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A MULTILEVEL ANALYSIS OF YOUNG ADULT
MIGRATION, 1980-1998

by

Ji-Youn Lee

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Sociology

UTAH STATE UNIVERSITY
Logan, UT

2002

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ABSTRACT

A Multilevel Analysis of Young Adult

Migration 1980-1998

by

Ji-Youn Lee, Doctor of Philosophy

Utah State University, 2002

Major Professor: Dr. Michael B. Toney
Department: Sociology

The primary objective of this research was to investigate the propensity to migrate the destination choices of young adults, and the importance of individual, household, and community characteristics in these migration choices. Using cohort data from the National Longitudinal Survey of Youth79 from 1980 to 1998, this study specifies the set of individual-, household-, and community-level of determinants on migration and then incorporates these variables in multivariate analyses to test their direct and relative effects on the migratory behavior of young adult groups. A Cox proportional hazard analysis suggests that among three levels of factors, individual characteristics are the most important determinants of migration, but the migratory behavior is more fully explained by multilevel variables rather than a single-level variable.

This research had three foci within the primary objective. First, at the individual level, this study is the first step in research that intended to suggest the usefulness of status inconsistency arguments on migration studies. Findings of the research indicate

that underrewarded individuals are more likely to migrate than those who have balanced status, while overrewarded individuals are less likely to migrate than those who have balanced status.

Second, at the household-level investigation, this research focused on the effects of relative conjugal power between husbands and wives on migration. Results suggest that differences in relative power between husbands and wives has only minor effects on migration and the direction of migration, but the quantitative effects of relative power variables are greater for wives than for husbands.

Third, at the community-level investigation, this study focused on analyzing the interaction between the residential mobility of individuals and characteristics of the residential areas where they are located. The migration propensity of the most mobile types of people (the more educated whites) has responded more to differences in community characteristics than that of the least mobile types of people (the less educated blacks).

(149 pages)

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Ji-Youn Lee

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CHAPTER I

INTRODUCTION

Between March 1999 and March 2000, about 19 million American moved from one county to another or to a different state (U.S. Bureau of the Census 2001). This tremendous amount of geographical mobility is a distinctive feature of American society. Although migration is a pervasive phenomenon of life through the ages, there are differences in migration rates among different individuals and social groups. As Lee (1966) points out, voluntary migration is basically selective. People with certain characteristics are more prone to migrate than people with other characteristics. Since migration rates vary considerably over a person's life cycle, age is the characteristic most distinctly associated with migration differentials. Young adults are more mobile, perhaps because of their high frequencies of life-course events such as changing employment, marriage, etc. Between 1999 to 2000, about one-third of all American migrants are those in their twenties (U.S. Bureau of the Census 2001).

Of course, earlier migration studies have recognized that young adults are a demographically dense population, but these studies have failed to a systematic examination of a number of potentially relevant factors in relation to migration. Also, changes in American society may have resulted in the emergence of new and important determinants in migration. One of these determinants is the recent change in household and family composition. The U.S. Bureau of the Census (1996) reports that household composition has changed dramatically over the past thirty years. In 1970, married couples with children made up 40% of the total households. In contrast, by 1995, just 25% of the total households are married couples with children. At the same time, the percentage of

people living alone increased from one-sixth of all households to one-fourth of all households. The number of families maintained by women with no husband present doubled from 5.6 million to 12.2 million.

The growing number of nontraditional family households is especially concentrated in the young adult population. According to Bianchi and Casper (2000), among both men and women between the ages of 18 and 24, married-couple families declined dramatically between 1970 and 2000. 31% of men age 18 to 24 lived with a spouse in 1970, while only 9% are married and living with a spouse in 2000. A similar drop occurred for women, from 45% in 1970 to 16% in 2000. As a declining share of young adults chose traditional married life, a greater share lived alone or with unmarried partners. Whether individuals who delay marriage or establish nontraditional families have migration patterns that differ from those who follow the traditional patterns has not been fully examined. Both changing social environment and family structure interweave in complex ways to increase the heterogeneity of social behaviors within young adult age groups and to influence their subsequent migration choices. However, little systematic research exists on the factors influencing young adults to migrate, since previous studies have focused on the population in general.

Researchers have begun to recognize the weakness of studies of migration differentials at the individual level of analysis. Massey (1987), in his treatment of this issue, notes that when one assesses migration decision making, one generally describes the person as the ultimate unit of decision making. However, upon deeper consideration, that decision making, in fact, is made within the family context and even within the larger social and economic context. Although it is plausible that individuals ultimately decide

whether or not to move, it is unlikely that they make this decision without considering overall gains and losses for their families. This is because migration is not only a means of individual mobility, but also “a means of balancing a household’s resources with its needs” (Massey 1987:1507). Many factors such as family structure, the relationship between husband and wife, education, employment, and even the pattern of resource distribution within a family affect the propensity to migrate and the pattern of migration.

At the same time, families exist within larger community contexts and these local and regional socioeconomic structures, such as employment opportunities, wage levels, transportation systems, political power structures, and climate factors, may have an impact on the families’ decision to migrate and their choice of destination. The macro social and economic structures such as urbanization and suburbanization exist beyond local environments of individuals. Shifts in these macro structures have impacts on community contexts, influence people’s opportunities, determine their range of choices, and finally affect their social behaviors. Shifts in family structures, local community contexts, and macro social structures interact with individual characteristics, and these interactions help to determine the frequencies and patterns of migration. There is a growing interest to measure the simultaneous effect on migration by variables specified at the individual, family, and community levels.

This research is an investigation of the migration of young adults and of the importance of individual, household, and community characteristics in young adult migration behaviors. At the individual level, this study examines social, economical, and demographic factors affecting migration propensities: age, sex, race and ethnicity, marital

status, length of residence, education, employment status, income, and status inconsistency.

In particular, a focus of this analysis of the individual level is to propose, empirically verify, and emphasize the importance of the status inconsistency concept on migration. Much demographic research has examined the relationship between migration and measures of human capitals. One of the most widely accepted measures of human capital is the level of educational attainment. Education is recognized as the single most important individual level human capital factor governing rates of internal migration, as it is related to the opportunity to progress in careers (Goss 1985; Sandefur and Scott 1981). If education is the predominant factor in determining who migrates, then there should be little variation in migration rates within those who have similar education. However, past research shows that there are differences in migration rates within each of the educational levels according to income and occupation. For example, in the same age and educational group, the lowest migration rates are found among self-employed professionals, while the highest migration rates are found among salaried professionals and administrators (Long 1972).

Migration may also be influenced by an individual's or couple's ability to realize returns that are most appropriate given the investment made in enhancing their own human capital. Brown, Cretser, and Lasswell (1988) define "status inconsistency" as "individuals whose positions on important status criteria differ significantly from the normal pattern in their society" (213). There are three basic assumptions in status inconsistency perspectives: first, there is a multidimensionality in social status, second, there are certain expectations among people in society about how consistent an individual

is on various dimensions of social status, and third, the inconsistency among various kinds of social status produces positive or negative stress for individuals. In multidimensional social status, individuals may occupy inconsistent statuses. If one's income or occupational prestige is higher or lower than expected for others of his or her age, race, and education, the status inconsistency perspective predicts that he or she is more likely to attempt to enhance his or her own statuses by changing his or her own personal situations (Smith 1996). For these individuals, geographical mobility can be seen as not an end in itself, but as a means of social mobility. The status inconsistency argument holds potential relevance for the analysis of determinants and constraints of migration if it can be demonstrated that the individuals with higher levels of status inconsistency are more likely to change their own personal situations through migration. On the other hand, it could be that someone with high levels of status inconsistency would not migrate because of some location-specific attraction. For example, a highly educated person with a low paying job may not migrate because of some highly desirable characteristic of his/her current residence such as family or recreational opportunities. This may explain why the residential mobility varies within a group with a similar educational level as well as between different educational level groups.

Most migrations occur around some significant changes in status or stages of a life—graduate school, entering the job market, marriage, and childbearing—because such points of change and discontinuity create incentive to migrate. Length of residence is an important factor in theories about migration, with evidence that as length of residence is increased, there is a general downward trend in migration propensity (Toney 1976). However, the effects of length of residence are not quite linear across stages of the life

cycle. Sandefur (1985) analyzes the variations in the effects of length of residence on interstate migration propensity among American young males and demonstrates that the length of residence would matter much more for the parent-couple migrants than for the non-married individual migrants, since the community ties which strengthen with length of residence would be developed more for the parent couples than for the single. The effects of length of residence may compound the variation of migration propensity with ages as well as with stages of the life cycle. Although past research has demonstrated a strong relationship between life cycle factors and migration propensity, there has been little research on how effects of length of residence on migration propensity vary within young adult groups and how the migration decisions of longer-term young residents differ from new comers with similar ages.

As Taeuber (1979) points out, all aspects of family structure are influenced by, and in turn influence, the distribution and dynamics of population. The growing proportion of women in the labor market and the increasing tendency for persons with similar amounts of schooling to marry one another, called educational homogamy, have differentiated young adults' marriage life from their parents' (Mare 1991). In the 1960's, fewer than half of all married women worked outside the home. Thirty years later, this figure stood at almost three-quarters. Between the age of 25-34 represent the biggest increases in the labor force participation rate as their rates more than doubled between the 1960s and 1990s (Fullerton 1999). Sweeney (2002) has examined the gender difference in economic foundations for marriage formation between the early baby-boom cohort and the late baby-boom cohort. Compared with the early cohort, women's economic standings have become an increasingly crucial factor for the younger generation's

marriage formation. These changes in the labor force may have resulted in a more complex relationship between place differences in economic opportunities and migration since one might expect women and married couples to weigh these differently than they did in the past. Because there are traditionally strong relationships among economic conditions, family characteristics, and migration, there is a need to analyze those relationships. Yet, little is known about the relationship between specific characteristics of young adult families and subsequent family migration. At the household level, this research investigates the effect of different young adult household structures, such as the household size, the presence of school-age children, and the household income on the propensity for and the direction of migration. In particular, this study is concerned with the effects of relative conjugal power between husbands and wives on migration.

As suggested by DeJong and Gardner (1981), migration is affected not only by personal characteristics of individuals, but also by the community context which surrounds them. Previous studies on migration have found that communities with different features have different capacities to attract or push migrants and suggest a number of contextual factors affecting migration behaviors. They include population size, population diversity such as racial and educational heterogeneity, local income level, and employment opportunity (DeVanzo 1978; Gabriel and Schmitz 1995; Lee 1966; Toney 1976). However, few studies have addressed the issues of how differently these contextual factors interact with characteristics of individuals and what factors at the origin influence migrants' selections. At the community level, this research seeks to close the gap in our knowledge about the interactions between individual characteristics and

residential characteristics by analyzing the probability and the direction of young adult migration.

Research Objectives and Rationale

The primary objective of this research is to specify factors at the individual, family and community levels which contribute to migration of young adults and to assess the relative effects of these three levels of variables on the probability for and the direction of migration. Underlying the analysis are the traditional questions of internal migration: Why migrate? Who migrates? And to where do they migrate? This analysis considers pushes and pulls in migration decision making and the importance of both personal and place characteristics on migration.

This research uses these issues using the National Longitudinal Survey of Youth 79 (NLSY79) from 1980 to 1998. This study employs two multivariate analyses: First, logistic regression model techniques are used to determine the effects of individual characteristics (age, sex, race and ethnicity, marital status, education, employment status, income, and status inconsistency), household characteristics (family size, young children, total net family income, and power relations between husbands and wives), and community characteristics (population size, the percent of the white population, the percent of 4-years college-educated, per capita personal income, and unemployment rate) on the probability and the direction of migration. Second, a Cox proportional hazard model helps to correct for the censoring problems in the longitudinal data and to explore the simultaneous effects on the hazard of migration by variables specified at the individual, family, and community levels.

This research has three foci. The first is to examine the relationship between status inconsistency and migration. There are variations in migration rates within and between social groups at the individual level. A variety of studies of migration is concerned with how a person's education and income influence the likelihood of his or her migration and the distance between his/her origin and destination. Studies of the relation between migration and unidimensional socioeconomic measures are apt to show higher migration propensities for some educational or income levels than for others and to provide insight to help explain migration. However, these results do little to explain why some individuals within the specified educational or income groups migrate while others do not.

This study proposes that an individual's level of status inconsistency may be an important determinant of migration. Because there is multidimensionality of the individual's status, and since migration often can be seen as a means of social mobility, this study argues that the probability of migration is altered by balancing statuses. This implies that a more complete modeling of migration behavior must include an individual's relative statuses as well as measures of economic or social status. Although status inconsistency has potential usefulness for analyzing both migration differentials within groups and between groups, little research on the relationship between status inconsistency and migration has been conducted. This study helps to develop and expand the existing literature on the status inconsistency by studying the effects of relative status inconsistency on migration, and tests the relative strength of each perspective by examining the probability of migration and the direction of migration.

In the second focus, the study investigates how different household structures influence the probability and the direction of household migration, specifically regarding intercounty migration, and migration between rural and urban counties.¹ Data from the NLSY79 include detailed information on marital status, household composition, household economic status, and educational attainments for both spouses and partners. This allows for a more complete analysis of the relationships between characteristics of households and migration. Within the married-couple family, the decision to migrate is not only subject to socioeconomic needs, but may be affected by the nature of marital relation as well. Keddem (1984) examines a historical context of the growing employment of wives in American working-class families and finds that wives' labor force participation does not respond to changes in husbands' employment status, indicating that wives have become permanent added-workers and their income is an important benefit to their families. Because migration not only produces disengagement from a given community, but also often leads to a change in jobs, the changing norms, such as the increasing women's role in the work force and the growing importance of women's earnings for their families have a significant impact on family migration decision making. A variety of models of migration decision making demonstrates that there is conflicting interest within the family, because of dual-career constraints. But

¹ According to the Census Bureau, a household includes all the persons who occupy a housing unit. Households are classified by type according to the sex of the householder (male-headed household and female-headed) and the presence of relatives (a family householder and a non-family householder). As a common definition, all members of a family are defined in terms of blood relationship (or adoption) or marriage. Concerning the growing number of nontraditional young adult families, in this study, household may be a far more appropriate category around which to address the understanding of the ebb and flow in family structure and the movement of people in and out of their residential places.

previous migration studies have not fully explored the effects of the relative status of men and women on family migration.

The third and final concern of this study is to examine the interaction between community characteristics and individual migration selectivity. Migration is limited by personal characteristics. Age is most consistently related to migration, but sex, education and race/ethnic selectivity are important factors of theories about migration behavior. Earlier migration studies have documented that the more educated people are the more mobile, males are more mobile than females, and whites are more mobile than blacks (Yaukey 1985; Hoover and Giarratani 1999). However, migration takes place in a preexisting community context. People occupy different positions in local socio-economic environments and possess different amounts of resources and incentives that facilitate migration. One might expect that barriers to migration and incentives to migration would not be the same for both the more mobile and the less mobile groups. This study examines the migration of these two groups in relation to socioeconomic characteristics of the community and explores how these characteristics differentiate the probability of migration. Little systematic investigation exists on the dynamic natures between the location of people and individual differentials in migration. This study seeks to increase our understanding of these relationships.

This study contributes to migration studies in several ways. First, it examines the applicability of previous explanations for migration to young adults. Previous discussions of major migration determinants and constraints are typically based on the population in general. It is possible that the likelihood of migration varies markedly within young

individuals and that factors influencing migration are not identical between young adults and the general population.

