	0.012
Relig. Frequency				-0.030	-0.031
Years of Education (1992)				-0.162**	-0.109**
Mother Education					-0.010
Father Education					0.011
Mother Wk. Status					-0.106*
Father Wk. Status					-0.226*
Parents' Income***					-0.002
AFQT Score					-0.008**
Age					-0.024
Constant	1.33**	1.30**	1.23**	2.93**	3.60**
R-squared	0.000	0.007	0.022	0.098	0.104

N = 5582

** p<0.01, * p<0.05, + p<0.1

** Contextual variables for county of origin.

*** In thousands of dollars.

When personal and family characteristics are added in Model 4, the effects of contextual characteristics of the county of origin remain substantially unchanged. The effect of rural county of origin (b = -0.041) remains nonsignificant, while persistently poor county of origin (b = 0.465, p<0.05) continues to exert a significant influence on later unemployment. The effect of percent black seen in the previous model is now explained (b = 0.005), but percent college in the county of origin continues to be negatively associated with unemployment (b = -0.20, p<0.01). County of origin in the South continues to be associated with lower unemployment, compared to county of origin in all other regions of the country. Most personal and family characteristics have significant effects on unemployment as well. Unemployment is higher for males (b = 0.398, p<0.01), as well as for blacks (b = 1.650, p<0.01) and Hispanics (b = 0.554, p<0.01). While frequency of religious attendance in 1979 (b = -0.30) has no effect on later unemployment, number of siblings (b = 0.032, p<0.10) and years of education (b = -0.162, p<0.01) both have significant effects on unemployment.

Finally, in Model 5 controls are added for parents' SES and AFQT score. Again, the effects of all variables included in the previous model remain similar. Rural county of origin has no effect on unemployment, while persistently poor county of origin (b = 0.468, p<0.01) continues to be associated with higher unemployment in later life. Percent black in the county of origin is not associated with unemployment (b = 0.003), but percent college educated (b = -0.018, p<0.05) continues to exert a negative effect on unemployment. Compared to respondents whose county of origin was in the South, respondents with a county of origin in any other region experienced significantly greater unemployment. Greater levels of unemployment for males (b = 0.386, p<0.01), blacks (b

= 1.460, p<0.01) and Hispanics (b = 0.372, p<0.10) were evident as well. There is no effect of frequency of religious attendance, and number of siblings no longer has a significant effect on unemployment (b = 0.012). Years of education (b = -0.109, p<0.01) is negatively associated with unemployment. While there is no effect of parents' education on unemployment, both mother's (b = -0.106, p<0.05) and father's (b = -0.226, p<0.05) work status are negatively related to later unemployment. Parents' income has no effect (b = -0.002), but higher AFQT scores (b = -0.008, p<0.01) predict less unemployment.

Table 18 presents the results of an OLS regression predicting percentage of weeks unemployed between 1990 and 2000, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here. This lack of significant effects for the interaction term suggests that the models in Table 18 offer no improvement in predicting unemployment, compared to the models presented in Table 17.

Table 19 displays the results of an OLS regression analysis predicting percentage of years spent in poverty between 1990 and 2000. Model 1 presents the direct effect of rural county of origin on years spent in poverty. There is no significant effect of rurality (b = 0.368) on percentage of years spent in poverty.

Table **18**

Table **18**: OLS Regression Predicting Percentage of Weeks Unemployed, 1992-2000, with Interaction

Table 18. OLS Regression Predicting Percentage of Weeks Unemployed, 1992-2000, with Interaction

	(1)	(2)	(3)	(4)
Rural**	-0.103	-0.103	-0.074	-0.080
Persistent Poverty**	0.963**	0.647*	0.380	0.409
Rural X Persistent Poverty	0.261	0.083	0.212	0.149
% Black**		0.026**	0.005	0.003
% College**		-0.031**	-0.020**	-0.018*
*Region***				
West		0.441**	0.316*	0.314*
Northeast		0.449**	0.511**	0.500**
North Central		0.249*	0.351**	0.373**
Male			0.399**	0.387**
Race				
Black			1.660**	1.460**
Hispanic			0.570**	0.383+
Other Race			0.088	0.045
# of Siblings			0.032+	0.013
Relig. Frequency			-0.030	-0.031
Years of Education (1992)			-0.162**	-0.109**
Mother Education				-0.010
Father Education				0.011
Mother Wk. Status				-0.106*
Father Wk. Status				-0.226*
Parents' Income***				-0.002
AFQT Score				-0.008**
Age				-0.024
Constant	1.300**	1.240**	2.930**	3.600**
R-squared	0.007	0.022	0.098	0.104

N = 5582

** p<0.01, * p<0.05, + p<0.1

** Contextual variables for county of origin.

*** In thousands of dollars.

Table **19**

Table **19**: OLS Regression Predicting Percentage of Years Spent in Poverty, 1992-2000

Table 19. OLS Regression Predicting Percentage of Years Spent in Poverty, 1992-2000

	(1)	(2)	(3)	(4)	(5)
Rural*	0.368	-0.414	-0.791+	-0.004	-0.437
Persistent Poverty*		3.920**	2.580**	0.015*	1.520*
% Black*			0.058**	-0.000	-0.010
% College*			-0.078**	-0.000	-0.018
*Region**					
West			1.120**	0.007+	0.707+
Northeast			-0.888*	-0.005	-0.545
North Central			-0.558+	-0.000	0.014
Male				-1.590**	-1.640**
Race					
Black				4.600**	3.680**
Hispanic				1.930**	1.070*
Other Race				-0.148	-0.355
# of Siblings				0.209**	0.136*
Relig. Frequency				-0.110+	-0.125+
Years of Education (1992)				-0.811**	-0.547**
Mother Education					-0.029
Father Education					0.021
Mother Wk. Status					-0.455**
Father Wk. Status					-0.506*
Parents' Income**					-0.016
AFQT Score					-0.038**
Age					-0.119
Constant	0.037**	0.036**	0.043**	0.145**	0.167**
R-squared	0.000	0.010	0.026	0.161	0.177

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

In Model 2, persistently poor county of origin is included in the analysis. As in the pervious model, rural county of origin (b = -0.414) has no significant effect on later poverty. Persistently poor county of origin (b = 3.920, p<0.01), however, does have a significant effect on later poverty. Respondents from persistently poor counties of origin experienced 0.44 standard deviations more poverty than those from non-poor counties of origin.

