

Understanding the Employment Experiences and Migration Patterns of Rural Youth and Young Adults

by

Steven Garasky
Associate Professor
Iowa State University

November 1999

Paper presented at the NLSY97 Early Results Conference sponsored by the Bureau of Labor Statistics and the Joint Center for Poverty Research held November 18-19, 1999, in Washington, DC. This research has been supported in part by the Bureau of Labor Statistics, the U.S. Department of Agriculture, and the Iowa Agriculture and Home Economic Experiment Station. All opinions are those of the author. Inquiries should be directed to sgarasky@iastate.edu.

Understanding the Employment Experiences and Migration Patterns of Rural Youth and Young Adults

The quality of life of many rural communities is tied to their ability to maintain a viable employment base of younger adults. Working age adults provide the tax base for many of the services provided by rural communities. As cohorts of younger rural residents continue to leave their communities, and their state, the quality of life for those who remain (both young and old) is reduced. This study examines the experiences of rural youth and young adults during the 1980s and 1990s with an eye toward understanding the impact of these experiences on the migration patterns of this age group. The primary objective of this study is to determine which experiences for rural teenagers and young adults, especially employment-related ones, affect the likelihood of staying or leaving the home community and/or state. The results of these analyses are used to project the future likelihood of staying or leaving the home community for teenagers currently living in rural areas.

THE ISSUE ADDRESSED

It is well documented how the hard economic times of the farm crisis of the 1980s led to the emigration of many working-age adults away from rural areas (See Guither [1988] for an annotated bibliography of research in this area). Currently, rural states are enjoying the benefits of a health economy. In Iowa in the latter half of this decade, for example, the statewide unemployment rate has remained well below the national rate; in 1996, 94 of the 99 Iowa counties had unemployment rates below the national mark (Institute for Economic Research, 1997a). Interestingly, while the Iowa economy continues to grow, the population in Iowa is beginning to decline and is projected to continue to do so (Institute for Economic Research, 1997b).

Projections are that there will be more than 30,000 fewer Iowans by the end of 1999 than there were at the end of 1996. Certainly, the age distribution of Iowans has something to do with this trend. Another factor, however, may be the uneven geographic distribution of Iowa's recent economic success. County-level unemployment rates in Iowa in 1996 ranged from 2.1% (Warren County) to 8.0% (Adams County), with the five counties with the highest unemployment rates (Adams, Taylor, Montgomery, Jackson and Delaware) being predominately rural (Institute for Economic Research, 1997a). Similarly, although personal income is growing in Iowa, annual aggregate inflation-adjusted farm income is expected to fall by 25.3% and 21.2% in 1998 and 1999, respectively. The issue addressed here is the link between local economic conditions and the employment opportunities they generate, and the migration patterns of rural youth and young adults. Understanding and enhancing the employment opportunities of younger rural residents may be key to reducing the exodus of this important demographic group from these communities and predominately rural states. The current economic vitality of rural economies, and the enhanced quality of life they generate, hinges on maintaining a strong employment base. In short, the quality of life of all rural residents depends on reversing the emigration trend of younger residents that has its roots in the 1980s.

This paper first reviews the literature on youth as they transition from their parental households and their migration patterns on leaving. The literature review is followed by a residential location choice model. The parameters of this model are estimated with data from the 1979 cohort of the National Longitudinal Survey of Youth (NLSY79). The results of the NLSY79 analyses are used to estimate a prediction model of where rural youth among the 1997 cohort of the NLSY (NLSY97) will reside at age 23.

LITERATURE REVIEW¹

Leaving the Parental Home

Factors associated with leaving home fall into several major categories: family background and family structure, demographic and personal characteristics and, less frequently, economic factors. Underlying the inclusion of these measures are arguments regarding motivations for leaving home. These include normative or age-appropriate expectations about when to leave home, stress factors motivating an exit, opportunities motivating an exit, a general preference for autonomy and privacy, and intergenerational transfers (Rosenzweig and Wolpin 1993, 1994). Characteristics of both youth and parents have been considered relevant to the decision of when a youth leaves home.

Economic Factors

Generally, the literature has measured an individual's ability to pay the cost of independent living by using personal income (Avery, Goldscheider and Speare 1992; Ermisch and Overton 1985; Goldscheider and DaVanzo 1985). However, as argued in Haurin et al. (1993), Bourassa et al. (1994), and Whittington and Peters (1996), income is the product of the wage rate and the amount of labor supplied. Participation in the paid labor force is a decision that occurs jointly with the decision on household formation. For example, a youth may not work because he or she is subsidized in the parental household. Similarly, observed wages may not accurately reflect earnings capacity if the current job is part-time (which is more likely if the youth does not reside alone). Therefore, Garasky et al. (1998) argue that the potential wage, or the wage that could be earned if a youth took on the responsibility of independent living, should be a better predictor of the tendency to reside outside the parental household.

Parental resources have been shown to be important to a youth's transition to independent living (Avery et al. 1992). Ermisch (1997) argues that parents with sufficient resources can influence their children's choice of living arrangement by altering financial transfers they make to the children; high parental income speeds a child's departure from the parental home. Avery et al. suggest that parents use their resources to keep children at home during the teenage years, but then use their resources to promote leaving home when the youth becomes a young adult. Thus, the impact of parental resources may depend on the age of the child. Whittington and Peters (1996) find support for the argument that parents use their resources to influence a child to remain at home when a teen and to exit when at age 20.

¹ This discussion borrows heavily from Garasky, Haurin and Haurin (1998).

Macro-level economic characteristics of a youth's environment such as the local unemployment rate may affect residency decisions. Variations in the local unemployment rate may have offsetting effects on the likelihood that a youth exits the parental home. A higher rate lowers the probability of securing a job that pays the youth's potential wage and thus decreases the likelihood of leaving the parental home (Ermisch 1997; Haurin et al. 1997). Conversely, a higher rate may cause youth to leave home in search of job opportunities elsewhere.