Second, this study develops a multilevel model of migration in longitudinal perspective. Cross-sectional analysis of migration does not allow adequate systematic analysis of migration over time. Also, with a single-level explanation of migration, it is difficult to understand the interaction between broad patterns of migration and individual migration behavior.

Third, this study is a first step in examining the extent to which the status inconsistency perspective is a viable predictor of migration. Much evidence exists on the effect of status inconsistency on social-psychological behavior, but its relevance on migration has never been explored.

Finally, the volume and the pattern of young adult migration is of great interest to public policy makers concerned with retaining in or attracting younger workers to the local area. Among three demographic processes (fertility, mortality, and migration), migration has the most direct impact on the recent population change in the U.S. communities, because fertility and mortality have stabilized at low levels. Rural counties have experienced years of population decline, often fueled by the departure of young adults. This study emphasizes the migration propensity and the direction of migration of young adults in order to understand the mechanisms of young labor migration and its ensuing developmental potentiality.

Overview of the Research

Chapter II reviews theoretical and empirical explanations of migration at three different levels, the individual, the family, and the community. A status inconsistency explanation of individual migration is also considered. Rather than seeking to model migration using a single homogeneous framework, the research explores utilities of several migration models to explain the differences in migration among young adult households.

Chapter III introduces sources of data and discusses the specification of variables and the methodological framework for analyzing the propensity to migrate and the direction of migration for the NLSY79 from 1980 to 1998.

Chapter IV is a presentation of the empirical results. The first part of the chapter describes the general characteristics and mobility rates of young adults in the study sample. The second part reports results of the logistic regression analysis for the determinants of migration and the direction of migration at each level. In the concluding portion of Chapter IV, the results of the Cox proportional hazard analysis that examines the relative effects of individual, household, and community variables on the hazard of migration are reported.

Chapter V reports the empirical findings of this study and discusses the determinants and constraints of young adult migration.

The final chapter briefly summarizes the purpose of this study, highlights the major findings of the study, and discusses the limitations of this study.

CHAPTER II

MODELS OF MIGRATION: WHY MIGRATE?

WHO MIGRATES? AND WHERE?

Discussions about patterns and processes of migration are rich and diversified. Despite its diversity, the study of migration could be summed up by the following questions: "Why migrate? Who migrates? And where?" The first question refers to the determinants of and constraints on migration decision making; it involves economic benefit, social status enhancement, expectation, the regional pressure and constraint, and family network or kinship structure. The "who" refers to personal characteristics of the actor and his or her propensity to migrate. Because migration is basically selective, there is a difference, depending on age, sex, race, and education, in migration rates of various groups. The "where" refers to social, economic, and geographical characteristics of origins and destinations and may even include an analysis of all places as potential origins and destinations.

Although many migration studies reach different answers to the same questions, their answers could be classified by three different levels of the analysis: 1) that which emphasizes the individual determinants, 2) that which emphasizes the household or family level determinants of the migration decision, and 3) that which explores the role of community-level factors, often called contextual factors, in migration patterns. As a macro structural force, the broad pattern of rural-urban population movement is also considered towards the end of this chapter.

The Individual Level Approach to Migration

Classical and Neo-classical Economic Perspectives

Economic perspectives are mainly found in the individual level approach to migration. This may be partly due to the fact that economic models describe individuals as the ultimate unit of migration decision making and the family as a collection of individuals, so these models have not explicitly distinguished individual from family decisions to migrate (Mincer 1978). These economic models view migration as a mechanism that reduces geographic differences in income and employment over time, and migrants as individuals utilize benefit-cost analysis to determine the outcome of the migration decision. Sjaastad (1962) states that Hicks's hypothesis, migration is caused by differences in net economic advantages (mainly differences in wages), has been adopted in almost all modern studies of migration as the point of departure and it has seen migration as a response to "regional differences in economic outcomes by voting with their [the migrants'] feet" (131).

Classical economic perspectives extend to address a slightly different question: Who moves? The answer to this question is that when income differences between two regions are large enough to induce migration, the highly educated or skilled will be more likely to migrate than others, because they will be offered a high rate of return in the destination area that will offset migration costs. According to this model, "highly skilled workers live in regions that offer high rates of return to skills and less-skilled workers live in regions where the rate of return to skills is relatively low" (Borjas 2000:5).

Migration, however, is selective of not only high-potential achievers, but also by those who in some way have failed economically. Because in the economic perspective,

migration is treated as “a means of improving the allocation of human resources” (DaVanzo 1978:504), the greater propensity of the unemployed to migrate has been logically expected. This high propensity of the unemployed presumably reflects lower opportunity costs of migration, as well as higher incentives for non-local job searching activities.

Todaro raises an important question concerning the classical economics model of migration: Why would migrants keep leaving rural areas at higher rates when unemployment rates in the urban areas are increasing? Todaro (1969) and Harris and Todaro (1970) characterize migration as an individual decision in which a person compares not only his or her real wage differential, but also “expected income” in the rural and urban sectors, respectively. The key result of the model is that, if urban-rural income differentials are high enough, people will migrate even if their chances of actually gaining urban (formal sector) employment in the short run are quite low. In this model, youth and education are key selectivity criteria because higher skills typically lead to higher earnings, but older workers compared to young workers have a shorter period over which they can collect the returns on their migration investments (Borjas 2000).

There are two major weaknesses in Todaro's theory. One criticism is that the Todaro model laws governing migration are assumed to be the same for men and women. The possibility that the determinants of migration differ systematically for men and women remains unexplored. The model thus fails to explain gender-specific differences in selection of internal migration except with reference to individual income and employment differences (Katz, Morrison, and Bilson 1998). Another criticism of the Todaro model is that it treats migration as purely matter of individual level decision

making. While it is perfectly plausible that people migrate in response to expected income differentials (among other factors), it is unlikely that they make this decision without considering the overall gain and loss of the family to which they belong. In recognition of this important limitation, neo-classical researchers have begun to add the family to migration studies as a unit of analysis (Katz 2000).

Concerning the choice of destination, distance acts as the important deterrent, because greater distances imply larger migration costs. Before the introduction of the human capital framework, the "gravity models" dominated the economic perspective on migration. The gravity model presumes a positive relationship between migration and the size of the destination and origin regions, as well as an inverse relationship between migration and distance (Borjas 2000; DeJong and Fawcett 1981). However, it often does not work that way. Long-distance migration is more common among better-educated workers. This correlation could arise because highly educated workers may be more efficiently obtaining employment opportunities in alternative labor markets, thus reducing migration costs. It is also possible that the geographic region that makes up the relevant labor market is larger for highly educated workers. According to Ladinsky (1967), doctoral-level scientists show high long-distance migration rates, because they occupy positions in decentralized work settings and they sell their skills in a national scope labor market. In contrast to the gravity model, Stouffer (1960) suggests that migration is attributable to the number of opportunities available over specified distance migration and number of labor force opportunities is the key predictor of the choice of destination.

From the above, it can be seen that economic models can yield some useful findings in explaining migration behavior. However, return and repeat migration are not consistent with the simple classical economic model of migration (Borjas 2000). Migrants who have just migrated are more likely to move back to their original habitation, a process called "return migration," and are also very likely to move to another location, called "onward migration" (DaVanzo 1983). According to DaVanzo and Morrison (1981), about a quarter of all migrants in the United States during 1968 and 1975 are returnees and 45% of all moves are onward migrants. Borjas argues that unless there are drastic changes of socioeconomic conditions in the various regions after the migration occurs, these high return or onward migration rates are not explained by the simple utility maximization models. According to the utility maximization models, prior to the initial migration, the migrant's cost-benefit calculation indicated that the present value of the net gain of migration from one region to another region is positive. However, soon after the migration takes places, the migrant's calculation indicate that returning to the origin or perhaps moving on to another maximizes the present value of lifetime earnings. Tomaskovic-Devey (1993) argues that the ideology of utility maximizing behaviors does not fit actual reality. In order to induce utility-maximizing behavior, all social and economic conditions such as market, resource, and information should be perfect and equally distributed. As DeJong and Gardner (1981) point out, there is no such thing as "perfect information"; uncertainty, risk taking, family considerations, race and ethnic origin and other factors always play some part in the decision to migrate.

The simple classical economic model also fails to explain migrant selectivity. Among individuals with similar personal characteristics, some people are more likely to

move than others are, and some people are more likely never to move. Goldstein (1964) clearly states that “the repeated mobility is most characteristic of a limited segment of the population” (1121) and the frequent migrant’s higher degree of mobility leads to an underestimate of residential stability of a large majority population.

Focusing solely on the economic differential as a determinant of migration is too narrow of an approach. Another example of the narrowness of economic approach would be racial differences in the geographical mobility rate. Of all race and ethnicity groups, whites are most likely to migrate. Empirical studies have documented this higher migration rate for whites (Long and Hansen 1977; Tarver and McLeod, 1976). Rosenbloom and Sundstrom (2001) examine patterns and determinants of interstate migration in the U.S. by using Census data from 1850 through 1990. Overall, they discover that the geographical mobility of blacks has never exceeded that of whites, except during the 1940s, and generally blacks have been less likely to leave the state of their birth than whites. Racial differences in mobility patterns are not solely a function of blacks’ lower economic status in relation to whites’. South and Crowder (1997) examine racial differences in residential mobility between cities and suburbs and find that blacks are less likely to move from cities to suburbs than whites, while blacks are more likely to move from suburbs to cities. This tendency persists even after statistically controlling for their sociodemographic characteristics. Non-economic factors often cited as reasons for the lower geographic mobility of blacks appear to be overt discrimination against blacks and the significance of their family ties (Fuguitt, Fulton, and Beale 2001; Rosenbloom and Sundstrom 2001). The results of empirical studies indicate that race relations have an important influence on the migration propensity and the destination choice of blacks.

Sociological Approaches

Migration is undoubtedly a social phenomenon. In sociological perspectives, social status enhancement as a motivation for migration has been frequently emphasized, because "social mobility leads to geographical mobility" (Wilson 1987:158). Aspirations for higher social status are seen to be frustrated by the lack of opportunities for advancement, particularly educational and occupational advancement, in rural communities, and status enhancement is the driving force behind rural-urban migration flows (DeJong and Gardner 1981). In *Birds of Passage*, Piore (1979) examines the relationship between geographical mobility and non-economic factors of labor migration, particularly social status, and argues that migration is not just a move out but a move up. Ringdal (1993), in her study of Norwegian young men, focuses on occupational prestige as a noneconomic factor of migration and find that the effects of migration as a status enhancement are clear for rural-to-urban migrants and long-distance migrants. She concludes, "Spatial mobility is inductive to upward occupational mobility" (327).

At the methodological ground, both economic and sociological perspectives have been emphasized as the same factors which relate to characteristics of migrants, such as age and education, despite striking theoretical differences between them. But the sociological meanings of age and education differ from the economical meanings. From a sociological perspective, education is seen as an indicator of the quality and quantity of a person's information about opportunities elsewhere rather than just as a proxy of a person's work-related productivity. DaVanzo and Morrison (1981) emphasize the high selectivity of the migrant's information system and argue that this selectivity reflects the superior ability of better-educated people to process information efficiently, because their

labor markets are national in scope and information is available through trade journals, professional meetings, and the like (Schwartz 1973). Age is also a critical variable in the sociological perspective on migration, because mobility varies with stages in the life cycle. Most of the migration occurs around some significant changes in status or role. One might expect that individuals in early adulthood would be more likely to migrate than individuals in late adulthood.

In the matter of destination choice, some have argued that it is an oversimplification to explain the destination choice of migration simply on the basis of response to better opportunities elsewhere such as higher wage rates or more and better employment opportunities. Individuals reside in particular locations for longer or shorter intervals of time. Huff and Clark (1978) argue that the probability of migration is a function of cumulative inertia and residential stress. The cumulative inertia effect refers to the increasing tendency to dwell at place of residence, and the residential stress effect refers to the dissatisfaction with the current residential area. Bailey (1989) argues that among factors that determine an individual's propensity to migrate, the variations in duration of previous residence are strongly associated with one's future mobility. In a study involving the influence of length of residence on migration of British workers, Gordon and Molho (1995) found that inertia effects complicate the variation of migration propensity with age, but the deterring effects of length of residence remain strong even when controlling for personal characteristics such as race, family structure, educational attainment and employment status.

Length of residence is a proxy variable for the social, community and economic ties which strengthen with duration of stay. Toney (1976) views length of residence as a

measure of the extent of local ties and of a satisfaction with community, and examines the effect of social ties and economic opportunities on lengths of residences for Rhode Island residents in the late 1960s. It appears that in most cases the so-called push factor explaining out-migration from an area is not primarily the level of economic opportunities of the area, even though the pull factor is primarily a matter of the economic characteristics of area migration. He found a positive relationship between social ties and the length of residence and concluded that "such factors may also help to explain why some persons continue to live in economically depressed areas or why they return to such areas after a short stay in a more prosperous but unfamiliar location" (307). Migration may be caused by push factors just as much as by pull factors in terms of economical and sociological conditions.

Status Inconsistency Approach

As Lundberg put it, the "phenomenon of status is ... an aspect of every societal situation.... It is always relative" (1939:312-313). In the absolute sense, neither the amount of human capital which a person possesses nor the level of social prestige accounts for differences in human behavior, because these are always represented relative to others. In modern society, the positions of individuals may not be solely determined by a factor such as education or social prestige or income, since there is the multidimensionality of social status. Education, social prestige or occupational level, and income are the most fundamental dimensions of the contemporary stratification system, and they are closely interrelated. Individuals may occupy consistent statuses in multi-dimensional systems of stratification, but it is also possible that individuals may occupy inconsistent statuses. For example, individuals with a high level of educational

attainment, which provides a high social status along one stratification dimension, may be employed in occupations that are poorly paid and carry low prestige, indicating low status along other dimensions. One may not expect M.B.A graduates to earn a living by driving taxicabs or by working in part-time data-entry jobs, but some graduates may actually do so.

Gerhard Lenski (1954), a prominent social inconsistency theorist, defines "status crystallization" as consistency between an individual's various statuses. He cites four important statuses: income, occupational prestige, education and ethnicity. He argues that inconsistency promotes more pronounced social responses and behaviors because it is believed to produce stress for the individuals with unbalanced status. Although the reasons of why people with unbalanced statuses prefer to balance them is not clear, previous studies have considered status inconsistency as a psychological stressor that creates an uncomfortable cognitive dissonance (Hornung 1980; Smith 1996). This dissonance results in stress-reducing behaviors or responses. The person with unbalanced status is more likely to favor radical social change designed to alter the system of stratification or to attempt to crystallize their own statuses by changing his/her personal situations.

After Lenski defined the term "status crystallization" in a study of voting behaviors, there have been many attempts to operationalize the theoretical concept of status inconsistency as a measurable one and to analyze the effect of status inconsistency. To Lenski, status inconsistency is measured by a ratio index that is expressed as the sums of squared differences from the sample mean of various status dimensions such as occupation, income, education, and race and ethnicity.