When other contextual characteristics of the county of origin are controlled in Model 3, there is a small negative effect of rural county of origin (b = -0.791) which is significant at the 0.10 level. Persistently poor county of origin continues to have a positive effect on percentage of years spent in poverty (b = 2.580, p<0.01). Poverty is greater in counties with a higher percentage of black residents (b = 0.058, p<0.01) and lower in counties with a higher percentage of college educated residents (b = 0.058, p<0.01). There are regional differences in poverty as well. While respondents with a Western county of origin (b = 1.120, p<0.01) experienced more poverty than those with counties of origin in the South, there were negative effects for Northeast (b = -0.888, p<0.01) and North Central (b = -0.558, p<0.10) county of origin.

In Model 4 controls are added for personal and family characteristics. The significant effect for rural county of origin seen in the last model is now gone (b = -0.004). While the positive effect of persistently poor county of origin on percentage of years spent in poverty is reduced substantially in this model (b = 0.015, p<0.05), it remains significant. Other contextual effects, however, have largely been explained. There is no effect of percent black or percent college educated in the county of origin, and the only regional difference that remains significant is a slightly higher percentage of

years spent in poverty for respondents with a county of origin in the West (b = 0.007, p<0.01). The percentage of years spent in poverty is lower for males (b = -1.590, p<0.01) but higher for blacks (b = 4.600, p<0.01) and Hispanics (b = 1.930, p<0.01). Number of siblings is associated with higher poverty (b = 0.209, p<0.01), while both frequency of religious attendance (b = -0.110, p<0.10) and years of education (b = -0.811, p<0.01) are associated with fewer years spent in poverty.

Finally, in Model 5 controls are added for parents' SES and AFQT. There is no effect of rural county of origin(b = -0.437), or of percent black (b = -0.10) or percent college (b = -0.018) in the county of origin. The effect of persistently poor county of origin persists (b = 1.520, p<0.01); respondents from a persistently poor county of origin experience 0.17 standard deviations more poverty than those from a non-poor county of origin.

Table 20 presents the results of an OLS regression predicting percentage of years spent in poverty between 1990 and 2000, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here. This lack of significant effects for the interaction term suggests that the models in Table 20 offer no improvement in predicting unemployment, compared to the models presented in Table 19.

Table 21 displays the results of a multinomial logistic regression predicting marital status in 2000. The reference category includes respondents who were married or widowed in 2000. In Model 1, we see that there are no direct effects of rural county of origin on marital status.

Table **20**

Table **20**: OLS Regression Predicting Percentage of Years Pent in Poverty, 1992-2000, with Interaction

Table 20. OLS Regression Predicting Percentage of Years Spent in Poverty, 1992-2000, with Interaction

	(1)	(2)	(3)	(4)
Rural*	-0.360	-0.717	-0.322	-0.341
Persistent Poverty*	4.060**	2.760**	1.640+	1.770*
Rural X Persistent Poverty	-0.362	-0.470	-0.366	-0.627
% Black*		0.058**	-0.004	-0.010
% College*		-0.078**	-0.028	-0.017
*Region**				
West		1.120**	0.711+	0.715+
Northeast		-0.881*	-0.515	-0.535
North Central		-0.557+	-0.089	0.015
Male			-1.600**	-1.640**
Race				
Black			4.600**	3.680**
Hispanic			1.900**	1.030+
Other Race			-0.150	-0.359
# of Siblings			0.209**	0.135*
Relig. Frequency			-0.109	-0.125+
Years of Education (1992)			-0.812**	-0.548**
Mother Education				-0.023
Father Education				0.022
Mother Wk. Status				-0.456**
Father Wk. Status				-0.507*
Parents' Income**				-0.016
AFQT Score				-0.038**
Age				-0.119
Constant	0.036**	0.043**	0.145**	0.167**
R-squared	0.010	0.026	0.161	0.177

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

Table **21**

Table **21**: Multinomial Logistic Regression (Odds Ratios) Predicting Marital Status in 2000

Table 21. Multinomial Logistic Regression (Odds Ratios) Predicting Marital Status in 2000

	Model 1			Model 2			Model 3			Model 4			Model 5		
	Single	Sep.	Div.	Single	Sep.	Div.	Single	Sep.	Div.	Single	Sep.	Div.	Single	Sep.	Div.
Rural*	0.783	1.028	0.791	0.735+	0.957	0.756	0.821	0.904	0.679*	0.857	0.961	0.702+	0.848	0.915	0.676*
Persistent Poverty*				1.349	1.403	1.246	0.951	0.885	1.033	0.813	0.731	0.936	0.836	0.737	0.947
% Black*							1.025**	1.018**	1.008*	1.006	1.000	1.002	1.005	0.999	1.002
% College*							0.988	0.987	0.979*	0.992	0.996	0.988	0.993	1.001	0.990
*Region**															
West							1.525*	0.935	1.210	1.361+	0.851	1.094	1.322	0.887	1.118
Northeast							1.739**	0.864	0.895	1.828**	0.978	0.945	1.803**	1.020	0.998
North Central							1.317*	0.492**	0.962	1.458**	0.579*	1.019	1.458**	0.630+	1.073
Male										1.757**	0.779	0.780*	1.734**	0.786	0.779*
Race															
Black										4.678**	4.308**	1.602**	4.029**	3.265**	1.280
Hispanic										2.020**	1.795*	0.983	1.983**	1.357	0.859
Other Race										1.152	1.508	0.986	1.115	1.417	0.933
# of Siblings										1.002	0.984	0.994	0.998	0.965	0.989
Relig. Frequency										0.930*	0.919	0.908**	0.922*	0.927	0.905**
Years of Education (1992)										0.938**	0.795**	0.816**	0.972	0.849**	0.860**
Mother Education													1.027	0.992	1.033
Father Education													1.014	0.982	0.959*
Mother Wk. Status													0.907+	1.051	1.119+
Father Wk. Status													0.950	0.892	0.973
Parents' Income**													0.993	0.985	0.996
AFQT Score													0.993*	0.994	0.994*
Age													0.892*	1.083	0.913+
Constant	0.273**	0.0741**	0.236**	0.271**	0.0734**	0.234**	0.178**	0.0902**	0.300**	0.305**	1.793	5.070**	1.383	0.576	15.70**

N = 5582

Reference category is married or widowed.

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

When the effects of persistent poverty are controlled in Model 2, respondents from a persistently poor county of origin have a lower odds of being single than those in non-rural counties (b = 0.735, p<0.10), but there are no other significant effects of rural county of origin. There are no significant effects of persistently poor county of origin on marital status.