Family Background and Family Structure

One of the largest areas of interest with regard to the transition of youth to residential independence has been family structure and relationships. Some work finds parental marital status to be significant; youth with remarried or single parents exit earlier from the parental home and are more likely to establish independent households on leaving (Aquilino 1991; Haurin et al. 1997; Mitchell, Wister and Birch 1989; White and Booth 1985). Avery et al. (1992) find that a youth living with one parent is less likely to exit to marriage and more likely to exit to living alone or with roommates. Family stress deriving from these initial residential situations and exposure to unsuccessful relationships is often cited as the underlying cause.

The psychic cost to a youth of remaining in the parental home should increase with the number of family members who share living space (Buck and Scott 1993). Thus, larger numbers of siblings residing in the parental household should increase the probability of leaving home. Further, siblings living outside the parental home should increase the likelihood of leaving because they enlarge the pool of potential roommates.

Avery et al. (1992) suggest that responsibility for minor own-children has mixed effects on leaving home. Young unwed parents have greater need for support from their own parents, but the presence of grandchildren reduces privacy for the parents of the young adults. Haurin et al. (1997) and Ermisch (1997) find that the presence of own children substantially increases the likelihood that a youth lives separately from his or her parents.

Demographic and Other Personal Characteristics

A demographic factor correlated with the transition to independent residence is age. It is not surprising that as age increases, the likelihood of leaving home increases even after controlling for other factors (Haurin et al. 1993; Thornton et al. 1993). The sociological literature on home-leaving emphasizes that the assumption of adult roles is closely tied to age-appropriate expectations. Avery et al. (1992) suggest that parents prefer to have younger children remain dependent in order to maintain better control over the possibilities of childbearing or marriage at very young ages.

Race or ethnicity may affect routes out of the parental home. The literature reports that blacks have lower rates of first marriage than whites, but higher premarital birth rates. The process of home-leaving for Hispanic youth has not often been addressed in the literature. Garasky et al. (1998) generally expect that the process for this group is more similar to that of white than Black youth.

Educational attainment and student status are expected to affect residential arrangements. Students, whether in high school or college, should be more likely to live with their parents compared with nonstudents. Students have reduced earnings opportunities, and thus are less economically self-sufficient. We expect those still in high school to have the highest likelihood of living with their parents.

A final variable not typically considered is the youth's health. It is expected that poor health increases the cost of living independently, causing youth to stay with their parents longer.

Migration

Greenwood (1985) discusses the literature related to migration up through the mid-1980s and notes that most of it is oriented toward the determinants of migration as opposed to its consequences. Greenwood, Hunt, Rickman, and Treyz (1991) provide a theoretical approach to the study of net migration at the local and state levels. They show that equilibrium does not always exist across regions so that wage and rent differentials are not purely compensated differentials. Bencivenga and Smith (1997) examine cyclical variation in local economic growth. They find that some of the oscillation between growth and recession at the local level is related to rural-to-urban migration. Bencivenga and Smith find that adverse selection problems in local labor markets can result in urban underemployment. That is, those rural individuals who migrate to urban areas are often those who are likely to have the hardest time finding employment. Although none of these authors focus specifically on teenagers and young adults, rural teens and young adults who migrate to urban areas often experiences unemployment and underemployment.

Much was written in the 1980s regarding the effects of the farm crisis on families (Guither, 1988). As rural economies have improved in the last ten years, much less has been written about rural communities. Studies of the family farm now examine how the farming industry has changed, and the impact this change has had on rural communities. Hallam (1993) provides an excellent assessment of our understanding of these changes. In short, the economic recovery of the Midwest has pulled the literature away from studies of families in crisis toward studies of families and communities in the process of change.

Studies of the effects of labor force participation on teenagers and young adults seldom consider the possibility that the effects they identify might vary by the rural/nonrural location status of the individual. Light (1994, 1995) and Ruhm (1994) explore extensively numerous aspects of teen employment. These studies clearly document the differing effects of independent factors by gender, race, and ethnicity. Garasky (1996) builds on these studies and considers family-level factors such as family structure differences on teen employment patterns and the effects of teen employment on other childhood outcomes such as educational attainment. Light, Ruhm, and Garasky all rely on data from the 1979 panel of the NLSY.

Garasky et al. (1998) build on the work of others (Ermisch 1997; Goldscheider, Thornton & Young-DeMarco 1993; Haurin, Hendershott, & Kim 1994; Haurin, Haurin, Hendershott & Bourassa 1997; Whittington & Peters 1996) in an examination of factors related to the timing of exits by teens and young adults from their parental home. They advance the literature by allowing for a complex array of exit possibilities, more than just exiting or staying. Related to location, Garasky et al. include as an independent explanatory factor an indicator variable for urban residency. They find that respondents from urban areas are more likely to exit the parental home at any age relative to nonurban respondents. They attribute this result to “supply factors” in that urban youth and young adults have more choices regarding where to live and potential roommates. Garasky et al. stop short in their analyses by not considering that the effects of the numerous other factors in their model also might differ by geographic location.

To summarize, much has been written about many of the aspects of this study, but no study has been identified that brings together all of these relevant features. Previous literature relating to the farm crisis of the 1980s examines the effect of the crisis on families in a mode that considers how families react to adversity. More recent studies of farming and of rural communities focus on the changing nature of the industry of agriculture. Studies of teen and young adult labor force participation and patterns of exiting from the parental home seldom explicitly consider differences between rural and nonrural youth. This study builds on much of this prior research as it seeks to understand the relationships between the characteristics of youth and young adults, their local rural economy, and their migration patterns.

NLSY79 ANALYSES

Analytic Method

The primary objective of this study is to determine which experiences and factors affect the likelihood of staying or leaving the parental home, the home community, or the state for rural teenagers and young adults. Geocoded data from the NLSY79 cohort are examined. The analyses follow the multinomial logit model within a hazard model framework of residential transitions developed by Garasky et al. (1998). Beginning with rural teenage respondents residing within a parental household, the analyses follow these individuals until they move out of their parents' home. Compared with Garasky et al., these analyses allow the exit states to be more representative of the community into which the respondent moves. Specifically, they include exiting to live in the same county; exiting to live in another rural county in the same state; exiting to live in an urban county in the same state; and exiting to live in a different state. Individual-level variables and macro- (community) level measures are included as independent explanatory factors.