Lenski's formula has been criticized by Smith because "in squaring, the sign of the distance is lost and with it information about direction" (1996: 3.17). Lenski's formula loses information which differentiates upward inconsistency from downward inconsistency. For example, M.B.A who graduates earn a living by driving taxicabs and high-school dropouts in the upper income tiers could not be differentiated from each other, but they are both status inconsistencies according to Lenski's formula. Although methodological issues have still remained in Lenski's concept of status inconsistency, many have employed and empirically documented the effects of status inconsistency ranging from social mobility, distribute justice, job satisfaction, heart disease, and political behavior (Eitzen 1972; Hawkes et al. 1984; Hope 1975; Siegrist 1996; Slomczynski and Wesolowski 1983).

This study goes on to argue that there is a need to view geographic mobility as a status balancing strategy. The status inconsistency argument holds potential relevance for the analysis of migration if it can be demonstrated that the greater the status inconsistency with individuals, the greater the change in their own personal situations through migration. Combining theories of status inconsistency and migration may provide linkages between the personal realm of migration and individuals' overall positions in their social classification systems.

The Household-Level Approach to Migration

Previous family-level migration studies have focused generally on three theoretical frameworks. The first is a human capital model of migration decision making developed by Mincer. The second is a family resource theory which argues that the

relative resource possessed by each partner determines the pattern of marital power and it affects the decision making of critical family matters such as family migration. The third, a gender role theory, holds that socialization of the gender role is the most prominent force defining the patterns of family migration. While in migration studies, less theoretically and empirically well-specified than the Mincer model, the family resource theory and the gender role theory have been somewhat relevant for research on family migration, because many empirical studies explain that "the neat equality of utility equation hardly applies to the apparent asymmetry of family migration decision" (Shihadeh 1991: 433).

Human Capital Theory

The human capital theory tradition treats migration as a decision taken "for the good of the family," even though there may be individual economic losses involved. Mincer defines migration as a product of family utility maximization. The Mincer model is based on the economic benefit-cost approach to the migration decision, but he argues that "net family gain rather than net personal gain motivates migration of households" (Mincer 1978:750). Mincer develops a human capital model of migration decision making in which the husband and wife each balance the well being of the family relative to their own individual utility gains. The sum of each partner's personal net utility gain determines the net gain of the family. If that net gain is positive, moving is then optimal for the family. Note that this result is possible even when one of the individual net gains is negative. In such an event, migration would be optimal for the family but for only one of the partners. The other partner, experiencing a negative individual net gain, would be characterized as a "tied mover." Conversely, each partner's individual net gains may be of

opposite signs while the net gain for the family is negative, then family migration will not occur and the partner with the positive personal utility gain would be a "tied stayer" (Katz, Morrison, and Bilborrow 1998; Mincer 1978).

Certain family characteristics of migrants substantially affect migration rates. The most important are family size, marital status, parenthood, and economic standing. Sandefur and Scott (1981) argue that large family size inhibits migration, because the economic cost of migration increases with family size. Mincer (1978) speculates that married couples are less likely to move than singles, because couples have to consider the opportunity costs of migration for both members. Also, the mobility of separated and divorced partners and newly married couples is by far the highest, because "the mobility of others is augmented by their relative recent change of marital status, which creates a change of locational equilibrium" (771).

Within for married couples, according to Mincer, migration rates of families with working wives are lower than families with in non-working wives. Also, the deterrent effects of the wife's market earning power on migration are stronger when the wife's attachment is more permanent and her permanent earning power is higher. In contrast, when educated husbands' contributions to family income are larger, the couples are more likely to move, because the families' gains from migration are more likely to outweigh their wives' losses. It means that women are more likely to be tied movers, because women have lower earning power and exhibit more discontinuous labor market participation and therefore smaller returns to and losses from migration (Mincer 1978).

One's economic gain or loss from migration would be considered to be a sign of whether he or she is a tied mover. Jacobsen and Levin (2000) compare the economic

return on migration for both couples and singles by marital status using the Surveys of Income and Program Participation from 1983 to 1989. They find that migrations have more negative effects on married women compared to married men. This is consistent with the Mincer model, but the big gainers from migration are single, particularly college-educated single women, rather than married men. Jacobsen and Levin suspect that the era of the 1980s produced relatively favorable conditions for single women, as they are able to adapt to the increasing service orientation of the economy, in contrast with male workers. During that time, manufacturing sectors which held traditionally large number of male workers declined, and overall male worker's real wages also declined. The 1980s was also a good period for well-educated people, because economic returns on education are increasing. When one compares the median income ratio for college-educated and high school graduates, both groups aged those aged 25-34, rose steadily from 1.15 in 1978 to 1.53 in 1991.

Regarding the matter of migration distance, Mincer (1978) suggests that "the deterrent effect of the wife's work status increases with distance, while the husband's education is positively related to the distance of migration" (771). Migration distances of dual-earner families are shorter than those of male-earner-only families, because working women are resistant to geographic mobility in order to retain their current work status. The effects of the wife's market earning power and distance on migration are stronger when the wife's attachment is more permanent and her permanent earning power is higher. For example, Frank (1978) examines family location constraints and geographic distribution of dual earner families. He finds a higher probability of living in urban areas

among female professionals than among male professionals, because large urban markets are more likely to satisfy the career needs of both spouses in a dual-earner family.

Family Resource Theory

Although the Mincer model does not assume stereotypes of homogeneous, cooperative, and altruistic families, it still treats migration as purely an economic phenomenon. The weakness of Mincer's approach is that the issue of power is ignored. Bielby and Bielby (1989) point out that the human capital approach does not address the issue of power within a family. This circumstance may be more aptly described by the family resource theory, which states that the distribution of power within the marriage is an essential determinant in family decision making. Many factors may influence the ability of spouses to sway the decision making in critical family matters. The main contribution of the family resource theory would be its recognition of more diverse resources of power (e.g., education, labor force experience, seniority, and the occupational prestige of the job) and of the effect of relative status between spouses within a family (Shihadeh 1991). In other words, relative status is thought to reflect the results of a comparison made by a couple between one partner's holding resources and the other's lacking resources.

The family resource theory possesses some important differences from the notion of a strict economic utility-maximizing framework, but the theory shares with the Mincer model concerning the factor of one's relatively low economic status as a prerequisite of the tied mover. If so, then one would expect a lower prevalence of wives as a tied mover if and when their economic status rises. However, it often does not work that way. Bird

and Bird (1985), in a study of more than one hundred married college administrators who had recently moved, find that approximately one-half of the moves benefited the husband's career at the expense of the wife's, while one-third of the moves benefited the wife at the expense of the husband. In only one-sixth of the moves did both spouses feel that the move had benefited both their careers.

Shihadeh (1991) tests both the human capital model and the family resource theory with respect to the migration decision. He constructs the three "power variables" which measure the relative age, educational level, and occupational prestige level of husbands and wives in Canadian migrant couples. He then includes these variables in the analysis to test whether the inclusion of these variables increases the explanatory power of patterns of family migration decision. None of the "power variables" are statistically significant, which leads Shihadeh to conclude that there is no support in the data for either the family resource theory or the human capital model. Husbands' human capitals such as level of education and employment status before the move are positively related to post-migration employment, but the same does not happen to their wives. He concludes, "These findings shed serious doubt on any attempt to apply traditional economic models of migration to wives" (439), and these findings can be more aptly explained by gender-role theory rather than family resource theory.

Gender-Role Theory

Gender-role theory emphasizes the familial role of men and women as these have been accepted in society. Traditionally, women's roles have tended to be more family oriented. This is not to imply that women lack power in decision making. In fact, the modern nuclear family is increasingly characterized by egalitarianism (Good 1963).

However, though wives may be actively involved in the decision-making process, recent research suggests that there are gendered experiences of migration decision-making. Halfacree (1995) argues that the negative effect of family migration on the wife's economic status is not solely a function of women's lower economic standing in relation to their spouses nor solely from within the household, but in the context of society as a whole.

The gender role theory argues that whether wives have a higher or lower socioeconomic status makes little difference in family migration decision making, because family interests are dominated by the husband, a tendency which is supported by normative pressures emphasizing traditional gender-roles. This implies that women are often socialized to place family first and personal goals second when it comes to critical household matters. This is also supported by Faber and Kordick's study (1978) that shows earning-related consequences of migration for wives are negative because wives are "more likely to subordinate their careers to those of their husbands" (232).

Many empirical findings demonstrate that women with greater human capital actually experience a drop in wage returns upon migration. For example, Morrison and Lichter (1988) consider the returns to migration of both single and married women by using NLS data from 1968 to 1978. Employing a constructed measure of job quality which includes a weighted average of wage and other job characteristics, they find that married women migrants experience an average 30% drop in their job quality measure when compared with those of stayers, while single women migrants experience a 13% drop compared to those of stayers. Spitze (1984) similarly finds a negative relationship between education and returns to migration among married women in the late 1970s. And

finally, Maxwell (1988) examines the relationship among economic returns to migration and gender and marital status by using NLS data from 1966 to 1980. The results indicate that separated men and single women experience positive migration returns, while married women experience negative migration returns.

The constraining effect of children on the migration decision is widely documented, perhaps because children anchor families to their communities through ties to schools, friends and relatives, and community organizations (Long 1988). Shauman and Xie (1996) examine sex differences and family constraints on the geographic mobility of scientists by using 1990 Census data. They argue that although the deterrent effects of children on the migration status present in all scientists' families, there is a difference between men and women scientists. Consistent with the gender-role theory, the negative effects of having children are stronger and more significant for women than for men. As Hertz (1986) put it, "Gender becomes a salient issue once children arrive" (145). Even though the partners are equally committed to their careers, the arrival of children may reinforce the socially expected role for a woman as a caregiver. The effect of children on family migration depends on the children's age rather than the number of children present in a family. Long (1972) finds that families with only school-age children are the least mobile and families with pre-school-age children are most mobile.

The Community-Level Approach to Migration

Empirical evidence shows that regional socioeconomic characteristics are the most obvious factor influencing migration flows. Tapani and Tuija (1986) examine the relationships between the residential mobility of households and variables describing

residential areas where the households are located in Helsinki. Variables include phase of household life cycle, percentage of high-income households in the residential areas, and physical characteristics of the areas. Although Tapani and Tuija conclude "household characteristics are much more important determinants of residential mobility than area characteristics," they find some influence of area socioeconomic characteristics on the residential mobility of households.

It was pointed out earlier that the gravity model of migration, though not directly tested, would have some relevance on community level variables. According to this model, one would expect that population size has a significant impact on destination choice, because a larger location would have more migrants arriving and departing than a smaller location. In much social science research, population is treated not only as a criterion between urban and rural, but also as a proxy for local economic conditions such as the size of the domestic market and income differentials (Toney 1976).

Gabriel and Schmitz (1995) examine "favorable self-selection hypothesis" for white male migrants between urban and rural areas by using the NLSY from 1985 to 1991. The hypothesis is that highly skilled workers will be more likely to have migrated to the place which offers higher returns to skill and vice versa. It represents rational economic behavior from the point of view of the individual migrant according to regional differences in skill returns. They find that rural to urban migration has become increasingly selective of the well educated and that rural-to-urban migrants tend to attain higher wage levels. However, the empirical evidence of the favorable self-selection hypothesis has not been found for urban-to-rural migrants. When urban-to-rural migrants

are compared to natives, migrants tend to have slightly more schooling, but the difference is not statistically significant.

Economic differences measured by income and unemployment rates in characteristics between the origin and destination areas have often been suggested as the driving force of migration patterns. Gallaway and Vedder (1971) examine the determinants of historical American interstate migration flows and find that migrants have responded to high wage states. In addition, avoiding high unemployment rates in local labor markets would be logically expected to be one of the basic motivations of the locational choices of workers. Todaro (1969) model represents rural-to-urban migration as a function of two sources of labor market differential: the expected rural/urban income gap and unemployment rates. Hatton and Williamson (1992) recently test this model for exploring the determinants of wage gaps between farm and city over a long period, and find that current year farm wages respond to the previous year's urban unemployment rate and that geographical mobility has responded to labor market differentials.

The same seems to be true of recent youth migration flows. Cromartie (1994) examines the relationship between job-related rural and urban migration by using the NLSY79 and finds that high levels of unemployment and low levels of wage in rural areas tend to encourage migration. However, the effects of local unemployment rates do not seem to be universal. DaVanzo (1978) examines whether people are more likely to leave areas with high unemployment rates and concludes that there is a positive relationship between out-migration rates and area unemployment rates, but only the unemployed are most seriously affected by an area's high unemployment rates.

Rather than assuming that migration means people are simply changing their residence to seek the place that provides the best opportunities, it is useful to distinguish push forces in the region of origin and pull forces in the destination. Lowry's study on migration (1966) reveals that in most cases the push factor explaining out-migration from an area is not primarily the economic characteristics of the area (such as low income or high unemployment), but the demographic characteristics of the population of the area. Areas with a high proportion of the most mobile types of people (such as well-educated people or whites or males) have high rates of out-migration, regardless of local economic opportunity. This argument is plausible, because geographic mobility is shaped not just by the economic profile in an area, but also by the demographic profile in the area.

The notions of migrant selectivity and the impact of local characteristics on migration are well established, but empirical tests of the interaction between these two factors are generally absent from the literature. As Findley (1987) notes, community factors of migration not only directly influence the individual's migration decision, but also intervene and interact with individual characteristics so that the variation within individual factors is conditioned by community factors. This study investigates whether interaction between personal migration propensity and regional socioeconomic characteristics present in the migration of young adults and how this interaction facilitates or retards migration.

Structural Forces: Rural-Urban

Population Movement

Migration is influenced not only by individuals' characteristics, but also by structural forces in a given society. Social forces are beyond local environments of individuals and exist in the larger structure of society. Social forces influence people's opportunities, determine their range of choices, and finally influence their social behaviors according to their position in a given society. Social structural forces such as industrialization, mechanization of farming, and changing economic opportunities drew millions of people from rural areas to cities throughout much of the 20th century. According to Johnson (1993), at least 17 million Americans moved out of rural areas between 1930 and 1970. But in the latter part of the century, migration patterns appeared to be changing. Beginning in the 1970s, the population in many rural regions of the United States began growing for the first time in several years. Johnson and Beale (1998) estimate that during the 1970s, nonmetropolitan areas gained over 8 million people, more than these same areas had gained in the previous four decades. Migration to rural areas slowed in the 1980s but by the 1990s a "rural rebound" had begun.

These recent changes in population growth in rural areas stimulated a significant amount of research. Frey and Spear (1992) identify three theoretical perspectives for explaining this nonmetropolitan area population redistribution during three decades. The first perspective emphasizes the unique economic and demographic situation in the 1970s as an explanation for rural population growth. It includes: 1) retirees who grew up in rural areas but worked for years in urban areas and are now returning; 2) highway systems making city access easier for those who want to live away from urban congestion; 3)

space in metropolitan areas having dissipated so that the population is spilling over into surrounding rural counties. According to this explanation, these changes in circumstances in the 1980s caused a slowdown of rural population growth and a reversion to a pattern more consistent with historical trends.

The second perspective is the regional restructuring perspective. It assumes that the turnaround of the 1970s was due to deindustrialization. The last perspective attributes the recent experience to deconcentration, which means that people gradually moved from larger, more densely settled places into smaller, less densely settled places. It is thought that this is due to technological innovation that allows people to work further from offices and in some cases without urban offices. There is no agreement regarding which of these theoretical perspectives is best apt to explain recent experiences, but much empirical research generally have found that population gains have been most common in recreational and retirement areas and that rural counties situated adjacent to a metropolitan area grew more than those at some distance from urban centers (Fuguitt et al. 2001; Johnson and Beale 1998).