In Model 3, other contextual characteristics of the county of origin are added to the model. When these characteristics are controlled, there is no effect of rural on the likelihood of being single but rural respondents are less likely than non-rural respondents to be divorced. While there are no significant effects of persistently poor county of origin, a higher percent black in the county of origin is associated with a higher odds of

being single, separated or divorced, while higher percent college in the county of origin is associated with lower odds of being divorced. Respondents with a county of origin in the South have lower odds of being single than those with a county of origin in any other region, and a higher odds of being separated than respondents in the North Central United States.

When personal and family characteristics are controlled in Model 4, the lower odds of being divorced persists for respondents with a rural county of origin ($b = 0.702$, $p<0.10$); the lower odds of being single for respondents with a county of origin in the South persist as well. There are no effects, however, for persistent poverty, percent black, or percent college educated. Black respondents have higher odds of being single, separated or divorced compared to whites, while Hispanic respondents have higher odds of being single or separated than white respondents. Religious attendance in 1979 is associated with a lower odds of being single or divorced, while years of education is associated with a lower odds of being in single, separated or divorced. There is no effect of number of siblings on marital status.

Finally, in Model 5 controls are added for parents' SES and AFQT score. When parents' SES and AFQT score are included in the model, the effects of other variables remain similar to those seen in Model 4. The lower odds of being divorced persist for respondents with a rural county of origin, as does the higher odds of being single for respondents with a county of origin in the Northeast or North Central regions, although the effect of West is no longer significant. There are no effects for persistent poverty, percent black, or percent college educated. Black respondents have higher odds of being single or separated compared to whites, while Hispanic respondents have higher odds of

being single. Religious attendance in 1979 is associated with a lower odds of being single or divorced, while years of education is associated with a lower odds of being either separated or divorced. There is no effect of number of siblings on marital status. As in the previous model, more frequent religious attendance predicts lower odds of being single or divorced. More years of education is associated with lower odds of being separated or divorced. The only effect for parents' education is a decreased odds of being divorced with higher levels of education for the respondent's father. Mother's work status in 1979 is associated with lower odds of being single and higher odds of being divorced, while there was no effect for father's work status or parents' income. Finally, higher AFQT score is associated with lower odds of being single or divorced.

Table **22**

Table **22**: Multinomial Logistic Regression (Odds Ratios) Predicting Marital Status in 2000 with Interaction

Table 22. Multinomial Logistic Regression (Odds Ratios) Predicting Marital Status in 2000, with Interaction

	Model 1			Model 2			Model 3			Model 4		
	Single	Sep.	Div.	Single	Sep.	Div.	Single	Sep.	Div.	Single	Sep.	Div.
Rural*	0.746	0.992	0.797	0.865	0.964	0.716	0.889	1.034	0.766	0.882	0.976	0.738
Persistent Poverty*	1.405	1.529	1.393	1.066	1.023	1.159	0.896	0.875	1.146	0.925	0.864	1.156
Rural X Persistent Poverty	0.901	0.800	0.725	0.736	0.690	0.722	0.782	0.641	0.579	0.771	0.674	0.584
% Black*				1.026**	1.018**	1.008*	1.006	1.000	1.002	1.005	1.000	1.002
% College*				0.988	0.987	0.979*	0.922	0.977	0.988	0.933	1.001	1.002
*Region**												
West				1.526*	0.937	1.212	1.366+	0.858	1.101	1.328	0.894	1.124
Northeast				1.746**	0.870	0.899	1.836**	0.987	0.953	1.811**	1.028	1.005
North Central				1.317*	0.493**	0.963	1.460**	0.580*	1.019	1.459**	0.631+	1.073
Male							1.756**	0.778	0.779*	1.733**	0.785	0.778*
Race												
Black							4.677**	4.305**	1.600**	4.027**	3.263**	1.279
Hispanic							1.985**	1.736*	0.943	1.947**	1.318	0.827
Other Race							1.151	1.503	0.983	1.113	1.413	0.930
# of Siblings							1.002	0.983	0.994	0.997	0.965	0.988
Relig. Frequency							0.931*	0.920	0.908**	0.922*	0.927	0.905**
Years of Education (1992)							0.937**	0.794**	0.815**	0.972	0.848**	0.859**
Mother Education										1.027	0.993	1.033
Father Education										1.014	0.982	0.959*
Mother Wk. Status										0.907+	1.051	1.118+
Father Wk. Status										0.949	0.892	0.972
Parents' Income**										0.993	0.985	0.996
AFQT Score										0.993*	0.994	0.994*
Age										0.893*	1.084	0.913+
Constant	0.270**	0.0732**	0.234**	0.176**	0.0890**	0.297**	0.305**	1.800	5.096**	1.378	0.572	15.560**

N = 5582

Reference category is married or widowed.

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

Table 22 presents the results of a multinomial logistic regression predicting marital status in 2000, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here. This lack of significant effects for the interaction term suggests that the models in Table 22 offer no improvement in predicting unemployment, compared to the models presented in Table 21.

Table 23 presents the results of an OLS regression predicting number of biological children in 2000. As seen in Model 1, there is no direct effect of rural county of origin on number of children (b = -0.023).

In Model 2, the effect of persistently poor county of origin is added. There is a positive effect of persistently poor county of origin on number of children (b = 0.217, $p<0.05$), although this effect represents only a 0.16 standard deviation increase in number of children. There is no effect of rural county of origin (b = -0.066).

When other contextual characteristics of the county of origin are controlled in Model 3, the effect of persistently poor county of origin (b = 0.104) is explained. There is no effect of rural county of origin (b = -0.099). Percent black in the county of origin has a small but statistically significant positive effect on number of children (b = 0.006, $p<0.01$), though there is no effect for percent college educated. Respondents with a county of origin in the West (b = 0.127, $p<0.10$) or North Central (b = 0.013, $p<0.10$) regions had significantly more children than those in the South.

Model 4 includes personal and family characteristics. Rural (b = -0.043) and persistently poor (b = -0.050) county of origin have no effect on number of children.