Hazard Model

The model describes an individual's decision at any one point in time to reside in one of five possible arrangements. Individuals are assumed to seek to maximize their utility and leave the parental home when the expected utility of an alternative state exceeds that of remaining with their parents. A reduced-form model is estimated using a competing-risks framework (Kalbfleisch and Prentice 1980). The occurrence of a transition from the parental home to another location removes the individual from the risk of experiencing any other transition. The competing-risks framework characterizes each transition by a separate transition rate and hazard function.

The type-specific hazard function is defined as the probability that an individual will move from their parental home to location j after $t+\Delta t$ years given that they lived in their parental home at least t years (Allison 1984; Kalbfleisch and Prentice 1980). The hazard rate h is defined to be a function of time and a set of explanatory variables:

$$h_j(t,Z) = \lim_{\Delta t \rightarrow 0} [P(t \leq T < t + \Delta t, J=j \mid T \geq t, Z) / \Delta t] \quad j=1, \dots, m$$

where j is the destination location following the transition; t is the number of years living in the parental home; and Z is a vector of sociodemographic and economic factors that may change in value over time. The overall hazard function is the sum of all the type-specific hazard functions. The period of observation begins with a youth living in his or her parental home and ends with the youth's first exit from the parental home or continues until the observation is right censored. A discrete-time framework is used to estimate the model because of the annual nature of the data; that is, only comparing responses in adjacent survey years identifies the time of transition. The model is multinomial logit because there are four exit types (Greene 1993).

Sample Characteristics

Annual data from the 1979 to 1992 waves of the 1979 National Longitudinal Survey of Youth (NLSY79) (Center for Human Resource Research 1993) are examined. The NLSY79 contains a nationally representative sample of youth aged 14-21 in 1979. Oversamples of Blacks, Hispanics, and economically disadvantaged whites permit statistical analyses of these population subgroups. Survey attrition rates are low, with approximately 90 percent of the eligible sample retained as of the 1992 survey.

The study sample is limited to respondents ages 14-17 who resided with their parents in a rural area in 1979. Residential locations are followed through the first exit or until 1992, yielding 5,813 person-year observations. Because exiting prior to age 16 is highly unlikely, 221 observations are omitted when a respondent is age 14 or 15; these ages are only observed in 1979 or 1980. Missing data reduce the final sample to 4,540 person-year observations, for which 825 exits (18.2%) are observed.

Dependent Variable

The dependent variable is a categorical measure of the current residential location of the respondent. The types are coded as: 0 if continuing to reside in the parental home, 1 if exited to live in the same county, 2 if exited to live in another rural county in the same state, 3 if exited to live in an urban county in the same state, or 4 if exited to live in another state. The distribution of the 825 exits in the sample is 65.6% to live in the same county, 8.6% to live in another rural county in the same state, 13.6% to live in an urban county in the same state, and 12.2% to live in another state. Descriptive statistics for the dependent and independent variables are listed in Table 1. These statistics cover the 1979-92 period and include all 4,540 person-year observations.

[Insert Table 1 about here]

Independent Variables

Demographic and personal characteristics hypothesized to affect residential location include gender, with male included and female the omitted category. The respondent's age is included with its square to test for nonlinear effects. Race and ethnicity are operationalized through two indicator variables: Black non-Hispanic and Hispanic, with non-Black non-Hispanic being the omitted race/ethnicity category.

Family background and structure variables include indicator variables for whether the respondent is living with a step-parent or a single parent. These variables are lagged one year to avoid endogeneity with the respondent's living arrangement decision. Family size variables include number of siblings-in, a continuous variable for how many of the respondent's siblings live in the parental home; and number of siblings-out, a similar measure for the number of siblings that live outside the parental home. The two measures of siblings are lagged one year. Additional family variables include an indicator for being a single parent lagged one year, and an indicator for being married.

Economic variables include parental education, a proxy for parental resources and measured using the highest grade completed by the respondent's mother or father. Parental education is operationalized through two indicator variables: education attained equals high school and education attained is greater than high school. Parental education less than high school is the omitted category. The local unemployment rate is a continuous variable measuring the local unemployment rate for the labor market in which the respondent resides. It is lagged one year.

Another economic factor is potential wage, a continuous variable for the estimated wage the respondent could obtain if he or she worked full-time. This wage is estimated using a two-step framework (Greene 1995; Heckman 1979). See Garasky et al. (1998) for a detailed discussion of the estimation procedure. Potential wage is lagged one year for endogeneity reasons.

A dummy variable for whether the respondent is currently attending school is interacted with an indicator of whether the respondent's highest grade completed is less than high school (LTHS), high school, or college (GEHS). The resulting three variables are named "in high school," "in college," and "out of

school-LTHS.” The omitted category is “out of school-GEHS.” Health limitations is an indicator variable for whether the respondent reports having a health condition that limited his or her ability to work.

Results

The estimates from the multinomial logit model are reported in Table 2. Listed are the marginal effects of changing an explanatory variable by one unit on the probability of observing a particular living arrangement. Marginal effects can be computed for all possible living locations, including remaining with parents. For example, the coefficient of a dummy variable such as Black indicates that a Black respondent is 6.94 percentage points more likely to live with his or her parents than a white respondent. For a continuous variable such as the unemployment rate, the interpretation is that a one percentage point higher unemployment rate decreases the probability of remaining with parents by 0.12 percentage points.²

[Insert Table 2 about here]

The first column of data in Table 2 contains results for remaining with parents, followed by exiting to live in the same county, to live in another rural county in the same state, to live in an urban county in the same state, and to live in another state. Reading across a row reveals the comparative effects of a unit change in an explanatory variable. Also presented are series of pair-wise tests of differences in coefficients among the types of living locations.