The impact of migration on individuals and societies is sometimes hard to gauge: apparently short-term cost may prove a long-term benefit and vice versa. For example, Johnson (1993) argues that migration of urban dwellers to rural areas is being greeted with mixed reactions. Since rural counties have experienced years of population decline, often fueled by the departure of young adults, they welcome the new resources brought by new residents. At the same time, rural counties are concerned that those who came from urban areas will change rural lifestyles. Those who migrated to rural areas seek the same services they enjoyed in urban areas, including city sanitation facilities, schools,

medical services and highways. Filling their expectations can overwhelm the financial resources of small towns.

Without considering these structural forces, analyzing migration behaviors from only the individual's level may lead to biased results which have made the micro-level migration model impractical. This paper focuses not on investigating the structural trend in rural and urban population movements, but on understanding its implication for the residential mobility in the U. S. in the light of the huge changes in the migration stream that have occurred in recent decade.

CHAPTER III

DATA AND METHODOLOGY

The National Longitudinal Survey of Youth 79

Data from the NLSY79 are used to examine the propensity to migrate, the destination choices of migrants, and the importance of both personal and locational characteristics in these migration choices. The data initially included interviews with three samples, referred to collectively as the NLSY79, that are drawn in 1978 from various groupings of the nation's adolescent and adult population. The total initial sample in 1979 consisted of 12,686 respondents. The primary grouping is a nationally representative cross-sectional sample of 6,111 males and females, 14-22 years old when first interviewed in 1979. The NLSY79 also includes additional independent special samples of some groups: Hispanics, blacks, and economically disadvantaged white youth ages 14-22. There is a total of 5,295 individuals in these special supplemental samples. There is also a supplemental sample of 1,280 individuals in the military sample. Some of these special supplemental samples have since been dropped, largely due to funding issues. These youth and young adults in the primary sample, and the blacks and Hispanics in the special samples are reinterviewed once a year until 1994 and every other year thereafter. A key feature of the NLSY79 is that it gathers information that can be arranged in an event history format, in which dates can be associated with the beginning and ending of important life events and experiences. The final year of data available for this study is 1998, when respondents are 33 to 41 years old.

The NLSY79 is attractive for exploring the propensity for and the pattern of migration among young adult age groups since the study includes information about the respondents' county and state of residence at the time of the interview, coded with Federal Information Processing Standards (FIPS) codes. This NLSY79 geo-code file allows the identification of migrants' origins and destinations between any set of interviews and at birth, at age 14 and in 1978. Equally important, these data allow the identification of many of the socioeconomic characteristics of both origins and destinations of migrants, including rural-urban characteristics of the places.

To help assess the NLSY79 for migration research, migration data from the cross-sectional sample of the NLSY79 are compared with mobility data for individuals of the same age from the Current Population Study (CPS). It is important to mention that the comparison is made using a 1-year interval to measure of migration until 1994 and 2-year intervals thereafter. Unfortunately, the most recent CPS measurement of migration over 2-year intervals was for 1977-79.

Table 1 provides information on the mobility rates among young adults from 1980 to 1998 using the CPS and the NLSY79. The mobility rates of similar age cohorts of the NLSY can be computed directly from the CPS data until 1987, because these data are available in single years of age. After 1987, the CPS data have provided mobility rates for 5-year age groupings. For those years, the NLSY79 migration rates are related only for respondents in those age groupings.

The figures in Table 1 indicate that the overall mobility of the NLSY79 is higher than that of the CPS, for 12 of the 16 intervals over which it is measured. For example, the average migration for the three one-year intervals using the CPS from 1980 to

1983 is 10.2, while for the NLSY79 it is 15.4. Prior research has also shown lower migration rates for the CPS than the NLSY79 sample. Toney and Swearingen (1984) have compared the mobility of NLSY 79 with the CPS in 1979-1982 and conclude that the disparities could be due to different enumeration classification criterion between two data, especially college students. Because the CPS considers college students as a part of the parent's household, the data might underestimate the mobility of college-aged students.

The NLSY79 migration rates are significantly lower for 1990-91 and 1991-1992 intervals than for any other intervals. These lower rates characterize the entire sample as well as the age groupings shown in Table 1. Also, these are the only intervals over which

TABLE 1. MIGRATION RATES OF NLSY79 AND CPS DATA

Year	Ages	Migration Rates		Difference between NLSY79 and CPS
		NLSY79 ^a	CPS ^b	
1980-1981	15-23	15.0	9.2	5.8
1981-1982	16-24	15.6	10.5	5.1
1982-1983	17-25	16.6	10.9	5.8
1983-1984	18-26	11.0	12.4	-1.4
1984-1985	19-27	11.9	13.3	-1.4
1985-1986	20-28	16.1	12.7	3.4
1986-1987	21-29	21.3	12.4	8.9
1987-1988	25-29	11.8	11.4	0.4
1988-1989	25-29	14.7	11.6	3.1
1989-1990	25-29	13.2	12.7	0.5
1990-1991	25-29	7.9	12.5	-4.6
1991-1992	30-34	5.0	7.9	-2.9
1992-1993	30-34	13.1	7.4	5.7
1993-1994	30-34	9.9	7.9	2.0
1994-1996 ^c	30-39	14.3	12.1	2.2
1996-1998 ^c	33-41	12.0	10.3	1.7

^a Cross-sectional sample only.

^b Sources : United States Bureau of the Census 2001, P20-353, P20-377, P20-384, P20-384, P20-393, P20-407, P20-420, P20-425, P20-430, P20-456, P20-463, P20-473, P20-481, and P20-485.

^c Information for migration over 2-year intervals for the CPS is for 1977-79, the most recent time interval over which the CPS measured migration over a 2-year interval.

the NLSY79 rates are substantially lower than the CPS-based rates. The Center for Human Resource Research which gathered the NLSY79 data has not been able to identify any data problems that might account for the low rates for these intervals. It is unlikely, but possible, that negative societal-level economic conditions or some other macro factors have led to this anomaly.

Operationalizing the Data Set

In this study, to fully examine the effects of early young adulthood life course events on migration and to obtain a sample as large as possible, young adult years are defined as individuals aged 18 through 41 (41 being the oldest age group in the 1998 survey year).²

The time frame for measuring migration in this study is 1980 through 1998. The migration interval is a 2-year period with the first year, beginning 1980-1982, and the last, or ninth year, beginning 1996-1998. Long and Boertlein (1990) have studied the relative advantages and disadvantages of migration measures for different intervals and conclude that 1-, 2-, and 5-year intervals are the most appropriate to measure migration rates. Since the NLSY went from annual interviews to every-other-year interviews after 1993, this 2-year interval allows consistent comparisons of migration rates between the beginning years and the most recent years. In this study, migration status is defined by comparisons

² Although demographers express considerable agreement that young adults are a demographically dense population, the boundaries of young adult years are somewhat arbitrary. For example, Rindfuss (1991) has defined young adults as beings those ages 18 through 30. Age 18, the lower boundary, is codified in law, but the upper boundary is defined by substantial or for practical reasons. On the contrary, in Sandefur's study (1985) in interstate migration differential among young adult men, he has defined young adult men as those aged 30 to 40.

of the respondent's county of residence at the beginning of the measurement interval and at the end, in 1980 and 1982, and so on, until 1996 and 1998.

To work more efficiently with the longitudinal data, this study constructs a person-year data set. A person-year format has a key advantage of allowing one to calculate a rate for lifetime events. For example, the original data set for this study is organized to include nine different time intervals over which migration is measured; the data computes nine migration intervals per person.

The transformation of data into a person-year format allows the intervals to become the unit of analysis, while still permitting the characteristics possessed by the individual during the interval to be used as explanatory variables. This technique allows a detailed analysis of what occurs during the intervals. In this study, the focus is on whether migration occurs during an interval. The technique allows flexibility in the selection of independent variables. In addition, clarification of any changing characteristics of individuals during the interval or prior to it may be employed to help explain whether migration happened. Also, characteristics of places in which the interval is being measured as well as societal-level factors may be employed to help determine if individuals in particular locations are more likely to experience migration.

If there are no gaps in the data, meaning all information was available for all 12,141 initial respondents at 1980 in all interviews, there would be 109,269 person-years for the total sample data.³ However, one can see in Table 2, that approximately 66% of

³ A person-year implies that the specified interval is once a year. Because the migration interval in this study is a 2-year period, the term, "person-years", may not be appropriate. However, many studies have conventionally used person-years as an estimate of the actual time-at-risk in any intervals such as 1-, 2-, or 5-year intervals. (See Sánchez-Guerrero et al. 1995.)

the total sample remain for this study. About 25% of the total sample are excluded due to the military sample (9.83% of the total sample), those younger than 18 years old (4.57%), and non-interviews (10.54%). Because tracking geographic location is central to this analysis this research excludes person-years for which there is incomplete geographical information (8.78%). This procedure yields a maximum of 76,124 person-years for this study.

This study will incorporate multilevel techniques to examine the mobility differential, so the study sample size will not be identical for all three levels of analysis: approximately 67% of the study sample (48,543 person-years) for the individual analysis, 81% (58,754 person-years) for the household level analysis, and 99% (72,032 person-years) for the community level analysis. When person-years data that lacked any information among independent and dependent variables during nine times study intervals are excluded, the total person-years for this study is decreased to 35,968. It

TABLE 2. DISTRIBUTION OF THE TOTAL SAMPLE BY SAMPLE TYPE AND THE EXCLUSION FROM STUDY SAMPLE

	Respondents	Person-Years	% of Total
Number of Respondents and Person-Years in the Total Sample (1980-1998)	12,141	109,269	100.00
Cross-sectional sample	5,873	52,857	48.37
Supplemental sample	5,075	45,675	41.80
Military sample	1,193	10,737	9.83
Maximum Number of Person-Years in the Study Sample (1980-1998)		72,426	66.28
Excluded due to			
Military sample		10,737	9.83
Age under 18 years old		4,996	4.57
Noninterview		11,520	10.54
Incomplete reports of county of residence		9,590	8.78
Total number of exclusions		36,843	33.72
Sample Size at Each Level of Analysis			
Individual level		48,543	67.02
Household level		58,754	81.12
Community level		72,032	99.46

means that approximately 50% of the study sample are available for all three levels of analysis. Being aware of lost information, this study adjusts the sample size to get data as large as possible for each level of analysis. The distribution of missing values will be discussed in the later part of this chapter.

Variables

Dependent Variables

Migration-related records in the NLSY79 include information on place of residence at several points in time (e.g., at birth, at age 14, and in each year of the survey). In addition, the survey includes environmental characteristics of each respondent's counties and Standard Metropolitan Statistical Areas (SMSAs) of recent residence for each of the interview dates (e.g., population sizes, the percent of population that is white, and personal per capita money income, etc.).

The variables used in this study are summarized in Table 3. There are three measures of migration employed in this study. As previously mentioned, the geo-code data include FIPS codes to indicate where respondents are residing at the time of each interview and at birth and age 14. Migration is measured by comparing county of residence at specified points in time with the county of residence at a subsequent point in time. The first dependent variable, migration status, simply indicates whether the county of residence at the beginning of a two-year interval is the same as the end of the interval, i.e., 1980 and 1982, and so on to 1996 and 1998. County boundaries used to differentiate migration into three basic categories of migration are defined as nonmigration, intracounty migration, and intercounty migration. This study does not regard an

TABLE 3. SUMMARY OF THE DEPENDENT AND INDEPENDENT VARIABLES

Dependent Variables ^a	
Migration status	Migration and nonmigration
Direction of migration	Non-SMSA-to-SMSA migration and SMSA-to-Non-SMSA migration
Subsequent duration of Residence	The number of years until next migration since 1980
Independent Variables ^b	
<i>Individual level variables</i>	
Age	Less than 21 yrs, 21-25 yrs, 26-30 yrs, 31-35 yrs, and 36 yrs and older
Gender	Male and female
Race/ethnicity	White, black, and other
Marital status	Never-married, married, cohabiting, and other
Length of residence	Less than 2 yrs, 2-4 yrs, 5-10 yrs, and 11 yrs and over
Education	Not a high school graduate, high school graduate, some college graduate, and bachelor's degree or more
Employment status	Employed, unemployed, and out of labor force
Income ^c	Less than \$10,000, \$10,000 - \$19,999, \$20,000 - \$29,999, and \$30,000 and over
Status inconsistency	Consistent, underrewarded, overrewarded, and mixed
<i>Household level variables</i>	
Household size	1, 2, 3, 4, and 5 and more
Children	No child, 0-5yrs, and 6-12 yrs
Household income ^c	Less than \$20,000, \$20,000 - \$39,999, \$40,000 - \$59,999, and \$60,000 and over
Spouse/partner's age ^d	Less than 21 yrs, 21-25 yrs, 26-30 yrs, 31-35 yrs, and 36 yrs and older
Spouse/partner's education ^d	Not a high school graduate, high school graduate, some college graduate, and bachelor's degree or more
Power age ^e	Wife < Husband and Wife >= Husband
Power education ^e	Wife < Husband and Wife >= Husband
Power income ^e	Wife < Husband and Wife >= Husband
<i>Community level variables</i>	
Population size	Less than 100,000, 100,000-499,999, 500,000-999,999, and 1 million and over
% of white population	Less than 70%, 70-79%, 80-89%, and 90% and over
% of 4-year college-graduated	Less than 7%, 7-10.9%, 11-14.9%, and 15% and over
Per capita personal income ^c	Less than \$15,000, \$15,000 - \$19,999, \$20,000 - \$24,999, and \$25,000 and over
Unemployment rate	Less than 3%, 3-5.9%, 6-8.9%, and 9.0% and over

^a Measured at the end of migration intervals (Time *t*)^b Measured at the beginning of migration intervals (Time *t-1*)^c Converted values by the Consumer Price Index for 2002.^d Only constructed for married couples and cohabiting couples^e Only constructed for married couples

intracounty move as an instance of migration, because it generally does not require disengagement from a given community or lead to a change in jobs (Sandefur and Scott 1981). If the counties are different between the beginning and the end of an interval, a migration is defined as having occurred.

For the second measure, direction of migration, comparisons of the county of residence at the beginning of the 2-year intervals and at the end of the intervals is made to determine the extent to which migration is between SMSAs and non-SMSAs. The SMSA and non-SMSA status of the counties is included in the NLSY79 geo-code data and that incorporates the U.S. Census designation of whether a county is part of a metropolitan area. A non-SMSA-to-SMSA migration rate that depicts the proportion of migrations from non-SMSA to SMSA and a SMSA-to-non-SMSA migration rate that depicts the proportion of migration from SMSA to non-SMSA are the focal points of the analysis of direction of migration. Again, it is important to note that this rate is calculated on the basis of the number of person-years rather than on the number of individuals. There are more person-years for some individuals, those with more complete interview information, than for others.

The subsequent duration of residence is used as a measure of migration in a Cox proportional hazard model. It is the number of years in a person's residence before his or her first observed migration occurs since the beginning of the time frame (1980). For example, one has been in a place since 1980, and he or she has moved out of the place in 1986. The subsequent duration of residence for him or her would be six years. Since individuals are followed for different lengths of time to experience migration, subsequent duration of residence shows the timing of migration as well as the change of residence.