Table **23**

Table **23**: OLS Regression Predicting Number of Biological Children in 2000

Table 23. OLS Regression Predicting Number of Biological Children in 2000

	(1)	(2)	(3)	(4)	(5)
Rural*	-0.023	-0.066	-0.099	-0.043	-0.039
Persistent Poverty*		0.217*	0.104	-0.050	-0.055
% Black*			0.006**	0.004+	0.004+
% College*			-0.005	-0.001	-0.000
*Region**					
West			0.127+	0.109	0.115
Northeast			-0.098	-0.051	-0.058
North Central			0.103+	0.149*	0.141*
Male				-0.292**	-0.290**
Race					
Black				0.168**	0.202**
Hispanic				0.287**	0.276**
Other Race				-0.087	-0.082
# of Siblings				0.046**	0.045**
Relig. Frequency				0.028*	0.029*
Years of Education (1992)				-0.073**	-0.078**
Mother Education					-0.003
Father Education					-0.007
Mother Wk. Status					-0.029
Father Wk. Status					0.043
Parents' Income**					0.000
AFQT Score					0.001
Age					0.044*
Constant	1.690**	1.684**	1.666**	2.464**	1.842**
R-squared	0.000	0.001	0.008	0.056	0.058

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

Percent black in the county of origin continues to have a significant effect (b = 0.004, p<0.10), but there is no effect of percent college educated. The only regional difference is a lower number of biological children for respondents with a county of origin in the North Central United States (b = 0.149, p<0.01). Male respondents reported fewer biological children (b = -0.292, p<0.01), while both black (b = 0.168, p<0.01) and Hispanic (b = 0.278, p<0.01) respondents reported more biological children. Respondents with more siblings (b = 0.045, p<0.01) have more biological children, as do respondents who attended religious services more often in 1979 (b = 0.029, p<0.01). Years of education (b = -0.078, p<0.01) is associated with fewer children. Older respondents (b = 0.044, p<0.05) had more biological children, but there is no effect of parents' education or income, or of AFQT score.

Table 24 presents the results of an OLS regression predicting number of biological children in 2000, including interaction effects for rural county of origin by persistently poor county of origin. There is no significant interaction between rurality and persistent poverty in the county of origin for any of the models presented here. This lack of significant effects for the interaction term suggests that the models in Table 24 offer no improvement in predicting unemployment, compared to the models presented in Table 23.

Table **24**

Table **24**: OLS Regression Predicting Number of Biological Children in 2000, with Interaction

Table 24. OLS Regression Predicting Number of Biological Children in 2000, with Interaction

	(1)	(2)	(3)	(4)	(5)
Rural*	-0.023	-0.041	-0.073	-0.029	-0.026
Persistent Poverty*		0.282*	0.167	-0.012	-0.020
Rural X Persistent Poverty		-0.169	-0.165	-0.095	-0.090
% Black*			0.006**	0.004+	0.004+
% College*			-0.005	-0.001	-0.000
*Region**					
West			0.128+	0.110	0.116
Northeast			-0.096	-0.049	-0.056
North Central			0.104+	0.149*	0.141*
Male				-0.292**	-0.290**
Race					
Black				0.167**	0.201**
Hispanic				0.280**	0.269**
Other Race				-0.087	-0.082
# of Siblings				0.046**	0.045**
Relig. Frequency				0.028*	0.029*
Years of Education (1992)				-0.073**	-0.078**
Mother Education					-0.003
Father Education					-0.007
Mother Wk. Status					-0.030
Father Wk. Status					0.043
Parents' Income**					0.000
AFQT Score					0.001
Age					0.044*
Constant	1.690**	1.682**	1.661**	2.465**	1.841**
R-squared	0.000	0.001	0.008	0.056	0.058

N = 5582

** p<0.01, * p<0.05, + p<0.1

* Contextual variables for county of origin.

** In thousands of dollars.

Chapter 7

Conclusions

Outcomes of Early Adulthood

Cognitive skill and educational attainment. The first four research questions deal with the effect of county of origin characteristics on cognitive skill in adolescence and educational attainment in early adulthood. When other variables are not controlled, there is a weak negative effect of rural county of origin on cognitive skill, measured using AFQT score. However, once persistent poverty is controlled the effect is no longer significant, and when all control variables are included there is actually a small positive effect of rural county of origin on cognitive skill. While the hypothesis that there is a negative effect of rurality on cognitive skill is partially confirmed, this effect seems to be explained by other characteristics of rural communities as well as characteristics of the individuals who live in rural communities.

Persistent poverty also initially has a negative effect on AFQT score which is explained in later models, showing partial support for the hypothesis that persistently poor county of origin. In addition, persistent poverty appears to play an important role in the effect of rurality on cognitive skill. Whereas coming from a non-poor rural county of origin had a positive effect on cognitive skill, coming from a poor rural county of origin had a negative effect on cognitive skill. This was true even controlling for all other variables, confirming the hypothesis that rurality has a more negative effect on cognitive skill when the rural community is also persistently poor. These findings suggest that

there are positive as well as negative qualities of rural communities. For rural areas that are not impacted by persistent poverty, characteristics such as strong social ties and smaller classrooms in which teachers are more likely to know the parents of their students may lead to positive outcomes. In rural areas that are characterized by persistent poverty, these positive qualities may not be enough to overcome the detrimental effects of poverty.

For educational attainment, rural county of origin has a negative effect in initial models but this effect is explained by the variables included in later models. These results provide partial support for the hypothesis that rural county of origin will predict lower educational attainment. While there is a small negative effect of rurality on educational attainment in later life, this effect is explained by other factors.

In addition, persistently poor county of origin had an initial negative effect on educational attainment. This effect is no longer significant, however, when individual and family characteristics are controlled. This suggests that the effect of persistent community poverty on educational attainment occurs through its effects on these characteristics. While these findings provide partial support for the hypothesis that persistent poverty in the county of origin has a negative effect on later educational attainment, there is not a strong effect of persistent poverty.

Support for the hypothesis that the effect of persistent poverty on educational attainment is different for rural and non-rural communities is stronger. There is a statistically significant effect for the interaction between rural and persistently poor county of origin in all models, revealing that persistent poverty has a negative effect on educational attainment in rural counties but not in non-rural counties. One explanation

for this finding is that the lack of economic diversity in poor rural communities leads adolescents to believe that education has limited value for their employment prospects. In poor non-rural communities where employment opportunities are more diverse, high poverty rates may underscore the importance of education in order to avoid negative employment outcomes.

Not surprisingly, the results presented here consistently show that cognitive skill is an important predictor of educational attainment. High cognitive skill (AFQT in the highest decile) is associated with greater educational attainment, whereas low cognitive skill (AFQT in the lowest decile) is associated with lower educational attainment. These results provide consistent support for the hypothesis that there is an effect of cognitive skill on educational attainment, regardless of what other variables are controlled.