Economic factors. The impact of an increase in the potential wage on choice of residential location reflects the exodus of higher-skilled youth from rural areas to urban areas and out of state. A one-dollar increase in wages reduces the probability of leaving the parental household to live in the same county by 1.5 percentage points and leaving to live in another rural county in the same state by 4.0 points. This dollar increase in wages increases the likelihood of moving to an in-state urban area by 2.9 percentage points, and moving out of state by 6.4 percentage points. Interestingly, the likelihood of remaining with parents is increased by about 1 (0.9) percentage point with an increase in potential wages of one dollar.

The local unemployment rate does not significantly affect the choice between remaining home with parents and relocating to another residence in the same county or in another in-state rural county. The effects of the local job market as measured with this variable are statistically significantly different between the probability of moving to an urban area in the same state and leaving to live in another state. A one percentage point increase in the local unemployment rate slightly reduces the likelihood of staying in-state in an urban area and slightly increases the likelihood of relocating to another state. The magnitude of each effect is less than 0.1 percentage point for each unit increase in the unemployment rate.

Increasing parental educational attainment (a proxy for parental resources) reduces the probability that youth will remain with their parents. Increased parental education increases the likelihood of leaving the parental home to reside in the same county, leaving for an in-state urban area, or leaving the state. On the other hand, the likelihood of leaving to reside in another rural area in the state is reduced.

Demographic Characteristics. Males relative to females are slightly more likely to remain with their parents, exit to live in the same county, or exit to live in an urban area in the same state. Females are more likely to exit to another rural county in the state or to leave the state. The probability of staying with parents decreases with age throughout early adulthood. Youths’ tendency to exit to live in the same county or to an urban county in the same state increases with age. The likelihood of exits from the parental home to another rural county falls with age. Only the effect of age on relocating to another state

² Coefficient estimates are not reported because they are difficult to interpret. They are available from the author.

shows an indication of being nonlinear. The likelihood of moving out of state increases with age through age 27 then begins to decrease.

Minority (Black and Hispanic) youth are more likely to live at home with their parents relative to non-Black, non-Hispanic youth. Being Black increases this likelihood by nearly seven percentage points; the effect for Hispanics is less than one point. Upon leaving the parental home, Blacks are less likely to stay in the same state and are more likely to leave the state relative to white youth. On the other hand, Hispanics are more likely to remain in the same county or move to an urban area in the same state. Hispanics are less likely to move to another rural area in the state or to move out of state.

Being a high school student greatly increases the probability of remaining with parents and reduces the probability of exiting to any other residential location. Being a post-high-school student increases the probability of remaining with parents (or living in a dormitory) and reduces the probability of exiting to live in the same county or out of state. Interestingly, the likelihood of choosing any residential location does not differ for individuals who stopped attending school before completing high school compared with those who are out of school but have a high school degree.

The impact of health limitations is restricted to the choice between living with parents and moving to a residence in the same county. More specifically, individuals who reports having a condition that limits their ability to work is more likely to reside in the same county as their parents and less likely to reside with their parents.

Family Background and Family Structure Characteristics. Living with a step-parent reduces the probability of remaining in the parental home by 4.1 percentage points. Living with a step-parent increases the likelihood of exiting to live in the same county by 3.6 percentage points. None of the marginal effects of residing in a single parent household on residential location choice are statistically significant from each other.

Siblings affects location choice in differing ways depending upon whether the siblings live in the parental household with the youth or reside elsewhere. The more siblings living at home the more likely the youth will remain at home or relocate to another rural area in the state. More siblings at home reduces the likelihood of relocating to the same county or an in-state urban area. Having more siblings living elsewhere reduces the likelihood of remaining in the parental home and increases the likelihood of moving out of state. These sibling effects, however, are generally small.

Being married reduces the likelihood of living with parents by 29 percentage points while it increases the likelihood of all other residential location choices. The likelihood of residing in the same county is increased the most, by 23 percentage points. All other increases are less than 3 points. The effect of being a single parent on location choice is similar to being married, although the magnitudes of the single-parent effects are not as dramatic. The likelihood of residing at home with parents is reduced by 5.6 percentage points if the youth is a single parent. The likelihood of residing in the same county increases by nearly the same amount, 6.1 points. The other effects are minimal, with the next largest being a 1.5 percentage point reduction in the likelihood of moving out of state.

NLSY97 ANALYSES

Analytic Method

A second objective of this study is to project the future likelihood of staying or leaving the home community for teenagers currently living in rural areas. Building on the NLSY79 analyses, probabilities of where an NLSY97 respondent will reside at age 23 are generated. The probabilities are based on

current characteristics of NLSY97 respondents and parameter estimates generated from additional NLSY79 analyses.

Predictive model

A modified version of the hazard model that was estimated above is estimated with NLSY79 data for the predictive model. The analytic model and the estimation procedure are modified in five ways for this exercise. First, the residential location choices of the dependent variable are reduced from five to three by combining the choices to relocate to another rural county in the same state, to relocate to an urban county in the same state, and to relocate out of state into a choice to relocate elsewhere. This modification is consistent with the focus of the model to predict whether or not a youth will remain in the local community upon leaving his or her parental home.

Second, the values of the independent variables are obtained from the first wave of the NLSY79. This is done so that the data used to estimate model parameters are similar to those that are available from the NLSY97. Otherwise, it would not be possible to make predictions using the model. As with the initial analyses, the NLSY79 sample is restricted to respondents ages 14-17 in 1979. These ages are consistent with the ages of the NLSY97 respondents in 1997 who were ages 12-17.

Third, the estimated model is not a hazard model. The model is a multinomial logit estimated using a cross-sectional sample. Although the values of the independent variables are obtained when the respondents were teenagers, the value of the dependent variable is obtained when the respondent was age 23. Age 23 is chosen to represent the time when many young adults have completed their formal education and are either moving toward or have achieved independence from their parental household.