Independent Variables

Individual level, household level and community level explanatory variables are used in this analysis. Examinations are conducted separately and in selected combinations for each level. The initial independent variables in this study are a mix of continuous and categorical. After testing various model configurations, it has been determined that, in order to get the best modeling results and more easily interpretable results, converting data is necessary.⁴ All continuous variables such as age, education, and income are converted into ordered categorical variables.

Individual Level Variables

The individual level variables include demographic characteristics (age, sex, race and ethnicity, and marital status), socioeconomic characteristics (length of residence, education, employment status, and labor income), and status inconsistency at the beginning of each person-year.

Demographic characteristics. Ages of individuals are classified as less than 21 years old, 21-25 years, 26-30 years, 31-35 years, and 36 years and older. Sex is recorded as the value "one" for male and "two" for female. Three categories of the race/ethnicity of respondents are distinguished: whites, blacks, and other mainly including Hispanics. Marital status is classified as never married, married, cohabiting, and other, i.e., separated, divorced, and widowed.

⁴ Altman (1998) argues that advantages of converting continuous data into order categorical data are easier to interpret coefficients and to adjust variables for the most efficient way, while one of main disadvantages is related to the possibility of crude categorization. He introduces several conventional options for choosing category cutpoints, such as equally-spaced or equally-sized, and the Optimal P-value approach and suggests that examining frequency distribution before choosing cutpoints is appropriate in most cases. One can find a similar process of data converting in Zhu et al. (2002).

Socioeconomic characteristics. Length of residence refers to the number of years the respondent has occupied his or her current residence since birth at the beginning of the migration intervals. For example, if an individual has never left his or her hometown, length of residence equals to his or her age. The cut-off points for length of residency are less than 2 years, 2-4 years, 5-10 years, and 11 years and over. If one recently has moved to the current residence at the timing of the interview, it is coded as less than 2 years, coded as 2-4 years if one has been at the current residence for at least two years and more but less than 5 years, and so on.

Education is coded into four levels: not a high school graduate, high school graduate, some college graduate, and bachelor's degree or more. Employment status is classified as employed, unemployed, and out of the labor force, the latter including persons engaged in unpaid domestic work, in school, and unable to work. Income measures one's total labor income which includes wage, net business income, net farm income, and unemployment compensation. To account for inflationary factors, income is standardized according to the Consumer Price Index (CPI) for 2002.

Status inconsistency. Brown and others' method of measuring status inconsistency (1988) is adopted in this study. Since they attempt to integrate several previous procedures for measuring status inconsistency, their method does not use Lenski's status inconsistency index, but instead codes the inconsistency score that could keep information about the direction of status inconsistency.

There are three status variables in Brown and his colleagues' study: education, occupation, and income. The ethnic status measure employed by Lenski is not used in their study. Brown and his colleagues consider education as an investment, occupation as

a social reward, and income as a material reward. "Underrewarded" inconsistencies are those with high educational status, but low occupational and income status. Conversely, persons whose occupations and/or incomes are significantly higher than those of individuals with similar education are classified as "overrewarded" inconsistencies. It is possible that some one has lower education and lower occupational prestige, but appears in the upper income ties, and vice versa. These people are called "mixed" inconsistencies.

Constructing the status inconsistency variable is based on education, income, and occupation in this study. Education is coded into three levels: 1) less than 11 years of education, 2) 12-15 years, and 3) more than 16 years. Occupation is classified in three categories: 1) professional, technical, and managers; 2) sales, clerical, and craftsmen; and 3) operator, laborers, and service. The respondent's income is split into four levels: 1) lowest 25% in the income distribution of the NLSY 79 sample, 2) lower-middle 50%, 3) upper-middle 75%, and 4) highest 100%. The cut-off points for these three variables are designed for identifying as closely as one-half of the study sample represents people who have balanced status between investment and reward.

By using these four constructed status inconsistency categories, this study attempts to investigate the effect of status inconsistency on the propensity to migrate. Table 4 shows the cross-tabulation of income by occupation, and educational level used for constructing. Unfortunately, the item nonrespondent rate is relatively high for income and occupation variables, as is true in most surveys, resulting in a loss of many cases. For example, age is missing for only .02% of the study sample whereas income is absent for 17.18% and occupation is missing for 21.17% (See Table 5). Status inconsistency could not be measured for 26% of the sample.

TABLE 4. VARIABLE CODING FOR STATUS INCONSISTENCY

Education 1 : Less than high school graduate

<i>Income (percentile)</i>	<i>Occupation</i>		
	Operator, laborers, and service	Sales, clerical, and craftsmen	Professional, technical, and managers
Lowest 25 th	43.2 *	35.6 *	23.3 ^
Lower-middle 50th	30.8 *	28.9 *	27.3 ^
Upper-middle 75th	18.1 ^	22.5 +	27.6 +
Highest 100th	7.9 ^	13.1 +	21.8 +
Total (Person-Years)	100.0 (5,074)	100.0 (3,040)	100.0 (344)

Education 2: High school graduate and some college graduate

<i>Income (percentile)</i>	<i>Occupation</i>		
	Operator, laborers, and service	Sales, clerical, and craftsmen	Professional, technical, and managers
Lowest 25 th	30.6 -	22.6 -	14.8 ^
Lower-middle 50th	29.2 *	26.5 *	18.8 ^
Upper-middle 75th	23.4 *	28.9 *	29.8 ^
Highest 100th	16.7 ^	22.0 +	36.6 +
Total (Person-Years)	100.0 (14,695)	100.0 (16,638)	100.0 (5,520)

Education 3: Bachelor's degree or more

<i>Income (percentile)</i>	<i>Occupation</i>		
	Operator, laborers, and service	Sales, clerical, and craftsmen	Professional, technical, and managers
Lowest 25 th	23.4 -	12.7 -	7.8 ^
Lower-middle 50th	23.4 -	17.4 -	11.2 ^
Upper-middle 75th	23.3 ^	25.4 *	20.1 *
Highest 100th	30.9 ^	44.4 *	60.9 *
Total (Person-Years)	100.0 (790)	100.0 (2,264)	100.0 (5,228)

Summary

Categories	Person-Years	Percentage
Consistent	28,479	53.1
Overrewarded	9,319	17.4
Underrewarded	6,924	12.9
Mixed	8,871	16.6
Total	53,593	100.0

* = Consistent

+ = Overrewarded

- = Underrewarded

^ = Mixed

For those who graduate from high school and have some college education (level 2 education), the expected occupations are sales, clerical, and craftsmen or operator, laborers, and service, and the expected income ties are lower-middle 50th or upper-middle 75th. These individuals are coded as “consistent” and occupied 53.1% of the valid cases in the study sample. In similar manner, underrewarded, overrewarded, and mixed inconsistent are coded according to designation of Table 4: 17.4%, 12.9%, and 16.6% respectively.

Household-Level Variables

At the household level, both demographic and economic conditions of households are important. Three independent variables, which are frequently used in studies of migration, are included to capture the economic and demographic structure of the household. Demographic variables include household size and the presence and ages of children in the household. Another household level variable included in the analysis is the total net household income.

The NLSY79 does not count the cohabiting partners as family members, because of their non-legal marriage relationship with respondents. According to this definition, the cohabiting partners are excluded from two original variables, the Family Size and the Total Net Family Income in the NLSY 79 data set. It should be mentioned that in this research, the cohabiting partner is counted as a household member and the total net household income for cohabiting couples is assessed by both the respondent's family income and his or her partner's amount of income.

The Child variable is coded as 0 = no child, 1 = the youngest children in the household ranging from 0 to 5 years, 2 = the youngest children ranging from 6 to 12

years, and 3 = the youngest children ranging from 13 to 18 years. The household income variable indicates total net household income in the calendar year, and all values are transformed by the CPI for 2002. For married couples and cohabiting couples, age and education of the spouse or the partner are used as additional variables.

Two of Shihadeh's (1991) "power variables" are included in this study to capture gender differences in both the determinants and the consequences of migration. In his study, three "power variables" are constructed: education, age, and occupational prestige of the job. Instead of using Shihadeh's occupation variable, differences in income are employed as a power variable in this study. This is because England and Kilbourne (1990) review research on marital power and conclude that relative earnings have a strong causal relationship to relative power within households.

The age power variable is the wife's age subtracted from the husband's. The same reasoning is applied in the construction of power variables based on education and income. The categories of Shihadeh's "power variables" are modified in this study. His power variables are trichotomized and denote whether 1) the wife has less power or 2) the husband and the wife are equal or 3) the wife has more power. However, unlike other power variables, the difference of income contribution between spouses varies from zero to more than one hundred times. If a strict statistical assumption is applied, only a few respondents and their spouses who have exactly the same income would be categorized as equal. To mitigate this problem and to preserve consistency among the power variables, power variables in this study are dichotomized: either the wife has more power, or the wife has equal or more power.

Community-Level Variables

Variables representing *community-level* factors are included in the model. They can be usefully categorized into demographic factors and local socioeconomic conditions. Socio-demographic factors are captured by the population size, the percentage of population that is white, and the percentage of 4-year college-graduated. In the NLSY79, only the unemployment rate in the county is reported annually, and other variables are drawn from the County City Date Book files in 1977, 1983, 1988, and 1994. Although use of annually updated variables is ideal, such data are not available on an annual basis.

The NLSY79 data set includes information about the actual population of the county. The size of population is classified in this study in several categories: 1) population less than 100,000, 2) 100,000 - 499,000, 3) 500,000 - 999,999, and 4) 1 million and over. The percentage of population that is white are coded as: 1) less than 70%, 2) 70 - 79%, 3) 80 - 89%, and 4) 90% and over. There are four categories in the percentage of 4-year college-graduated variable: 1) less than 7%, 2) 7 - 10.9%, 3) 11 - 14.9%, and 4) 15% and over.

The local economic conditions are captured by the per capita personal income of the current county of residence and by the unemployment rate of the county. Personal income in a place of residence is defined as the income received by all residents from participation in production, from government and business transfer payments, and from government interest. Per capita personal income is the annual total personal income of residents divided by resident population. All values of per capita personal income are transformed into 2002 constant dollars according to the CPI. The unemployment rates include four categories: 1) less than 3%, 2) 3.0 - 5.9%, 3) 6 - 8.9%, and 4) 9% and over.

Modeling

Two multivariate analyses are used in this study. First, the logistic regression model technique is utilized for the separated analysis of individual, household, and community factors affecting the propensity to migrate and the direction of migration. Second, the Cox proportional hazard model helps to correct for the censoring problems in the longitudinal data and to examine the relative effects on the subsequent duration of residence by variables specified at the individual, family, and community levels. Because the primary objective of this study is to conceptualize a multilevel model for the study of migration, the final model that assesses the simultaneous effects of the three level factors on migration is estimated through the Cox proportional hazard model. In this study, a hazard of migration at time t is a function of observed different individual, household and community characteristics at time $t-1$.

The migration hazard function is expressed as:

$$\ln h(t) = a(t) + \underbrace{b_1 AGE + b_2 GEN + b_3 R/E + b_4 MAR + b_5 EDU + b_6 EMP + b_7 INC}_{\text{Community Variables}} + \underbrace{b_8 HS + b_9 CHI + b_{10} HI}_{\text{Individual Variables}} + \underbrace{b_{11} PS + b_{12} \%W + b_{13} \%COL + b_{14} PCI + b_{15} UR}_{\text{Household Variables}} + e$$

where $a(t)$ can be any function of time, so long as the ratio of hazard is constant for any two individuals at any point in time.

The first set of variables is the observed different individual characteristics, where AGE = a series of dummy variables measuring age, GEN = a dummy variable measuring

gender, R/E = a series of dummy variables measuring race and ethnicity, MAR = a series of dummy variables measuring marital status, EDU = a series of dummy variables measuring years of education completed, EMP = a series of dummy variables measuring employment status, and INC = a series of dummy variables measuring income.

The second set of variables represents the observed different household characteristics, where HS = a series of dummy variables measuring the number of person in the household, CHI = a series of dummy variables measuring the presence and the ages of children, and HI = a series of dummy variables measuring household total net income.

The last set of variables was the observed different community characteristics, where PS = a series of dummy variables measuring the population size of the county, %W = a series of dummy variables measuring the percentage of the white population in the county, %COL = a series of dummy variables measuring the percentage of 4-year college-graduated population in the county, PCI = a series of dummy variables measuring personal per capita income in the county, and UR = a series of dummy variables measuring the unemployment rate in the county. An error term (e) represents an unobserved residual.

The Distribution of Missing Values and the Correlation Analysis of the Study Variables

Prior to presenting the main analyses in this study, it is imperative to know how missing values are distributed and whether there is multicollinearity among variables. Table 5 presents the distribution of missing values for each dependent and independent variable included in this study.

TABLE 5. NUMBER OF MISSING VALUES (PERSON-YEARS) IN THE STUDY SAMPLE BY TYPES

	Number of Missing Values					
	Total Study Sample		Cross-Sectional Sample		Supplemental Sample	
	Person-Years	(%)	Person-Years	(%)	Person-Years	(%)
Total Cases	72,426	100.00	41,817	100.00	30,609	100.00
Number of Valid Cases for All Variables	35,968	49.66	23,170	55.41	12,798	41.81
Dependent Variables						
Migration status	-	-	-	-	-	-
Direction of migration	-	-	-	-	-	-
Subsequent duration of residence	12,524	17.29	5,394	12.9	7,130	23.29
Independent Variables						
<i>Individual Variables</i>						
Age	-	-	-	-	-	-
Gender	16	.02	9	.02	7	.02
Race/ethnicity	576	.80	302	.72	274	.90
Marital status	9	.01	6	.01	3	.01
Length of residence	6,648	9.18	6,461	15.45	3,187	10.41
Education	346	.48	159	.38	187	.61
Employment status	-	-	-	-	-	-
Income	12,446	17.18	5,985	14.31	6,461	21.11
Status inconsistency (Occupation)	18,833	26.00	9,787	23.40	9,046	29.55
Number of valid cases	15,331	21.17	7,969	19.06	7,362	24.05
Number of valid cases	48,543	67.02	29,321	70.12	19,222	45.97
<i>Household Variables</i>						
Household size	-	-	-	-	-	-
Children	416	.57	205	0.49	211	.69
Household income	13,356	18.44	6,856	16.4	6,500	21.24
Number of valid cases	58,754	81.12	34,802	83.25	23,952	78.25
<i>Additional variables^a</i>						
Total ^b	35,749	49.36	22,442	53.67	13,307	43.47
Spouse/partner's age	1,994	5.57	1,190	5.3	804	6.04
Spouse/partner's education	1,995	5.57	1,169	5.21	826	6.21
Total ^c	30,422	42.00	19,548	46.74	10,874	35.52
Power age	1,597	5.25	982	5.02	597	5.49
Power education	1,579	5.19	985	5.04	643	5.91
Power income	9,973	32.78	5,927	30.55	4,046	37.21
<i>Community Variables</i>						
Population size	15	.02	12	.03	3	.01
% of white population	288	.40	146	.35	142	.46
% of 4-year college-graduate	120	.17	52	.12	68	.22
Per capita personal income	19	.03	16	.04	3	.01
Unemployment rate	4	.01	3	.01	1	-
Number of Valid Cases	72,032	99.46	41,627	99.52	30,405	99.33

^a Additional variables are constructed for only married couples and cohabiting couples

^b The denominator is the number of person-years for the married and cohabiting people

^c The denominator is the number of person-years for the married people

Overall, the number of missing values is higher in the supplemental sample than in the cross-sectional sample. This result is not surprising because the economically disadvantaged are more likely to be lost in the follow up of the study. MaCurdy, Mroz, and Gritz (1998) have studied the attrition patterns of the NLSY79 and conclude that attriters are more likely to be unemployed and to fall in lower income ties. Most missing values come from status inconsistency (26.0%), household income (18.44%), subsequent duration of residence (17.29%), income (17.18%) and length of residence (9.18%). The number of missing values is higher for two income variables. Generally nonresponse rates to income questions are higher than responses to other. It may be due to uncertainty, suspicion, and complex financial arrangements. Since status inconsistency variables are constructed from income and occupation variables, factors that are likely to contribute to missing values are higher attrition rates for the unemployed and higher nonresponse rates for income questions. The reason for high missing values in the subsequent duration of residence and length of residence is that completed information about the geographical location at more than two points in time is needed for these measures.