The key research question regarding this relationship, however, is whether this effect is different for those who choose to remain in the county of origin than for those who choose to leave. While the effect is weak for respondents with low cognitive skill, those who remain in the county of origin have higher levels of educational attainment than those who choose to leave. The causal direction is not clear in this case, since finding may reflect involuntary geographic mobility among individuals living in poverty, suggesting that it is actually lower levels of educational attainment which lead to geographic mobility. Among those with high cognitive skill, leaving the county of origin is associated with higher educational attainment. The negative effect of remaining in the county of origin for respondents with high AFQT scores may reflect a decision (either conscious or unconscious) on the part of some high-ability individuals to prioritize remaining close to family and friends over pursuing an advanced degree.

Geographic mobility. While no effect of persistently poor county of origin on decisions regarding geographic mobility in early adulthood could be detected in these analyses and no interaction between rurality and persistent poverty, respondents from rural counties of origin were consistently more likely to leave the county of origin compared to those from non-rural counties of origin. This is consistent with much of the existing research, which shows trends toward migration out of rural communities. Because there may be fewer educational and occupational opportunities in rural communities, leaving the community of origin may be more necessary. For individuals living in non-rural communities, there are fewer reasons to move to a new community. Prior research has suggested that a large percentage of geographic mobility is motivated by economic opportunities; when diverse economic opportunities exist in the community in which one already lives, the motivation to move to a new area may be weaker.

Outcomes of Middle Adulthood

Geographic Mobility. While the effect of rural county of origin is inconsistent, there is a consistent negative effect of persistently poor county of origin on remaining in the county of origin in middle adulthood. Moreover, this effect only becomes stronger when more controls are added, suggesting that the effect is partially suppressed by other characteristics of persistently poor communities and the people who live in them. Whereas there was no effect of persistent poverty on geographic mobility in early adulthood, by middle adulthood the effect of this contextual variable is apparent. It could be that individuals living in these communities make the decision to leave only after having limited occupational success in the home community. Further research should investigate this hypothesis.

For rural county of origin, on the other hand, the effect on geographic mobility seen in early adulthood is no longer apparent. It is not clear from the results presented here whether this is due to an increase in geographic mobility among non-rural residents in middle adulthood, a decrease in geographic mobility among rural residents, or perhaps a tendency for rural residents to return to the community of origin after moving away temporarily. Future research should attempt to determine the reason for this change. Also unlike the models predicting geographic mobility for early adulthood, in middle adulthood there is no interaction effect for rural and persistently poor county of origin.

Employment outcomes. For income, there is an initial negative effect of both rural and persistently poor county of origin. However, this effect is explained for both variables when other factors are included in the models. These results show partial support for the hypotheses that rural and persistently poor county of origin negatively influence income, but these effects are relatively weak and do not persist when other variables are added. In addition, the effect of persistent poverty on income does not differ for rural and non-rural communities.

Cognitive skill is also an important predictor of income. Consistent with previous research suggesting that there is a positive relationship between cognitive skill and income, these results provide evidence that individuals with low cognitive skill have significantly lower income than those with moderate cognitive skill, and those with high cognitive skill have significantly higher income than those with moderate cognitive skill. The results also suggest that, while there is no interaction between geographic mobility and low cognitive skill, this interaction does exist for geographic mobility and high cognitive skill. The benefit of high cognitive skill is greater for those who do not remain

in the county of origin ($11,731 per year) compared to those who do remain in the county of origin ($3,927). Again, this may reflect the conscious or unconscious decision on the part of some high-ability individuals to forego higher income in order to remain close to the family, friends and community around which they grew up. The effects of low cognitive skill may be less clear because, while some of these individuals relocate because they have improved employment prospects elsewhere, others are likely to relocate involuntarily and may have incomes that are the same or lower after moving.

As with personal income, there are negative initial effects of both rural and persistently poor county of origin on household income twenty years later, but these effects are explained when other characteristics of communities and individuals are controlled. This shows weak support for the hypotheses that later household income is lower for those who grow up in rural or persistently poor communities. There are no interactions between rural and persistently poor county of origin for household income.

The effect of rurality and persistent poverty in the county of origin is similar for percentage of weeks unemployed and percentage of years spent in poverty. In both cases, there is no effect of rural county of origin, while persistently poor county of origin has a positive effect on both unemployment and poverty in later life. It is unclear from the analyses presented here whether this effect is different for those who do and do not remain in the county of origin; future research should determine whether unemployment and poverty are higher only for those who remain in the persistently poor county or also for those who relocate. The effect of persistently poor county of origin is no different for rural and non-rural county of origin.

Family formation. While there is no effect of rural county of origin on marital status twenty years later, rural county of origin is associated with a lower likelihood of divorce. It is important to note that this effect is suppressed by other characteristics of rural communities and the individuals who live in them, suggesting that while individuals in rural communities may tend to have characteristics that increase their likelihood of divorcing rurality itself has a negative effect on the likelihood of divorcing later in life.

There is no effect of rural county of origin on number of biological children. This is consistent with previous research suggesting that past rural/non-rural fertility rates have closed over time. Fertility is higher for those from a persistently poor county of origin, but this difference is explained by other characteristics.

The results presented in the two previous chapters suggest that there are important effects of rural and persistently poor county of origin on outcomes in later life. While the effects presented here are often weak, contextual effects are notoriously difficult to demonstrate in quantitative research, even when measuring current context, so any significant effects of the context in which one lived one or two decades earlier are notable. In addition, the statistical power of the analyses presented here may be somewhat weak, and variation was low. Only about ten percent of respondents lived in a rural county of origin; a similar percentage of respondents lived in a poor county of origin. While weak statistical power should not affect the apparent strength of effects, it may sometimes make it difficult to discern true effects in the population unless they are relatively strong.

At the same time, the results presented here are promising for those who are reared in rural and persistently poor communities. While there may be negative effects of

growing up in these communities, the fact that these are generally relatively weak suggests that rearing children in these communities does not necessarily mean denying them opportunities for academic and occupational success, and has no apparent negative impact on family formation. Differences in cognitive skill, educational attainment, and income are weak; differences for unemployment and poverty are significant primarily for those who grew up in persistently poor counties. Future research should investigate whether these findings differ for those who remain in the county of origin and those who leave, since it is possible that the effect of growing up in a rural or persistently poor community is very different for those who stay and those who leave.

Bibliography

Albrecht, Don E. and Carol Mulford Albrecht. 2004. "Metro/Nonmetro Residence, Nonmarital Conception, and Conception Outcomes." *Rural Sociology*, 69(3):430-452.