Fourth, the number of explanatory variables in the model is reduced from the original estimation. Specifically, the school status terms are compressed into one variable. An indicator is included for out of school less than high school, with the omitted category being in school less than high school. The potential wage term is omitted because of a lack of variation in the values of this term for youth at this age. It is likely that the effects of the variables used to estimate the potential wage will be captured directly in the estimation of the modified model. Age and age squared also are omitted.

Finally, the model is estimated with weighted observations. The observations are weighted so that the three residential location statuses are equally represented among the sample. That is, after weighting, one-third of the respondents are observed to be living with their parents, one-third reside in the same rural county as their parents, and one-third reside elsewhere. Tests of the within-sample predictive power of the model indicated that overall prediction accuracy was improved using weighted observations over unweighted observations. Although the parameters from the unweighted estimation correctly classified 57.9% of the respondents versus a correct classification rate of 40.8% using the parameters obtained from weighted estimation, it was the consistency of the in-sample predictions generated from the weighted estimation that ultimately led to the decision to estimate the model with weighted observations. Across the three dependent variable categories, the unweighted estimation parameters correctly classified respondents 23.0%, 91.8%, and 0.0% of the time. The weighted estimation parameters correctly classified respondents 46.0%, 35.9% and 40.8% of the time.

Sample characteristics

As before, the NLSY79 study sample is limited to respondents ages 14-17 who resided in their parental household in a rural area in 1979. There are 1,219 respondents who meet these criteria. Of these respondents, location at age 23 is known for 1,006 of them. The sample is further reduced to 943 observations after removing those with missing data. At age 23, 287 (30.4%) of these respondents resided

with their parents, 523 (55.5%) resided in the same county as their parents, and 133 (14.1%) resided elsewhere. Unweighted descriptive statistics for the sample are reported in Table 3.

[Insert Table 3 about here]

A similar sample of respondents from the NLSY97 is drawn for the predictions. The NLSY97 study sample includes all respondents residing in a rural area in 1997. These respondents (N=3,808) range from age 12 to age 17. Unweighted descriptive statistics for this sample are reported in Table 4. Note that there are missing data for some variables. Predictions cannot be made for respondents with missing data. These individuals remain in the sample, however, so that population size estimates will be more accurate.

[Insert Table 4 about here]

Prediction results

Through the use of sampling weights from the NLSY97, slightly over 9 million persons ages 12 through 17 are estimated to have lived in rural areas in the United States in 1997. Prediction results for where these individuals will live at age 23 are reported in Table 5. Of these 9 million people, slightly over one-half (51.3% or 4.6 million) are males. Approximately 12% (1.1 million) are Black, 8% (0.7 million) are Hispanic, and 80% (7.2 million) are non-Black non-Hispanic. With regard to the local labor market, 3.7 million (42.1%) of these individuals live in areas with unemployment rates at or below 4%. Another 4.3 million persons (47.5%) live in areas with 1997 unemployment rates between 4% and 8%; about three-fourths of a million persons (8.3%) live in areas with rates between 8% and 12%. Another 2% (192,000) live in areas with unemployment rates over 12%.

Of the full sample of youth, about one-fourth (25.2%) are predicted to be living with their parents at age 23. Another one-fourth (23.5%) are predicted to be living in the same community (county) as their parents. The largest group of youth (37.5%) are those that are predicted to leave the local area and live somewhere else. Of those predicted to leave home by age 23, only 38.6% are predicted to stay in the same county. Predictions could not be made for 13.8% of the sample because of missing data. This rate of unknown future locations is relatively consistent across demographic subgroups, ranging from 12.1% for non-Black non-Hispanics to 19.1% for Blacks.

Distinct patterns appear in the predictions when examined by gender subgroups. Males are predicted to be more likely to either still be in their parental home (38.7%) or living in another community (41.7%) at age 23. Females are most likely predicted to relocate to a residence in the same local community (42.6%) and slightly less likely to relocate elsewhere (32.9%). When focusing on only predictions of leaving the parental home, this pattern is much clearer. Only about 12% of the males who are predicted to leave home are predicted to stay in their rural community. On the other hand, over half (56.4%) of the females are predicted to stay.

Again patterns appear when the predictions are examined by racial and ethnic groups. Non-Black non-Hispanics are predicted most likely to leave the local area (46.0%); Blacks and Hispanics are predicted to be most likely to remain in the parental home, with rates of 74.8% and 54.0%, respectively. Looking at the proportion predicted to stay in the local area among those predicted to leave the parental home, non-Black non-Hispanics, at 36.7%, and Blacks, at 32.8%, have similar rates. Hispanics, on the other hand, are predicted to be much more likely to remain in the local area, at 87.5%.

The farming crisis of the 1980s showed the effects local economies can have on the migration patterns of youth and young adults. The bottom section of Table 5 examines prediction patterns relative to the strength of the local economy as measured through the local unemployment rate. Four separate subgroups

are identified. The predictions reveal a pattern consistent with rural youth being more likely to leave an area with a weaker economy (high local unemployment rate). Individuals living in areas with the lowest unemployment rates (less than or equal to 4%) are predicted to most likely stay in the local area on leaving their parental home. This rate declines steadily except for those individuals in areas with the most extreme unemployment rates (over 12%). A higher proportion of these youth (29.2% versus 13.5% for youth in areas with unemployment rate between 8% and 12%) are predicted to be in the local area at age 23.

CONCLUSION

Rural communities throughout America were devastated in the 1980s as youth left to seek their economic fortunes elsewhere. Although the economic expansion of the 1990s has brought a resurgence to many rural areas, indications are that another downturn may be looming. This study uses data from both the 1979 and 1997 cohorts of the National Longitudinal Survey of Youth (NLSY79 and NLSY97) to examine factors related to the residential location choices made by rural youth and young adults as they leave their parental household. Economic, demographic, family structure, and family background factors are considered.