Approximately 50% of the study sample (35,968 person-years) have valid cases for all dependent and independent variables, and they are used in the computation of Pearson's correlation scores. The results of Pearson's correlation analysis, indicating whether there is an independence relationship between two categorical variables, are presented in Table 6. According to Grimm and Yarnold (1997), when the Pearson's correlation coefficient is higher than .80 between two variables, it should be considered as multicollinearity. One can note in Table 6 that there is no problematic

TABLE 6. BIVARIATE CORRELATIONS AMONG VARIABLES IN THE STUDY (N=35,968)

	MS	DM	ST	AGE	GEN	R/E	MAR	LR	EDU	EMP	INC	SI	HS	CHI	HI	PS	%W	%COL	PCI	UR	
Migration Status	1.000																				
Direction of Migration	-.021**	1.000																			
Survival Time	-.362**	.004	1.000																		
Age	-.115**	.043**	.032**	1.000																	
Gender	-.024**	.029**	.037**	.020**	1.000																
Race/Ethnicity	-.062**	.091**	.125**	.038**	.014**	1.000															
Marital Status	-.033**	-.017**	.012*	.328**	.102**	-.018**	1.000														
Length of Residence	-.264**	-.004	.650**	.039**	.029**	.097**	-.028**	1.000													
Education	.067**	.127**	-.246**	.177**	.072**	-.093**	-.103**	-.191**	1.000												
Employment Status	.061**	-.022**	-.029**	-.108**	.087**	.032**	-.024**	-.049**	-.089**	1.000											
Income	-.068**	.119**	-.029**	.397**	-.232**	-.071**	.123**	-.007	.285**	-.301**	1.000										
Status Inconsistency	.010*	.035**	.011*	.094**	-.097**	-.019**	.028**	.001	-.033**	-.019**	.196**	1.000									
Household Size	-.100**	-.063**	.165**	.017**	.057**	.089**	.034**	.214**	-.224**	.078**	-.157**	.005	1.000								
Children	-.113**	-.055**	.121**	.441**	.176**	.069**	.316**	.111**	-.148**	.014**	.059**	.063**	.409**	1.000							
Household Income	-.060**	.139**	-.020**	.145**	-.023**	-.141**	-.049**	.053**	.263**	-.118**	.474**	.107**	.231**	.016**	1.000						
Population Size	-.057**	.589**	.065**	.013*	.006	.137**	-.042**	.055**	.110**	-.025**	.125**	.026**	-.056**	-.074**	.125**	1.000					
% White Population	.041**	-.143**	-.096**	.002	-.022**	-.331**	.018**	-.101**	.012*	-.010	.014**	.012*	-.031**	-.011*	.067**	-.350**	1.000				
% 4yrs College	.063**	.394**	-.138**	-.070**	-.011*	-.009	-.079**	-.140**	.173**	-.016**	.077**	.009	-.134**	-.148**	.111**	.375**	.024**	1.000			
Per Capita Income	-.041**	.456**	-.012*	.311**	-.006	.053**	.099**	-.030**	.189**	-.068**	.311**	.064**	-.114**	.051**	.209**	.565**	-.064**	.488**	1.000		
Unemployment Rate	-.002	-.244**	.074**	-.213**	-.010	-.029**	-.058**	.092**	-.114	.094**	-.171**	-.015**	.084**	-.053**	-.086**	-.163**	.025**	-.316**	-.332**	1.000	

*p <= .05

**p < .01

multicollinearity, but there are some relatively higher correlations between variables with a coefficient value greater than .50: length of residence and subsequent duration of residence ($r = .650$); direction of migration and population size ($r = .589$); and population size and per capita personal income ($r = .565$).

The higher correlation for the subsequent duration of residence and for the length of residence variables is expected. Both variables are measures of the number of years of one's residence at two different base line times: since 1980 and since birth. They exclude the data that lacked any geographical information of respondents during nine study intervals.

As mentioned earlier, the definition of SMSAs is based on population size. Since one city with 50,000 inhabitants and more is defined as a SMSA, changes in residential location between non-SMSAs and SMSAs are closely related to changes in the population size.

The population size is often used as the proxy variable for the economic development, because large urbanized areas are more likely to be economically prosperous. Therefore, the high correlation between the population size and the per capita personal income is not unusual.

CHAPTER IV

RESULTS

Descriptive Statistics

Descriptive statistics are reported for the three levels of independent variables for the dependent migration measures. At the individual level, the migration status and the direction of migration are examined by the proportion of which individuals are in a different county at the end of the 2-year intervals. In the same manner, the migration status and the direction of migration are described by household characteristics and community characteristics.

Migration Status by Individual Characteristics

Young adults have traditionally been observed to have some of the highest rates of mobility, because of their relatively higher frequencies of life-course events. This pattern is supported by the NLSY. The migration rate for person-years in which respondents are 18-21 year-olds at the beginning of intervals is 19.8% compared to 9.5% for person-years in which respondents are 36-41 year-olds. The migration rate, 21.3%, for person-years during which respondents are between 21 and 25 years old is higher than for person-years contributed by individuals in any other age group. The migration rate consistently declines after age 21-25.

Within young adult groups, migration rates are quite diverse. Migration rates differ by demographic and socioeconomic characteristics. Migration rates are slightly higher for males than for females. The results are consistent with empirical research which documents that the migration selectivity varies by sex, even though the selectivity

**TABLE 7. DESCRIPTIVE INDIVIDUAL CHARACTERISTICS OF NLSY79 (1980 - 1998) BY
MIGRATION STATUS**

	Total	Person-Years	Migration Rates
Age	72,426		
Less than 21 yrs		9,748	19.8
21-25 yrs		20,983	21.3
26-30 yrs		20,453	16.2
31-35 yrs		16,983	13.1
36 yrs and older		4,259	9.5
Gender	72,411		
Male		34,252	17.9
Female		38,158	16.3
Race/Ethnicity	71,850		
White		47,552	18.7
Black		20,076	13.7
Other		4,222	13.0
Marital Status	72,417		
Never-married		29,566	19.0
Married		30,422	14.8
Cohabited		5,327	18.3
Other		7,102	17.4
Length of Residence	65,778		
Less than 2 yrs		14,529	35.2
2-4 yrs		10,642	23.0
5-10 yrs		11,138	13.4
11 yrs and over		29,469	7.9
Education	72,080		
Not a high school graduate		14,140	15.6
High school graduate		32,189	14.8
Some college graduate		15,964	19.3
Bachelor's degree or more		9,787	22.7
Employment Status	72,426		
Employed		52,282	16.1
Unemployed		6,353	17.6
Out of labor force		13,787	20.2
Income	59,980		
Less than \$10,000		18,254	21.3
\$10,000 to \$19,999		15,141	16.1
\$20,000 to \$29,999		11,645	14.8
\$30,000 and over		14,940	15.6
Status Inconsistency	53,593		
Consistent		28,479	16.1
Underrewarded		9,319	22.3
Overrewarded		6,924	14.2
Mixed		8,871	18.1

has become smaller in recent years than before (Rosenbloom and Sundstrom 2001). Workforce participation has strong effects on geographic mobility since many migrations will be motivated by the desire to pursue job searches and job changes. The lower workforce participation rate for women over men may contribute to the low migration rates for women (Bailey 1989).

Among the race/ethnic groupings, whites exhibit the highest overall migration rates, followed by blacks and then by other ethnic groups. Tarver and McLeod (1976) have found that whites are more likely to have migrated than blacks and that if whites have migrated, they are more likely to move further than blacks. Although discrimination against minority groups has decreased, geographical segregation of minority groups has been a persistent feature of American society. This and other socioeconomic differences between the groups may account for these differences in migration rates.

Migration rates are lowest for married people, while the never married have the highest rate. Age could partly explain some of this variation, because the married groups and "other" people are older than the never married people in the NLSY79. The mobility rates for the cohabitants are higher than those for the married people. Again, it may be partly due to age, because the cohabitants are relatively younger than the married people (results are not shown).

There is a strong negative relationship between length of residence and migration. The migration rate for people living in the same residence for nine years and over is almost five times less than that for those who have recently moved.

Educational attainment, income level, and employment status are primary sources of financial and human capital. The migration rate differs according to the level of human

capital. Migration occurred during 14.8% of person-years for individuals with a high school education compared to 22.7% for person-years for individuals with a college degree and more. The difference may indicate that the more educated people would possess greater information about opportunities in non-local labor market (DaVanzo and Morrison 1981). In terms of overall migration rates, the employed and the unemployed share similar rates. Those who do not participate in the labor force are most likely to have moved.

Lower-income groups are more likely to migrate than higher-income groups. In about 21 out of 100 person-years for individuals who earned incomes of less than \$10,000 have migrated, compared with about 16 out of 100 person-years for individuals who earned incomes of \$30,000 and over. When one considers the generally high, positive correlation between education and income, this result might not be expected. Age could explain some of this disparity, because about 71% of the lowest-income group are less than 21 years old, while over 40% of the highest-income groups are 31 years old and older.

The possible effect of status inconsistency on the propensity to migrate is clear. Underrewarded inconsistent are most likely to have migrated, while overrewarded inconsistent are least likely to have moved: 22.3% of person-years for the under-rewarded, compared with 14.2% of person-years for the overrewarded. Mixed inconsistent have slightly higher migration rates than consistent.

Brown et al. (1988) have not investigated further the difference within mixed inconsistency categories, because they have focused on the discrepancy between investment and reward. But another possible discrepancy remains within rewards

according to relative levels between income and occupation. Because income and occupation are not simply a matter of economic reward, they produce various social relationships and shape people's lives within the larger context of a given society. It may be noteworthy to know whether there is a difference within mixed inconsistencies. For example, one might expect that there are differences in social behaviors between a poor scholar and a rich mechanic, even though both are categorized as mixed inconsistencies.

Mixed inconsistency could be broken down into two subcategories: occupation-reward inconsistency, which means that one has received higher occupational prestige than income reward (cells on the right side of the column marked as the mixed inconsistency in Table 4), and income-reward inconsistency, which indicates those who in higher income ties than occupational prestige (cells on the left side column in Table 4). After breakdown of the mixed inconsistency categories, the problem of overclassification occurs. Migration rates are quite similar to the underrewarded and the occupation-reward inconsistencies, while rates are similar to the overrewarded and income-reward inconsistencies. Because of this overclassification, subcategories within the mixed inconsistency are combined into one category in this study.

However, it is interesting to note that there is significant variation between two sub-mixed-inconsistency categories according to race and ethnicity. Table 8 presents the migration rates of two mixed inconsistency categories by race and ethnicity.

Differing patterns of migration behavior between two mixed inconsistency categories are the largest for whites, followed by blacks. For whites, the migration rate for the occupation-reward inconsistencies is 8.3% higher than that for the income-rewarded

TABLE 8. MIGRATION RATES BY TWO SUBCATEGORIES OF MIXED INCONSISTENCY BY RACE

	Mixed Inconsistency	Total Person-Years	Migration Rate
Total		8,871	18.1
White			
Occupation reward inconsistency		3,437	23.1
Income reward inconsistency		2,795	14.8
Black			
Occupation reward inconsistency		965	17.0
Income reward inconsistency		1,053	14.1
Other			
Occupation reward inconsistency		239	12.1
Income reward inconsistency		318	11.9

inconsistent. On the contrary, the "Other" category shows no difference in migration rates between two subcategories.

The effects of status inconsistency and race and ethnic groups may be confounded. For whites, one's relatively lower monetary income reward compared with his and her occupational prestige seems to facilitate migration, while for the "Other" category, mobility rates have responded to both income level and occupational prestige.

This result can be interpreted as providing additional support to the results in Hawkes and his colleagues' study (1984). They have studied the relationship between status inconsistency and job satisfaction for whites and for Mexican-American. Results reveal that for white workers, job satisfaction is significantly related to increases in income level alone, while for Mexican-American, job satisfaction appears to be a less-important determinant than the occupational prestige.

As mentioned earlier, one of the basic assumptions in status inconsistency arguments is that people in society have certain expectations about how consistent an individual is on various dimensions of social status. These status expectations are closely related to socialization in a given society, because socialization forces could make certain

kinds of inconsistency tolerable such as occupation-reward inconsistency or income-reward inconsistency. This is why, as Smith (1996) suggests, "different ethnic groups are shown to have different cognitive responses to similar structural conditions"(2.59). These assumptions suggest that different cultural norms or socialization forces could produce different responses to similar objective conditions, because status inconsistency depends on the ways in which structural position is interpreted or experienced.

Direction of Migration by Individual Characteristics

The out-migration rate for non-SMSAs is higher than the rate for SMSAs. Remarkably, this is true for person-years contributed by individuals in all subcategories identified in this analysis. It has historically been observed that people have responded to the greater variety of job and educational opportunities in larger urban communities (Hoover and Giarratani 1999), and this trend is anticipated to continue in the NLSY79. However, among people who changed their residence within or outside of an urbanized area, younger-age groups are more likely to have moved than older-age groups, regardless of the direction of migration.

Among those who moved from non-SMSAs to SMSAs, whites and blacks share no difference in migration rates, while whites are more likely to migrate from SMSAs to Non-SMSAs than blacks: 3.8% of person-years for whites, compared with 2.0% of person-years for blacks. Other ethnic groups are most likely to have migrated from non-SMSAs to SMSAs, while they are least likely to have moved from SMSAs to non-SMSAs.