Albrecht, Don E., Carol Mulford Albrecht and Stan L. Albrecht. 2000. "Poverty in Nonmetropolitan America: Impacts of Industrial, Employment, and Family Structure Variables." *Rural Sociology*, 65(1):87-103.

Anderson, Douglas K. 1999. "The Timing of High School Dropout." Paper presented at the annual meeting of the American Sociological Association, Chicago.

Barrington, Byron L. and Bryan Hendricks. 1989. "Differentiating Characteristics of High School Graduates, Dropouts, and Nongraduates." *Journal of Educational Research*, 82:309-319.

Beale, Calvin L. 2004. "Anatomy of Nonmetro High-Poverty Areas: Common in Plight, Distinctive in Nature." *Amber Waves*, 2(1):20-27.

Besser, Terry L. and Margared M. Hanson. 2004. "Development of Last Resort: The Impact of New State Prisons on Small Town Economies in the United States." *Journal of the Community Development Society*, 35(2):1-16.

Bennett, Neil G., David E. Bloom and Cynthia K. MIller. 1995. "The Influence of Nonmarital Childbearing on the Formation of First Marriage." *Demography*, 32(1):47-62.

Bickel, Robert and Meghan McDonough. 1997. "Opportunity, Community, and Reckless Lives: Social Distress Among Adolescents in West Virginia." *Journal of Social Distress and the Homeless*, 6(1):29-44.

Bradshaw, Ted K. 2006. "Theories of Poverty and Anti-Poverty Programs in Community Development." Working Paper No. 06-05. Rural Poverty Research Center. Columbia, MO and Corvallis, OR.

Brooks, Sue. "The Other Poor: Rural Poverty and Education." *Educational Foundations*, 11(1)73-85.

Brown, David L., and Thomas A. Hirschl. 1995. "Household Poverty in Rural and Metropolitan-Core Areas of the United States." *Rural Sociology*, 60:44-66.

Brown, Susan L. and Anastasia R. Snyder. 2006. "Residential Differences in Cohabitors' Union Transitions." *Rural Sociology*, 71(2):311-334.

Burchinal, Lee G. and Hilda Siff. 1964. "Rural Poverty." *Journal of Marriage and the Family*, 26(4):399-405.

Carbonari, William J. 2005. "Explaining Variable Returns to Cognitive Skill Across Occupations." *Social Science Research*, 34:165-188.

Cabonaro, William J. 1998. "A Little Help from My Friends' Parents: Intergenerational Closure and Educational Outcomes." *Sociology of Education*, 71:295-313.

Cautley, E. and D. P. Slesinger. 1988. "Labor Force Paricipation and Poverty Status Among Rural and Urban Women Who Head Familes." *Policy Studies Review*, 7(4):795-809.

Ceballo, Rosario, Vonnie C. McLoyd, and Teru Toyokawa. 2004. "The Influence of Neighborhood Quality on Adolescents' Educational Values and School Effort." *Journal of Adolescent Research*, 19(6):716-739.

Coclough, Glenna. 1988. "Uneven Development and Racial Composition in the Deep South." *Rural Sociology*, 53:73-86.

Cohen, Eric. 2001. "Poverty in Rural America: A Case Study of a Southwestern Pennsylvania Town." 17:19-31.

Conley, Dalton. 2001. "Capital for College: Parental Assets and Postsecondary Schooling." *Sociology of Education*, 74(1):59-72.

Crowder, Kyle and Scott J. South. 2003. "Neighborhood Distress and School Dropout: The Variable Significance of Community Context." *Social Science Research*, 32:659-698.

Cotter, David A. 2002. "Poor People in Poor Places: Local Opportunity Structures and Household Poverty." *Rural Sociology* 67(4):534-555.

Davidson, Osha Gray. 1990. *Broken Heartland: The Rise of America's Rural Ghetto*. NY: Anchor Books.

Deavers, Kenneth L., Robert A. Hoppe and Peggy J. Ross. 1986. "Public Policy and Rural Poverty: A View from the 1980s." *Policy Studies Journal*, 15(2):291-309.

Domina, Thurston. 2006. "What Clean Break? Education and Nonmetropolitan Migration Patterns, 1989-2004." *Rural Sociology*, 71(3):373-398.

Duncan, Cynthia M. and Nita Lamborghini. 1994. "Poverty and Social Context in Remote Rural Areas." *Rural Sociology*, 59(3):437-461.

Duncan, Cynthia M. 1992. "Persistent Poverty in Appalachia: Scarce Work and Rigid Stratification." In Duncan, Cynthia M., Ed., *Rural Poverty in America*. New York: Auburn House, 111-133.

Duncan, Greg J. 1994. "Families and Neighborhoods as Sources of Disadvantage in the Schooling Decisions of Black and White Adolescents." *American Journal of Education*, 103:20-53.

Economic Research Service. 1997. "Rural Conditions and Trends." *Socioeconomic Conditions Issue* 7(3). Edited by Doug Bowers and Peggy Cook. Washington, DC: Economic Research Service, United States Department of Agriculture.

Elliott, James R. 1997. "Cycles within the System: Metropolitan and Internal Migration in the U.S., 1965-1990." *Urban Studies* 34(1):21-41.

Elman, Cheryl and Angela O'Rand. 2004. "The Race is to the Swift: Childhood Adversity, Adult Education, and Wage Attainment." *American Journal of Sociology*, July 2004.

Ensminger, Margaret E., and Anita L. Slusarick. 1992. "Paths to High School Graduation or Dropout: A Longitudinal Study of a First-Grade Cohort." *Sociology of Education*, 65:95-113.

Entwisle, Doris R., Karl L. Alexander, and Linda Steffel Olson. "First Grade and Educational Attainment by Age 22: A New Story." *American Journal of Sociology*, 110(5):1458-1502.

Farkas, George, Robert P. Grobe, Daniel Sheehan, and Yuan Shuan. 1990. "Cultural Resources and School Success: Gender, Ethnicity, and Poverty Groups within an Urban School District." *American Sociological Review*, 55:127-142.

Fitchen, Janet M. 1995. "Spatial Redistribution of Poverty through Migration of Poor People to Depressed Rural Communities." *Rural Sociology*, 60(2):181-201.

Fitchen, Janet M. 1991. *Poverty in Rural America: A Case Study.* Boulder: Westview.