The results of this study support the notion that decisions made by young adults regarding where to reside are complex. Factors in each of the areas considered are found to be statistically significantly related to the choice of residential location. The estimation results for the economic factors in the model suggest that it is not primarily the local economy and labor market that drive youth away from rural communities. It is true that an increase in the local unemployment rate is found to reduce the likelihood that a youth will remain within the state. The magnitudes of these effects, however, are generally small. What is more disturbing is that higher-skilled youth (those with higher potential wages) are more likely to leave for urban areas and to relocate out of state independent of the local labor market. One would think that this finding is not good news for rural communities and rural states that are desperately trying to broaden local employment opportunities in an effort to keep talented individuals from leaving.

Parameters obtained from the estimation of a modified version of the residential location choice model are used to develop predictions of where rural youth from the NLSY97 cohort will reside at age 23. Remember that these youth were between ages 12 and 17 in 1997. In other words, given that it is now 1999, these predictions are for a time between 4 and 9 years into the future. As a result, these predictions should be viewed with a measure of prudence.

The predictions reveal some interesting patterns across demographic subgroups. Overall, for those youth predicted to leave their parental home by age 23, over 60% are predicted to leave the local rural community. Females are predicted to be more likely to remain in the local area relative to males. Hispanics are predicted to be more likely to remain relative to Blacks and non-Black non-Hispanics. Generally speaking, prediction patterns across local economies are consistent with the migration patterns of rural youth in the 1980s. Individuals from areas with relatively worse local economies (higher local unemployment rates) are predicted to leave their local communities at a higher rate. Fortunately, and reflective of the current economic expansion, relatively few of these rural youth (about 10%) reside in an area with a weak local economy (local unemployment rate over 8%).

In conclusion, it is only with in-depth longitudinal data from surveys such as the NLSY79 that a complex econometric model of migration choices like the one presented here can be estimated. The NLSY79 followed youth through an important time for rural America. Today, analysts again are concerned for the economic future of rural communities. Fortunately, the NLSY97 is poised to provide the data necessary to inform the research and policy decisions that will affect rural America in the next century.

REFERENCES

- Allison, P. D. 1984. *Event History Analysis*. Newbury Park, CA: Sage Publications.
- Aquilino, W. S. 1991. "Family Structure and Home-leaving: A Further Specification of the Relationship," *Journal of Marriage and the Family* 53: 999-1010.
- Avery, R., F. Goldscheider and A. Speare, Jr. 1992. "Feathered Nest/Gilded Cage: Parental Income and Leaving Home in the Transition to Adulthood." *Demography* 29: 375-388.
- Bencivenga, V. & Smith, B. 1997. "Unemployment, migration and growth," *Journal of Political Economy*, 105:582-608.
- Bourassa, S., R. J. Haurin, D. R. Haurin, and P. Hendershott. 1994. "Independent Living and Homeownership: An Analysis of Australian Youth." *Australian Economic Review* 107, 29-45.
- Buck, N. and J. Scott. 1993. "She's Leaving Home: But Why? An Analysis of Young People Leaving the Parental Home." *Journal of Marriage and the Family* 55: 863-874.
- Center for Human Resource Research. 1993. *NLSY Handbook*. Columbus OH: Ohio State University.
- Ermisch, J. 1997. "The Economic Determinants of Young People's Household Formation." *Economica* 64: 627-644.
- Ermisch, J., and E. Overton. 1985. "Minimal Household Units: A New Approach to the Analysis of Household Formation." *Population Studies* 39: 33-54.
- Garasky, S. 1996. "Exploring the effects of childhood family structure on teenage and young adult labor force participation" (Institute for Research on Poverty Discussion Paper No. 1111-96). Madison, WI: University of Wisconsin - Madison, Institute for Research on Poverty, October.
- Garasky, S., Haurin, R., & Haurin, D. 1998. "Group living decisions as youth transition to adulthood." Unpublished manuscript. June.
- Goldscheider, F. K. and J. DaVanzo. 1985. "Living Arrangements and the Transition to Adulthood," *Demography* 22: 545-563.
- Goldscheider, F., A. Thornton and L. Young-DeMarco. 1993. "A Portrait of the Nest-leaving Process in Early Adulthood." *Demography* 30: 683-699.
- Greene, W. H. 1993. *Econometric Analysis*, 2nd Edition. New York: Macmillan Publishing.
- Greene, W. H. 1995. *LIMDEP Version 7.0 User's Manual*. Bellport, NY: Econometric Software.
- Greenwood, M. 1985. "Human migration: Theories, models and empirical studies," *Journal of Regional Science*, 25: 521-544.
- Greenwood, M., Hunt, G., Rickman, D. & Treyz, G. 1991. "Migration, regional equilibrium, and the estimation of compensating differentials," *American Economic Review*, 81: 1382-90.