TABLE 9. DESCRIPTIVE INDIVIDUAL CHARACTERISTICS OF NLSY79 (1980 - 1998) BY DIRECTION OF MIGRATION

	Non-SMSA			SMSA		
	Total	Person -Years at time t-1	% of migrated to SMSA	Total	Person -Years at time t-1	% of migrated to Non- SMSA
Age	16,425			56,001		
Less than 21 yrs		2,642	17.6		7,106	4.1
21-25 yrs		5,136	16.9		15,847	3.7
26-30 yrs		4,416	13.2		16,037	3.1
31-35 yrs		3,422	13.5		13,561	2.5
36 yrs and older		809	7.2		3,450	1.7
Gender	16,423			55,988		
Male		7,863	15.6		26,389	3.4
Female		8,560	14.1		29,598	2.9
Race/Ethnicity	16,296			55,554		
White		12,005	14.6		35,547	3.8
Black		3,867	14.7		16,209	2.0
Other		424	19.3		3,798	1.8
Marital Status	16,424			55,993		
Never-married		6,188	18.4		23,378	3.0
Married		7,677	11.7		22,745	3.1
Cohabited		975	13.7		4,352	4.1
Other		1,584	16.7		5,518	3.2
Length of Residence	15,229			50,549		
Less than 2 yrs		3,469	25.6		11,060	6.4
2-4 yrs		2,406	18.5		8,236	4.3
5-10 yrs		2,393	12.4		8,745	2.4
11 yrs and over		6,961	8.9		22,508	1.5
Education	16,364			55,716		
Not a high school graduate		3,846	13.6		10,294	3.9
High school graduate		8,274	12.1		23,915	3.1
Some college graduate		2,858	19.9		13,106	2.9
Bachelor's degree or more		1,386	23.9		8,401	2.9
Employment Status	16,425			56,001		
Employed		11,341	13.7		40,941	3.0
Unemployed		1,618	16.9		4,735	3.5
Out of labor force		3,465	17.5		10,322	3.8
Income	13,325			46,655		
Less than \$10,000		4,832	17.9		13,422	4.2
\$10,000 to \$19,999		3,907	12.6		11,234	3.1
\$20,000 to \$29,999		2,424	13.2		9,221	2.5
\$30,000 and over		2,162	14.8		12,778	2.5
Status Inconsistency	11,961			41,749		
Consistent		6,624	13.0		21,855	3.0
Underrewarded		2,421	19.4		6,898	3.9
Overrewarded		1,074	14.2		5,850	2.5
Mixed		1,824	17.1		7,047	3.0

The never married are most likely to have moved from non-SMSAs to SMSAs, while they are least likely to have moved in the opposite direction. For the cohabitants, the migration rate into SMSAs is low, but the rate into non-SMSAs is the highest among marital status groups.

The loss of well-educated young adults in rural areas is clear. More than one out of five of the college educated make a non-SMSA-to-SMSA migration, while the college educated is least likely to make a SMSA-to-non-SMSA migration. However, people without high school diplomas have relatively higher migration rates from SMSAs to non-SMSAs.

Those in the lowest-income groups are most likely to have migrated regardless of the direction of migration. People in the highest income group are slightly more likely to have moved to SMSAs, while they are least likely to have migrated to non-SMSAs.

The underrewarded have the highest rates in both a non-SMSA-to-SMSA migration and a SMSA-to-non-SMSA migration. The migration rate into SMSAs for the overrewarded is higher than for the consistent, even the generally low mobility of the overrewarded, while the migration rates into non-SMSAs for the overrewarded is the lowest among status inconsistency groups.

Migration Status by Household Characteristics

Descriptive statistics in Table 10 document the differences in migration rates according to household characteristics. These statistics show that demographic and economic conditions of the households matter: the household size, the presence and the ages of children, and the total net household income appear to affect the propensity to migrate. Migration rates decrease with greater household size. It may due to the fact that

TABLE 10. DESCRIPTIVE HOUSEHOLD CHARACTERISTICS OF NLSY79 (1980 - 1998) BY MIGRATION STATUS

	Total	Person-Years	Migration Rates
Household Size	72,426		
1		10,483	25.8
2		13,477	18.0
3		15,303	15.7
4		15,957	14.1
5 and more		17,206	14.7
Child	72,010		
No child		39,527	20.2
0-5yrs		23,515	14.1
6-12yrs		7,641	10.8
13-18 yrs		1,327	9.4
Household Income	59,070		
Less than \$20,000		15,709	19.6
\$20,000 to \$39,999		16,929	17.2
\$40,000 to \$59,999		12,698	14.9
\$60,000 and over		13,734	16.6
Spouse/Partner's Age	33,755		
Less than 21 yrs		1,665	19.3
21-25 yrs		7,535	19.0
26-30 yrs		10,410	15.9
31-35 yrs		8,434	13.4
36 yrs and older		5,711	10.8
Spouse/Partner's Education	33,754		
Not a high school graduate		5,933	14.7
High school graduate		15,426	13.9
Some college graduate		6,710	15.3
Bachelor's degree or more		5,685	19.2
The Married Couple			
Power age	28,843		
Wife < Husband		19,452	14.2
Wife >= Husband		9,391	16.0
Power education	28,794		
Wife < Husband		8,828	16.6
Wife >= Husband		19,966	13.9
Power income	20,449		
Wife < Husband		16,115	14.7
Wife >= Husband		4,334	14.3

the social and economic costs of migration increase substantially with household size.

About 25.8% of person-years for individuals living alone move, compared with only 14% of person-years for individuals living with four or more household members.

In agreement with household migration literature, the negative effect of having children on migration rates is found. In roughly 20% of person-years for respondents without children move, compared with about only 9% of person-years for respondents with teenage children. Families with no children or preschool-age children are more mobile than families with school age or teenage children. It may be that children's participation in schools tends to develop their parent's social ties which deter migration, and that the parents with school age children tend to be aware of the detrimental effect of migration on school achievement (Coleman 1988; Long 1972; Shauman and Xie 1996).

In the third row of Table 10, one can see the inhibiting effect of household income on the propensity to migrate. People living in lower-income households are more likely to move than those living in higher-income households: 19.6% of person-years for respondents with earned incomes of less than \$20,000, compared with 14.9% of person-years for respondents with earned incomes of \$40,000 to \$59,999. Some of this disparity may reflect differences in the ages of those in household, particularly the higher proportion of young households with low income.

If the respondent is married or cohabiting with a partner, his or her spouse or partner's information could be used as additional household variables. About 47% of the sample report their spouses' or partners' ages and educational levels. When compared with the effect of the respondent's individual characteristics on migration status, the spouses' or partners' characteristics tend to have made slightly little difference on migration rates. But overall patterns of migration according to age and education are similar. Decreases in the spouse's age and increases in educational attainment are associated with increases in migration. About 19 out of 100 person-years for spouses or

partners who are 21 or younger make a migration, while about 13 out of 100 person-years for spouses or partners between ages 31-35 make a migration. There are small differences in migration rates by spouse/partner's education, ranging from 13.9% person-years for spouses or partners with high school education to 19.2% of person-years for spouses or partners with a bachelor's degree and more.

For married couples, the effects of power variables on the propensity to migrate are assessed.⁵ There are small differences in migration rates influenced by relative powers between wives and husbands. The migration rate for the wife who is the same age or older than the husband is 2% higher than that for the wife who is younger than the husband. Wives having equal or greater power than husbands in terms of educational level deter migration: 13.9% of person-years for the wives who have more education than the husbands, compared with 16.6% of person-years for the wives who have less education than the husbands. There is no difference in migration rates regardless of whether wives earn a higher or lower income than husband.

Direction of Migration by Household Characteristics

The demographic and economic conditions of households appear to affect the propensity to migrate as well as the direction of migration. In Table 11, people living alone are the most likely to make both a non-SMSA-to-SMSA migration and a SMSA-to-non-SMSA migration. When the household size is greater than three, there is no difference in migration rates. The inhibiting effect of having children on migration rates

⁵ Power variables for the cohabiting couples are also constructed, but results are not reported. Only 6.5% of the study sample is available for the analysis and the overall migration rates according to power variables for the cohabiting couples is similar to the married couples and the variation in migration rates are smaller than the married couples.

is much stronger for the non-SMSA residents than for the SMSAs residents. Among non-SMSA residents, those without children are more than two and half times as likely to have migrated into SMSAs than those with teenage children, while among SMSA residents, people without children are only one and half times more likely to have migrated than those with teenage children.

The effect of total household income on a non-SMSA-to-SMSA migration appears to be "J"-shaped: people living in households in the highest income groups are most likely to have moved, while people living in households in the upper-middle income groups are least likely to have moved. For the SMSA residents, however, migration rates to non-SMSAs decrease with greater total household income.

For the SMSA residents, there is a negative relationship between spouses'/partners' ages and the migration into non-SMSAs, while for the non-SMSAs residents, the effect of spouses'/partners' ages on the migration to SMSAs is somewhat mixed.

For the non-SMSA residents, there is no difference in migration rates by educational level, except for those with bachelor's degree, while for the SMSA residents a decrease in migration into non-SMSAs increased with spouses'/partners' educational levels. However, those with a bachelor's degree or more are most likely to have moved from non-SMSAs to SMSAs, but they are least likely to have moved to non-SMSAs. This difference could indicate that more educated people are more likely to respond to opportunities in the large urban areas.

TABLE 11. DESCRIPTIVE HOUSEHOLD CHARACTERISTICS OF NLSY79 (1980 - 1998) BY DIRECTION OF MIGRATION

	Non-SMSA			SMSA		
	Total	Person -Years at time t-1	% of Migrated to SMSA	Total	Person -Years at time t-1	% of Migrated to Non-SMSA
Household Size	16,425			56,001		
1		1,788	23.5		8,695	4.3
2		2,974	15.1		10,503	3.3
3		3,701	13.1		11,602	3.0
4		3,807	13.1		12,150	2.9
5 and more		4,155	14.1		13,051	2.7
Child	16,338			55,672		
No child		8,441	18.2		31,086	3.4
0-5yrs		5,749	12.3		17,766	2.9
6-12yrs		1,813	9.2		5,828	2.6
13-18 yrs		335	6.9		992	2.3
Household Income	13,626			45,444		
Less than \$20,000		4,370	16.4		11,339	4.2
\$20,000 to \$39,999		4,611	13.2		12,318	3.4
\$40,000 to \$59,999		2,812	12.6		9,886	2.8
\$60,000 and over		1,833	18.4		11,901	2.4
Spouse/Partner's Age	8,220			25,535		
Less than 21 yrs		573	11.7		1,092	5.8
21-25 yrs		2,132	13.0		5,403	4.3
26-30 yrs		2,448	12.3		7,962	3.2
31-35 yrs		1,854	11.9		6,580	2.7
36 yrs and older		1,213	9.9		4,498	2.1
Spouse/Partner's Education	8,205			25,549		
Not a high school graduate		1,828	11.4		4,105	4.4
High school graduate		4,198	11.4		11,228	3.2
Some college graduate		1,313	11.5		5,397	2.6
Bachelor's degree or more		866	17.2		4,819	2.9
The Married Couple						
Power age	7,311			21,532		
Wife < Husband		5,114	11.3		14,338	3.1
Wife >= Husband		2,197	12.8		7,194	3.1
Power education	7,290			21,504		
Wife < Husband		1,991	13.3		6,837	3.2
Wife >= Husband		5,299	11.1		14,667	3.0
Power income	5,009			15,440		
Wife < Husband		4,032	11.3		12,083	2.9
Wife >= Husband		977	12.7		3,357	3.1

Migration Status by Community Characteristics

At the community level, migration from one area to another is affected not only by the differences in economic characteristics of these areas, but also by the difference in demographic characteristics of the population of these areas. Table 12 shows the migration rates by demographic and economic community characteristics.

Those who live in smaller populations are more likely to have moved than those who live in large places: 19.2% of person-years for respondents living in a population size less than 100,000 migrate, compared with 12.7% of person-years for respondents living in a population size 1 million and over.⁶

The proportion of the white population in the county increases with the migration rates: 19.4% of person-years for people in the counties with more than 90% white population migrate, compared with 14.5% of person-years for people in the counties with less than 70% white population. This would be partly due to the generally documented fact that there are higher migration rates among whites than among other ethnic groups. However, the phenomenon may also be associated with population size. Roughly half of all counties with white population 90% and over have population under 100,000. In contrast, only 4% of these places have populations of 1 million or over. Because of the higher intercounty migration rates in small population places, areas with a high proportion of whites tend to show higher rates of mobility.

Confirming Lowry's (1966) earlier finding, one of the push factors explaining out-migration from an area is higher proportion of the well educated. People in the

⁶ Some of this difference may reflect variations in intercounty migration rates: the intercounty migration rates of people in population sizes less than 100,000 are above one and a half times greater than the migration rates of people in counties with 1 million people or more.

TABLE 12. DESCRIPTIVE COMMUNITY CHARACTERISTICS OF NLSY79 (1980 – 1998) BY MIGRATION STATUS

	Total	Person-Years	Migration Rates
Population Size	72,411		
Less than 100,000		21,879	19.2
100,000-499,999		22,091	18.2
500,000-999,999		13,461	16.2
1 million and over		14,980	12.7
% of White Population	72,138		
Less than 70%		17,983	14.5
70-79%		13,300	16.7
80-89%		19,170	16.8
90% and over		21,685	19.4
% of 4-Year College-Graduated	72,306		
Less than 7%		23,061	16.1
7-10.9%		28,404	15.1
11-14.9%		14,555	18.5
15% and over		6,286	25.5
Per Capita Personal Income	72,407		
Less than \$15,000		9,524	20.6
\$15,000 to \$19,999		25,434	17.4
\$20,000 to \$24,999		23,955	15.6
\$25,000 and over		13,494	16.3
Unemployment Rate	72,422		
Less than 3%		739	20.8
3-5.9%		24,283	17.5
6-8.9%		28,587	17.0
9.0% and over		18,813	16.3

counties with a high proportion of 4-year college-graduated adults have the relatively high rate of migration.⁷ The migration rate for people in the counties with the highest proportion of 4-year college-graduated individuals is 9.4% higher than that for the people in the counties with the lowest proportion of 4-year college-graduated individuals.

The economic characteristics of the area that are measured by per capita personal incomes and unemployment rates also have some effects on migration rates, but

⁷ It may partly have resulted from higher interstate migration for the well educated. The interstate migration rate for people living in counties with 15% and more 4 years of college-educated is almost two times greater than that for people living in the counties with less than 7% (results are not shown).

variations in migration rates made by economic variables are slightly smaller than those made by demographic variables. In the fourth row of Table 6, one can see that an increase per capita personal income decreased with the migration rate, except for the highest per capita income area. Economic prosperity seems to deter geographic mobility at the community level as well as at the individual level. People have generally responded to positive economic conditions of the areas by migrating to such areas (Lee 1966). But if they have lived in an economically prosperous area, their motivation for searching non-local opportunities that facilitate migration would decrease.

The difference in unemployment rates makes the variation in migration rates to range from 20.8% of those living in the place with the lowest unemployment rate to 16.3% of those living in the place with the highest unemployment rate. At first glance, these results are different from a common expectation that high unemployment rates may have higher migration rates, because high unemployment rates may work as a push factor which causes high out-migration. Some of this difference may be explained by a factor such as the positive relationship between unemployment rate and the proportion of the white population. About two-thirds of the places with high unemployment rates (more than 6%) have a high proportion of the white population (more than 80%). Because of the high migration propensity of whites, people living in the place with higher unemployment rates may show higher migration rates.

The definition of a SMSA is based on the population size of an area, but there are systemic variations of demographic and economic characteristics between SMSAs and non-SMSAs. Non-SMSAs are more likely to be places with high proportion of the white population, low proportion of the well-educated, low per capita income, and higher

unemployment than SMSAs. Because of these variations, the analysis for effects of community characteristics on the direction of migration is not separately conducted.

Logistic Regression Models for Migration

Individual Characteristics and the Probability and the Direction of Migration

Migration Status

Logistic regression analyses are conducted to examine what factors determine an individual's propensity to migrate. Included are potential explanatory variables — demographic and socioeconomic characteristics, and status inconsistency. In this step, the dependent variable equals 1, if individuals are in a different county at time t than at $t-1$ in each migration interval. Results of several logistic regressions predicting the individual's propensity to migrate are presented in Table 13. An odds ratio greater than 1 indicates that the odds of migration increases while the independent variable increases.