Fischer, Mary J. and Julie A. Kmec. 2004. "Neighborhood Socioeconomic Conditions as Moderators of Family Resource Transmission: High School Completion Among At-Risk Youth." *Sociological Perspectives*, 47(4):507-527.

Frey, William H. 1987. "Migration and Depopulation of the Metropolis: Regional Restructuring or Rural Renaissance?" *American Sociological Review*, 52(2):240-257.

Fuguitt, Glenn F., Calvin B. Beale and Michael R. Reibel. 1991. "Recent trends in metropolitan-nonmetropolitan fertility." *Rural Sociology*, 60(2):181-201.

Gamoran, Adam. 2001. "American Schooling and Educational Inequality: A Forecast for the 21st Century." *Sociology of Education*, Extra Issue 2001: 135-153.

Glasmeier, Amy K. 2002. "One Nation, Pulling Apart: The Basis of Persistent Poverty in the USA." *Progress in Human Geography*, 26(2):155-173.

Gottleib, Paul D. and George Joseph. 2005. "College-to-Work Migration of Technology Graduates and Holders of Doctorates Within the United States." *Journal of Regional Science*, 46(4):627-659.

Haynie, Dana L. and Bridget K. Gorman. 1999. "A Gendered Context of Opportunity: Determinants of Poverty Across Urban and Rural Labor Markets." *The Sociological Quarterly*, 40(2):177-197.

Heaton, Tim B., Daniel T. Lichter, and Acheampong Amoateng. 1989. "The Timing of Family Formation: Rural-Urban Differentials in First Intercourse, Childbirth, and Marriage." *Rural Sociology*, 59(1):45-65.

Hedges, Larry V. and Amy Nowell. 1998. "Black-White Test Score Convergence since 1965." Pp. 149-81 in *The Black-White Test Score Gap*, Christopher Jencks and Meredith Phillips, Ed. Washington, DC: Brookings Institution Press.

Hektner, Joel. 1995. "When Moving Up Implies Moving Out: Rural Adolescent Conflict in the Transition to Adulthood." *Journal of Research in Rural Education* 11(1):3-14.

Hobbs, Daryl. 1994. "Demographic Trends in Nonmetropolitan America." *Journal of Research in Rural Education*, 10(3):149-160.

Hodgkinson, Harold. 1994. *The Invisible Poor: Rural Youth in America.* Washington, DC: Institute for Educational Leadership.

Howley, Craig B., Hobart L. Harmon, and Gregory D. Leopold. "Rural Scholars or Bright Rednecks? Aspirations for a Sense of Place Among Rural Youth in Appalachia." *Journal of Research in Rural Education*, 12(3):150-160.

Hunter, Lori M. and Jeannette Sutton. 2004. "Examining the Association between Hazardous Waste Facilities and Rural 'Brain Drain.'" *Rural Sociology* 69(2):197-212.

Huskey, Lee, Matthew Berman and Alexandra Hill. 2004. "Leaving Home, Returning Home: Migration as a Labor Market Choice for Alaska Natives." *The Annals of Regional Science*, 38:75-92.

Jensen, Leif and Marta Tienda. 1989. "Nonmetropolitan minority families in the United States: Trenda in Racial and Ethnic Economic Stratification." *Rural Sociology*, 54:509-532.

Jones, Gill. 1999. "The Same People in the Same Places? Socio-Spatial Identities and Migration in Youth." *Sociology*, 33(1):1-22.

Kane, Thomas J. and Cecilia Rouse. "Labor-Market Returns to Two- and Four-Year College." *The American Economic Review*, 85:600-614.

Kannapel, Patricia J. and Alan J. DeYoung. 1999. "The Rural School Problems in 1999: A Review and Critique of the Literature." *Journal of Research in Rural Education*, 15(2):67-79.

Kerckhoff, Alan C., Stephen W. Raudenbush, and Elizabeth Glennie. 2001. "Education, Cognitive Skill, and Labor Force Outcomes." *Sociology of Education*, 74(1):1-24.

Kerckhoff, Alan C and Lorraine Bell. 1998. "Hidden Capital: Vocational Credentials and Educational Attainment in the United States." *Sociology of Education*, 71(2):152-169.

Khattri, Nidhi, Kevin W. Riley, and Michael B. Kane. 1997. "Students at Risk in Poor, Rural Areas: A Review of the Research." *Journal of Research in Rural Education*, 13(2):79-100.

Kohn, Melvin L. and Carmi Schooler. 1983. *Work and Personality: An Inquiry into the Impact of Social Stratification.* Norwood, NJ: Ablex.

Johnson, Monica Kirkpatrick, Glen H. Elder, Jr., and Michael Stern. 2005. "Attachments to Family and Community and the Young Adult Transition of Rural Youth." *Journal of Research on Adolescence*, 15(1):99-125.

Johnson, Nan E. 1999. "Nonmetropolitan Sex-Role Ideologies: A Longitudinal Study." *Rural Sociology*, 64(1):44-65.

Latimer, Melissa. 2007. "A Contextual Analysis of the Effects of Gender and Place on Workers' Incomes." *Sociological Spectrum*, 20:345-356.

Leigh, Duane E. and Andrew M. Gill. 1997. "Labor Marked Returns to Community Colleges: Evidence for Returning Adults." *Journal of Human Resources*, 32(2):334-353.

Lewis, Oscar. 1968. *The Culture of Poverty*. New York: Random House, Inc.

Lichter, Daniel T., Gail M. Johnston, and Diane K. McLaughlin. 1994. "Changing Linkages Between Work and Poverty in Rural America." *Rural Sociology*, 59:395-415.

Lichter, Daniel T., Gretchen T. Cornwall and David J. Eggebeen. 1993. "Harvesting Human Capital: Family Structure and Education among Rural Youth." *Rural Sociology*, 58:53-75.

Lichter, Daniel T. and David J. Eggebeen. 1992. "Child Poverty and the Changing Rural Family." *Rural Sociology*, 57(1):47-70.

Lobao, Linda and Katherine Meyer. 2001. "The Great Agricultural Transition: Crisis, Change and Social Consequences of Twentieth Century US Farming." *Annual Review of Sociology*, 27:103-124.

Lobao, Linda. 1996. "A Sociology of the Periphery Versus a Peripheral Sociology: Rural Sociology and the Dimension of Space." *Rural Sociology*, 61:77-102.

Maruyama, Geoffrey. 2003. "Disparities in Educational Opportunities and Outcomes: What Do We Know and What Can We Do?" *Journal of Social Issues*, 59(3):653-676

McLaughlin, Diane. 2002. "Changing Income Inequality in Nonmetropolitan Counties, 1980-1990." *Rural Sociology* 67(4):512-535.