- Guither, H. 1988. The American farm crisis: An annotated bibliography with analytical introductions. Ann Arbor, MI: Pierian Press.
- Haurin, D. R., P. H. Hendershott, and D. Kim. 1993. "The Impact of Real Rents and Wages on Household Formation." *Review of Economics and Statistics* 75: 284-293.
- Haurin, D. R., P. H. Hendershott, and D. Kim. 1994. "Housing Decisions of American Youth." *Journal of Urban Economics* 35: 28-45.
- Haurin, R. J., D. R. Haurin, P. H. Hendershott, and S. C. Bourassa. 1997. "Home or Alone: The Costs of Independent Living for Youth." *Social Science Research* 26, 135-152.
- Heckman, J. 1979. "Sample Selection Bias as a Specification Error." *Econometrica* 47: 152-161.
- Institute for Economic Research. 1997a. Iowa economic forecast. Iowa City, IA: The University of Iowa, College of Business Administration. March.
- Institute for Economic Research. 1997b. Iowa Economic Forecast. Iowa City, IA: The University of Iowa, College of Business Administration. September.
- Kalbfleisch, J. D. and R. L. Prentice. 1980. *The Statistical Analysis of Failure Time Data*. New York: Wiley Press.
- Light, A. 1994. "Transitions from School to Work: A Survey of Research Using the National Longitudinal Surveys" (National Longitudinal Surveys Report NLS 94-18). Washington, DC: U.S. Department of Labor Bureau of Labor Statistics.
- Light, A. 1995. "High School Employment" (National Longitudinal Surveys Report NLS 95-27). Washington, DC: U.S. Department of Labor Bureau of Labor Statistics.
- Mitchell, B. A., A. V. Wister and T. K. Burch. 1989. "The Family Environment and Leaving the Parental Home." *Journal of Marriage and the Family* 51: 605-613.
- Rosenzweig, M. R. and K. Wolpin. 1993. "Intergenerational Support and the Life Cycle Incomes of Young Men and Their Parents' Human Capital Investments, Coresidence, and Intergenerational Financial Transfers." *Journal of Labor Economics* 11: 84-112.
- Rosenzweig, M. R. and K. Wolpin. 1994. Parental and Public Transfers to Young Women and Their Children." *American Economic Review* 84, 1195-1212.
- Ruhm, C. J. 1994. "High School Employment: Consumption or Investment" (National Longitudinal Surveys Report NLS 94-19). Washington, DC: U.S. Department of Labor Bureau of Labor Statistics.
- Thornton, A., L. Young-DeMarco and F. K. Goldscheider. 1993. "Leaving the Parental Nest: The Experience of a Young White Cohort in the 1980s." *Journal of Marriage and the Family* 55: 216-229.
- White, L. K. and A. Booth. 1985. "The Quality and Stability of Remarriages: The Role of Step-children." *American Sociological Review* 50: 689-698.

Whittington, L. A. and H. E. Peters. 1996. "Economic Incentives for Financial and Residential Independence." *Demography* 33: 82-97.

Table 1

Descriptive Statistics for the NLSY79 Study File

Variable	Mean	Standard Deviation	Minimum	Maximum
Exit from Parental Household (1=yes)	0.182	0.386	0	1
Male (1=yes)	0.526	0.499	0	1
Age in Years	19.810	2.559	16	30
Black (1=yes)	0.273	0.446	0	1
Hispanic (1=yes)	0.042	0.200	0	1
In a Step Parent Family (1=yes)	0.067	0.250	0	1
In a Single Parent Family (1=yes)	0.298	0.457	0	1
Is a Single Parent (1=yes)	0.054	0.226	0	1
Married (1=yes)	0.089	0.284	0	1
Number of Siblings – In	1.778	1.643	0	11
Number of Siblings – Out	2.064	2.520	0	17
Parent Education = HS (1=yes)	0.394	0.489	0	1
Parent Education > HS (1=yes)	0.106	0.308	0	1
Local Unemployment Rate (%)	9.418	3.606	2.8	22.9
Potential Wage (\$) (base year = 1979)	3.490	1.018	0.55	9.12
In High School (1=yes)	0.240	0.427	0	1
In College (1=yes)	0.169	0.375	0	1
Out Of School < HS (1=yes)	0.196	0.397	0	1
Has Health Limitations (1=yes)	0.022	0.146	0	1
N=4,540				

Table 2

Multinomial Logit Marginal Effects

Variables	Remain with Parents (Y=0)					Exit to Same County (Y=1)					Exit to Another Rural County in the Same State (Y=2)				
	M.E.	M.E. Different from:				M.E.	M.E. Different from:				M.E.	M.E. Different from:			
		Y=1	Y=2	Y=3	Y=4		Y=0	Y=2	Y=3	Y=4		Y=0	Y=1	Y=3	Y=4
Constant	1.15	***		**		-1.05	***				-4.57E-03				
Male (1=yes)	9.00E-04				**	9.47E-03				**	-4.65E-04				
Age in Years	-8.09E-02	***		*		8.04E-02	***				-2.72E-03				
Age in Years -- Squared	1.78E-03	***		*		-1.71E-03	***				5.07E-05				
Black (1=yes)	6.94E-02	***	***			-6.61E-02	***		*	***	-1.00E-02	***		*	***
Hispanic (1=yes)	8.01E-03			**		5.38E-03			*		-9.44E-03			**	
In a Step Parent Fam. (1=yes)	-4.08E-02	**				3.63E-02	**				5.36E-03				
In a Single Par. Fam. (1=yes)	-2.74E-03					5.31E-03					-3.36E-03				
Number of Siblings - In	9.70E-05		*			-2.01E-03		*			1.21E-03	*	*	*	
Number of Siblings - Out	-3.85E-03				**	2.30E-03					3.51E-04				
Is a Single Parent (1=yes)	-5.56E-02	***	*			6.09E-02	***			**	1.01E-02	*			**
Married (1=yes)	-0.29	***	***	***	***	0.23	***			*	2.52E-02	***			**
Parent Educ = HS (1=yes)	-1.91E-02				**	1.23E-02					-4.22E-04				
Parent Educ > HS (1=yes)	-5.67E-02	***		**	***	4.51E-02	***				-4.09E-03			*	**
Local Unemploy. Rate (%)	-1.20E-03					3.39E-04					2.37E-04				
Potential Wage (\$)	9.05E-03	**			***	-1.51E-02	**		**	***	-4.02E-04				**
In High School (1=yes)	0.12	***	***		***	-6.94E-02	***			**	-1.50E-02	***			
In College (1=yes)	3.55E-02	*			***	-2.44E-02	*	*		**	3.99E-03		*		***
Out Of School < HS (1=yes)	-3.18E-03					2.21E-03					3.38E-03				
Has Health Limits (1=yes)	-4.19E-02	**				5.76E-02	**				-4.45E-03				

Note: *** indicates a difference that is statistically significant at the $p < 0.01$ level
 ** indicates a difference that is statistically significant at the $p < 0.05$ level
 * indicates a difference that is statistically significant at the $p < 0.10$ level

Table 2 (con't.)

Multinomial Logit Marginal Effects

Variables	Exit to an Urban County in the Same State (Y=3)					Exit to Another State (Y=4)				
	M.E.	M.E. Different from:				M.E.	M.E. Different from:			
		Y=0	Y=1	Y=2	Y=4		Y=0	Y=1	Y=2	Y=3
Constant	-2.50E-04	**				-9.44E-02				
Male (1=yes)	3.33E-06				**	-9.90E-03	**	**		**
Age in Years	1.90E-05	*				3.24E-03				
Age in Years -- Squared	-4.79E-07	*				-1.19E-04				
Black (1=yes)	-1.35E-06		*	*		6.77E-03		***	***	
Hispanic (1=yes)	1.40E-05	**	*	**		-3.96E-03				
In a Step Parent Family (1=yes)	1.40E-06					-9.24E-04				
In a Single Parent Family (1=yes)	1.56E-06					7.95E-04				
Number of Siblings - In	-6.83E-07			*		7.05E-04				
Number of Siblings - Out	3.24E-07					1.21E-03	**			
Is a Single Parent (1=yes)	2.94E-06					-1.54E-02		**	**	
Married (1=yes)	3.57E-05	***				2.88E-02	***	*	**	
Parent Educ = High School (1=yes)	4.33E-06					7.23E-03	**			
Parent Educ > High School (1=yes)	1.22E-05	**		*		1.57E-02	***		**	
Local Unemployment Rate (%)	-5.49E-07				**	6.21E-04				**
Potential Wage (\$)	2.86E-06		**			6.40E-03	***	***	**	
In High School (1=yes)	-5.11E-04					-3.29E-02	***	**		
In College (1=yes)	2.57E-06				***	-1.51E-02	***	**	***	***
Out Of School < High School (1=yes)	-5.76E-07					-2.41E-03				
Has Health Limitations (1=yes)	-1.85E-06					-1.13E-02				

Note: *** indicates a difference that is statistically significant at the $p < 0.01$ level
 ** indicates a difference that is statistically significant at the $p < 0.05$ level
 * indicates a difference that is statistically significant at the $p < 0.10$ level

Table 3

Descriptive Statistics for NLSY79 File Used with Predictive Model

Variable	Mean	Standard Deviation	Minimum	Maximum
Male (1=yes)	0.489	0.500	0	1
Black (1=yes)	0.209	0.407	0	1
Hispanic (1=yes)	0.052	0.222	0	1
In a Step Parent Family in 1979 (1=yes)	0.074	0.262	0	1
In a Single Parent Family in 1979 (1=yes)	0.259	0.438	0	1
Is a Single Parent in 1979 (1=yes)	0.022	0.148	0	1
Married in 1979 (1=yes)	0.003	0.056	0	1
Number of Siblings – In in 1979	2.155	1.672	0	10
Number of Siblings – Out in 1979	1.661	2.337	0	17
Parent Education = HS (1=yes)	0.373	0.484	0	1
Parent Education > HS (1=yes)	0.115	0.319	0	1
Local Unemployment Rate in 1979 (%)	6.508	2.003	2.8	12.2
Out Of School < HS in 1979 (1=yes)	0.077	0.267	0	1
Has Health Limitations in 1979 (1=yes)	0.029	0.167	0	1
N=943				

Table 4

Descriptive Statistics for NLSY97 File Used with Predictive Model

Variable	Mean	Standard Deviation	Minimum	Maximum	Missing Data (%)
Male (1=yes)	0.523	0.500	0	1	0.00
Black (1=yes)	0.210	0.408	0	1	0.53
Hispanic (1=yes)	0.142	0.349	0	1	0.47
In a Step Parent Family in 1997 (1=yes)	0.120	0.325	0	1	0.16
In a Single Parent Family in 1997 (1=yes)	0.242	0.428	0	1	0.16
Is a Single Parent in 1997 (1=yes)	0.005	0.070	0	1	0.08
Ever Married (1=yes)	0.004	0.061	0	1	0.03
Number of Siblings – In in 1997	1.569	1.325	0	13	0.00
Number of Siblings – Out in 1997	2.855	2.983	0	26	10.50
Parent Education = HS (1=yes)	0.369	0.483	0	1	15.05
Parent Education > HS (1=yes)	0.269	0.443	0	1	15.05
Local Unemployment Rate in 1997 (%)	5.169	2.594	1.5	17.5	0.00
Out Of School < HS in 1997 (1=yes)	0.041	0.198	0	1	0.05
Has Health Limitations in 1997 (1=yes)	0.069	0.254	0	1	10.79
N=3,808					

Table 5

Predictions of Where Rural NLSY97 Youth will Reside at Age 23

	Number of Persons	% of Full Sample	P=0	P=1	P=2	Unknown	P1 / (P1+P2)
Full Sample	9,005,235	100.0%	25.2%	23.5%	37.5%	13.8%	38.6%
Males	4,624,131	51.3%	38.7%	5.4%	41.7%	14.1%	11.5%
Females	4,381,104	48.7%	11.0%	42.6%	32.9%	13.4%	56.4%
Non-Black Non-Hispanics	7,186,906	79.8%	15.3%	26.7%	46.0%	12.1%	36.7%
Blacks	1,089,027	12.1%	74.8%	2.0%	4.1%	19.1%	32.8%
Hispanics	696,848	7.7%	54.0%	25.4%	3.6%	16.9%	87.5%
Individuals in Areas with Unemployment Rates (UR):							
UR <= 4.0%	3,787,818	42.1%	29.8%	24.6%	30.2%	15.3%	44.9%
4.0% < UR <= 8.0%	4,281,982	47.5%	22.3%	25.4%	40.4%	11.9%	38.6%
8.0% < UR <= 12.0%	743,832	8.3%	19.4%	8.8%	56.1%	15.7%	13.5%
12.0% < UR	191,589	2.1%	21.1%	17.6%	42.7%	18.6%	29.2%

Notes: P=0 indicates that the individual is predicted to live with their parents at age 23.

P=1 indicates that the individual is predicted to live in the same rural county as their parents at age 23.

P=2 indicates that the individual is predicted somewhere other than in the same rural county as their parents at age 23.

Unknown indicates that a prediction could not be made as a result of missing data.