McLaughlin, Diane K., Daniel T. Lichter and Gail M. Johnston. 1993. "Some Women Marry Young: Transitions to First Marriage in Metropolitan and Nonmetropolitan Areas." *Journal of Marriage and the Family*, 55(4):827-838.

Menning, Chadwick L. 2002. "Absent Parents are More than Money: The Joint Effects of Activities and Financial Support on Youths' Educational Attainment." *Journal of Family Issues*, 23(5):648-671.

Meyers, Scott M. and Donald H. Hastings. 1995. "Convergence of Rural-Urban Patterns of Nuptiality and Mortality: A Life Table Update." *Sociological Spectrum*, 15:227-256.

Mitchell, Clare J. A. 2004. "Making Sense of Counterurbanization." *Journal of Rural Studies* 20:15-34.

Moen, J. R. 1989. "Poverty in the South." *Federal Reserve Bank of Atlanta Economic Review*, 8(3):36-46.

Nord, Mark, A. E. Luloff, and Leif Jensen. 1995. "Migration and the Spatial Concentration of Poverty." *Rural Sociology*, 60(3):399-415.

Pinderhughes, Ellen E., Robert Nix, E. Michael Foster and Damon Jones. 2001. "Parenting in Context: Impact of Neighborhood Poverty, Residential Stability, Public Services, Social Networks, and Danger on Parental Behaviors." *Journal of Marriage and the Family*, 63(4):941-953.

Price, Derek V. and Edward Reeves. 2003. "Student Poverty, School Accountability, and Postsecondary Enrollment: A Challenge for Educational Reform in Kentucky." *Journal of Poverty*, 7(4):21-35.

Rindfuss, Ronald R. and James A. Sweet. 1975. "Rural Fertility Trends and Differentials." *Family Planning Perspectives*, 7(6):264-269.

Roscigno, Vincent J., Donald Tomaskovic-Devey, and Martha Crowley. 2006. "Education and the Inequalities of Place." *Social Forces*, 84(4):2121-2145.

Roscigno, Vincent J. and Martha L. Crowley. 2001. "Rurality, Institutional Disadvantage, and Achievement/Attainment." *Rural Sociology,* 66(2):268-293.

Rural and Appalachian Youth and Family Consortium. 1996. "Parenting Practices and Interventions among Marginalized Families in Appalachia: Building on Family Strengths." *Family Relations*, October, 387-396.

Schafft, Kai A. 2006. "Poverty, Residential Mobility, and Student Transiency within a Rural New York School District." *Rural Sociology,* 71(2):212-231.

Schafft, Kai A. 2005. "The Incidence and Impacts of Student Transiency in Upstate New York's Rural School Districts." *Journal of Research in Rural Education*, 20(15):1-13.

Schiller, B. R. 1998. *The Economics of Poverty and Discrimination.* Prentice Hall: Upper Saddle River, NJ.

Sherman, Jennifer. 2006. "Coping with Rural Poverty: Economic Survival and Moral Capital in Rural America." *Social Forces*, 85(2):891-913.

Slack, Tim and Leif Jensen. 2004. "Employment Adequacy in Extractive Industries: An Analysis of Underemployment, 1974-1998." *Society and Natural Resources*, 17:129-146.

Slack, Tim and Leif Jensen. 2002. "Race, Ethnicity and Underemployment in Nonmetropolitan America: A Thirty-Year Profile." *Rural Sociology*, 67(2):208-233.

Smith, Mark H., Lionel J. Beaulieu, and Ann Seraphine. 1995. "Social Capital, Place of Residence, and College Attendance. *Rural Sociology*, 60:363-380.

Snyder, Anastasia R., Susan L. Brown and Erin P. Condo. 2004. "Residential Differences in Family Formation: The Significance of Cohabitation." *Rural Sociology*, 69(2):235-260.

Snyder, Anastasia. 2006. "The Role of Contemporary Family Behaviors in Nonmarital Conception Outcomes of Nonmetro Women: Comments on Albrecht and Albrecht (2004)." *Rural Sociology*, 71(1):155-163.

South, Scott J., Eric P. Baumer, and Amy Lutz. 2003. "Interpreting Community Effects on Youth Educational Attainment." *Youth and Society*, 35(1):3-36.

South, Soctt J. and Kyle D. Crowder. 2000. "The Declining Significance of Neighborhoods? Marital Transitions in Community Context." *Social Forces* 78(3):1076-1099.

Stallman, Judith I. and Thomas G. Johnson. 1996. "Community Factors in Secondary Educational Achievement in Appalachia." *Youth and Society*, 27:469-484.

Struthers, Cynthia B. and Janet L. Bokemeier. "Myths and Realities of Raising Children and Creating Family Life in a Rural County." *Journal of Family Issues*, 21(1):17-46.

Swaim, P. 1990. "Rural Displaced Workers Fair Poorly." *Rural Development Perspectives* 6:8-13.

Tickamyer, Ann R. and Cynthia M. Duncan. 1990. "Poverty and Opportunity Structure in Rural America." *Annual Review of Sociology*, 16:67-86.

United States Department of Agriculture, Economic Research Service. 2004. *Rural Poverty at a Glance: Rural Development Research Report Number 103.*

Wardwell, John. 1980. "Toward a Theory of Urban-Rural Migration in the Developed World." Pp. 71-118 in *New Directions in Urban-Rural Migration*, David Brown and John Wardwell, Eds. New York: Academic Press.

Wells, Barbara. 2002. "Women's Voices: Explaining Poverty and Plenty in a Rural Community." *Rural Sociology*, 67(2):234-254.

Westoff, Charles F. 1954. "Differential Fertility in the United States: 1900 to 1954." *American Sociological Review*, 19(5):549-561.

Whiting, Melissa E. 1999. "The University and the White, Rural Male." *Journal of Research in Rural Education*, 15(3):157-164.

Wilson, Stephan M., Gary W. Peterson, and Patricia Wilson. 1993. "The Process of Educational and Occupational Attainment of Adolescent Females from Low-Income, Rural Families." *Journal of Marriage and the Family*, 55:158-175.

Wilson, William J. 1987. *The Truly Disadvantaged.* Chicago: The University of Chicago Press.

Wilson, William J. 1996. *When Work Disappears: The World of the New Urban Poor*. New York: Alfred A. Knopf, Inc.

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