One can expect from the descriptive statistics, length of residence is the strongest individual level factor governing rates of migration that there is need to control the effect of length of residence. Model 1 includes only the length of residence variable, and it is used as a basic model through all individual level logistic regression models. The statistics in Model 1 show that the length of residence has a huge effect on the probability of migration, as indicated by the model chi-square of 3,663 for 3 degrees of freedom. As length of residence is increased, there is a strong downward trend in migration rates: the odds of migration for people who live in the same place for 11 years and over is 16.6 % of the odds for people who lived in the same place for less than 2 years.

**TABLE 13. ODDS RATIOS FOR INDIVIDUAL LEVEL FACTORS OF THE PROBABILITY OF
MIGRATION**

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.526	.747	.563	.481	.690	.663
Length of Residence (Less than 2 yrs)						
2-4 yrs	.586**	.613**	.605**	.599**	.625**	.620**
5-10 yrs	.300**	.332**	.316**	.309**	.347**	.338**
11 yrs and over	.166**	.167**	.176**	.168**	.180**	.170**
Age						
(Less than 21 yrs)						
21-25 yrs		1.056			1.074	1.092*
26-30 yrs		.773**			.797**	.823**
31-35 yrs		.662**			.681**	.707**
36 yrs and older		.489**			.495**	.522**
Gender						
(Male)						
Female		.957			.886**	.927**
Race/Ethnicity						
(White)						
Black		.785**			.785**	.774**
Other		.723**			.750**	.725**
Marital Status						
(Never-married)						
Married		.731**			.779**	.745**
Cohabited		.914			.999	.935
Other		1.020			1.128*	1.046
Education						
(Not a high school graduate)						
High school graduate			.994		1.039	
Some college graduate			1.240**		1.268**	
Bachelor's degree or more			1.337**		1.411**	
Employment Status						
(Employed)						
Unemployed			1.036		1.032	
Out of labor force			1.255**		1.316**	
Income						
(Less than \$10,000)						
\$10,000 to \$19,999			.791**		.835**	
\$20,000 to \$29,999			.682**		.763**	
\$30,000 and over			.665**		.806**	
Status Inconsistency						
(Consistent)						
Underrewarded				1.433**		1.314**
Overrewarded				.893**		.985
Mixed				1.115**		1.128**
Model Chi-Square	3,663	4,259	3,966	3,814	4,458	4,430
Degrees of Freedom	3	13	11	6	21	16
Person-Years	48,543	48,543	48,543	48,543	48,543	48,543

* p<=.05

** p<=.01

() indicates reference categories

Model 2 adds only demographic variables such as age, gender, race and marital status. The variables included in Model 2 collectively have a strong explanatory power. Adding demographic variables increases the model chi-square of 596 (4,259 – 3,663) for 10 additional degrees of freedom from the basic model. The estimated coefficients for the model confirm the patterns found in the descriptive statistics. Age significantly deters the likelihood of migration. Those age 36 and older are the least likely to be mobile. Whites are significantly more likely to migrate than any other racial groups. Marital status is an important factor governing migration behavior. The odds of migration for married individuals are 26.9% lesser than the odds for never married individuals.

Model 3 includes socioeconomic variables such as education, employment status, and income. The socioeconomic variables increase in the model chi-square of 303 for an additional 8 degrees of freedom from the basic model. The results provide some evidence that migration propensity increases with education. Well-educated people are the most likely to migrate. The odds of migration are 33.7% greater for people with a bachelor's degree or more than those without a high school diploma. The employed are the least likely to move, while those who do not participate in the labor force are most likely to move. There is a significant downward trend in the probability of migration according to income levels. The odds of migration for people in the highest income category are 66.5% of the odds for those in the lowest income category.

Status inconsistent variables are added in Model 3. The significance of status inconsistency variables, an increase in the model chi-square of 151 for three additional degrees of freedom from the basic model, leads this study to accept that one's mobility is influenced by the degree and the direction of his or her status inconsistency. As expected,

the underrewarded are more likely to have migrated than are the status consistent. On the contrary, the overrewarded inconsistent are less likely to migrate than are the status consistent. The odds of migration for the underrewarded are about 43.3% greater than the odds for the status consistent, while the odds for the overrewarded are 10.7% lesser than the odds for the status consistent. The probability of migration for the mixed inconsistent is also slightly higher than for the status consistent.

The coefficients in the full models (5 and 6) are generally similar to those in the previous separately analyzed models. After controlling for other independent variables, however, the lower probability of migration for females than for males becomes statistically significant, and the income coefficients are reduced in magnitude.

The results in Table 13 confirm that length of residence has a strong effect on the propensity to migrate. This tendency would be extended to address a slightly different question: Are there any variations in the effects of an individual's characteristics on migration according to length of residence? To explore the question, the impact of individual level variables on the probability of migration is composed of four categories of length of residence that are summarized in Table 14.

Models 1, 3, 5, and 7 include demographic and socioeconomic variables. Some interesting differences appear between newcomers (less than 2 years) and longer-term residents (11 years and more) in effects of individual level characteristics. Individual-level variables substantially affect the probability of migration through all categories of length of residence, but overall their quantitative effects on the variation in migration rates are lower for the newcomers than for the longer residents.

TABLE 14. ODDS RATIOS FOR INDIVIDUAL LEVEL FACTORS OF THE PROBABILITY OF
MIGRATION (STRATIFIED BY LENGTH OF RESIDENCE)

	Less than 2yrs		2 - 4 yrs		5 - 10yrs		10 yrs and more	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Constant	.789	.683	.356	.324	.168	.195	.167	.146
Age								
(Less than 21 yrs)								
21-25 yrs	1.204**	1.165*	1.401*	1.408**	1.081	1.246*	.892	.956
26-30 yrs	.825**	.784**	1.183	1.216	.835	1.096	.529**	.589**
31-35 yrs	.710**	.672**	.935	.948	.624**	.862	.358**	.421**
36 yrs and older	.557**	.484**	.752	.707	.378**	.539**	.317**	.426**
Gender								
(Male)								
Female	.876**	.879**	.897*	.930	.973	1.051	.881**	.927
Race/Ethnicity								
(White)								
Black	.841**	.857**	.760**	.752**	.880	.883	.688**	.661**
Other	.780**	.783*	.911	.864	.830	.693*	.708**	.704**
Marital Status								
(Never-married)								
Married	.808**	.826**	.745**	.705**	.761**	.726**	.777**	.723**
Cohabited	1.027	1.047	.940	.887	.918	.813	.949	.793*
Other	1.098	1.143	.944	.877	1.075	.942	1.242*	1.133
Education								
(Not a high school graduate)								
High school graduate	.960		1.105		1.256*		1.054	
Some college graduate	.957		1.491**		1.541**		1.566**	
Bachelor's degree or more	.992		1.461**		1.970**		2.532**	
Employment Status								
(Employed)								
Unemployed	1.133	1.109	1.077	1.129	1.290*	1.129	.977	.877
Out of labor force	1.289**	1.323**	1.300**	1.376**	1.388**	1.180	1.613**	1.603**
Income								
(Less than \$10,000)								
\$10,000 to \$19,999	.897*		.795**		1.012		.740**	
\$20,000 to \$29,999	.824**		.702**		1.004		.712**	
\$30,000 and over	.809**		.708**		1.039		.833*	
Status Inconsistency								
(Consistent)								
Underrewarded		1.138*		1.395**		1.108		1.440**
Overrewarded		.848*		1.010		1.125		1.121
Mixed		1.061		1.397**		.927		1.172*
Model Chi-Square	364	310	247	206	161	88	704	454
Degrees of Freedom	18	15	18	15	18	15	18	15
Person-Years	13,303	13,303	9,562	9,562	9,679	9,679	24,939	24,939

* p < .05

** p < .01

() indicates reference categories

Among newcomers (Model 1), the probability of migration shows a peak at ages 21-25. Education does not make any statistically significant variations in the probability of migration. As income increases, there is a general downward trend in the probability of migration.

On the contrary, among longer residents, the coefficient of those between the ages of 21-25 lose statistical significance to predict migration status, while the deterring effects of age on the probability of migration among other age groups become stronger than for shorter- or moderate-duration residents. There is no gender difference in migration propensity. The fact that migration propensity increases with education is clear and strong: the odds of migration are two and a half times greater for people with a bachelor's degree or more education than people without a high school diploma. The relationship between income and the probability of migration is not quite linear. The coefficients for income groups go down and up. The migration propensity for people in the upper-middle income category (\$20,000-\$29,999) is lesser than any other groups.

Instead of socioeconomic variables, Models 2, 4, 6, and 7 include status inconsistency variables. It is interesting to note that the effects of status inconsistency on migration do not hold constant over time. For newcomers, the underrewarded are more likely to move, while the overrewarded are less likely to move. An immediate deterring effect for the overrewarded on the propensity to migrate does not seem to be lasting (Models 4, 6, and 8), even though these coefficients are not statistically significant. On the contrary, a positive effect of the underrewarded inconsistency on the propensity to migrate seems to remain over time and to become stronger. Among longer residents, the

odds of migration for the underrewarded are 44% greater than the odds for the status consistent.

These results appear to indicate three things: first, in the short term, the negative effect of the overrewarded inconsistency is clear, but the effect is of relatively brief duration; second, in the short term, the positive effect of the underrewarded inconsistency lasts longer; and third, in the long term, individuals with unbalanced status seem to be more likely to move out than individuals with balanced status, regardless of the direction of status inconsistency, although these results are inconclusive.

In sum, the propensity to migrate is not the same for all young adults. Both demographic and socioeconomic characteristics substantially affect the propensity to migrate. The most important factors are age, length of residence, marital status, level of education, and status inconsistency. Also, the propensity to migrate is not constant over time. For newcomers, the difference between the overrewarded and the underrewarded is clear, while for longer residents, level of education is strongly associated with the probability of migration.

The Direction of Migration

The results from logistic regression analyses predicting the direction of migration are presented in Table 15. In Models 1 and 2, migration is coded as 1, if at the time t the person is living in a SMSA rather than a non-SMSA in which he or she has lived at time $t-1$. In columns 3 and 4, migration is defined when a person migrates from a SMSA to a non-SMSA.

When comparing SMSA residents with non-SMSA residents, the depressing effects of length of residence are stronger in both types of residents, but after five and

TABLE 15. ODDS RATIOS FOR INDIVIDUAL-LEVEL FACTORS OF THE DIRECTION OF MIGRATION

	Migrated from Non-SMSA to SMSA			Migrated from SMSA to Non-SMSA		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.334	.390	.372	.066	.143	.100
Length of Residence (Less than 2 yrs)						
2-4 yrs	.704**	.748**	.737**	.714**	.759**	.759**
5-10 yrs	.451**	.516**	.492**	.374**	.405**	.414**
11 yrs and over	.303**	.343**	.305**	.230**	.238**	.249**
Age						
(Less than 21 yrs)						
21-25 yrs		1.003	1.078		.929	.783**
26-30 yrs		.801*	.893		.887	.677**
31-35 yrs		.939	1.063		.756*	.566**
36 yrs and older		.460**	.541**		.610*	.458**
Gender						
(Male)						
Female		.961	.999		.838**	.844**
Race/Ethnicity						
(White)						
Black		1.043	.992		.514**	.536**
Other		1.322	1.255		.489**	.530**
Marital Status						
(Never-married)						
Married		.609**	.574**		1.068	1.100
Cohabited		.780**	.711**		1.392*	1.511**
Other		1.093	.963		1.219	1.366**
Education						
(Not a high school graduate)						
High school graduate		.938			.809*	
Some college graduate		1.454**			.739**	
Bachelor's degree or more		1.899**			.632**	
Employment Status						
(Employed)						
Unemployed		1.277**			.924	
Out of labor force		1.276**			.993	
Income						
(Less than \$10,000)						
\$10,000 to \$19,999		.819**			.780**	
\$20,000 to \$29,999		.875			.644**	
\$30,000 and over		.946			.641**	
Status Inconsistency						
(Consistent)						
Underrewarded			1.402**			1.164
Overrewarded			1.220			.849
Mixed			1.339**			.960
Model Chi-Square	343	580	506	427	624	571
Degrees of Freedom	3	21	16	3	21	16
Person-Years	10,964	10,964	10,964	37,579	37,579	37,579

* p<=.05

** p<=.01

() indicates reference categories

more years of residence, the deterring effects of it seem more likely to be stronger for SMSA residents than for non-SMSA residents (Models 1 and 4). Among demographic characteristic variables, a downward trend persists in the Age variable regardless of where people live in (Models 2 and 5). The effect of gender is significant only for migrants from SMSAs to non-SMSAs, but females seem much less likely to have migrated than males, regardless of the direction of migration.

It is interesting to note, between those who moved to SMSAs and those who moved to non-SMSAs, that there are racial differences in the direction of migration. Blacks and other ethnic groups are more likely to move to a SMSA than is the white group, while they are less likely to move to a non-SMSA than is the white group.

In general, married individuals and cohabiting couples are less likely to migrate, but the probabilities of migration for them seem to depend on where they have lived: the odds of migration to SMSAs for married people are 60.9% of the odds for never married people, while the odds of migration to non-SMSA for married are almost similar to the never married people. For non-SMSA residents, cohabiting people are the least likely to be mobile than are other marital types, while for SMSA residents, they are the most likely to move to non-SMSAs.

Socioeconomic individual characteristics also substantially affect the direction of migration, but the results in Models 2 and 4 show that there are different dynamics between individuals moving to a SMSA and individuals moving to a non-SMSA. For non-SMSA residents, education tends to be positively selective; the probability of migration for the well-educated non-SMSA resident is almost twice as likely to have migrated than for the less educated resident. On the contrary, for SMSA residents,

education seems to be negatively selective; the odds of migration for the well-educated SMSA resident are 63.2% of the odds for the less-educated SMSA resident.

Another interesting difference to note between the two regressions is the direction of the effect of employment status. Compared with the employed, the unemployed non-SMSA resident is less likely to move to a SMSA, while the unemployed SMSA residents are more likely to move to a non-SMSA.

The effects of income are much stronger and more significant for people who migrate to a SMSA rather than for people who move to a non-SMSA. People with less income are the most mobile regardless of where they live, but for the SMSA residents, higher income is associated with a lower probability of migration, while for the non-SMSA resident, higher income is associated with a higher propensity to migrate.

One can recall that the effects of status inconsistency, which are presented in Table 13, show that the underrewarded are more likely to move, while the overrewarded are less likely to move. However, odds ratios in Models 2 and 4 show not only that the relative direction of inconsistency is important to predict the variation of mobility rates among people, but also its effect varies depending on where they live. The positive effect of the underrewarded inconsistency on the probability of migration is much stronger for non-SMSA residents than for SMSA residents. The odds of migration for underrewarded SMSA residents are 1.402 times greater than the odds for the status consistent SMSA residents, while the odds for the underrewarded non-SMSA residents are only 1.164 times greater than the odds for the status consistent non-SMSA residents. The effect of the overrewarded inconsistency also varies. For non-SMSA residents, the probability of migration for the overrewarded is greater than for the status consistent, while for SMSA

residents, the probability of migration for the overrewarded is lower than for the status consistent.

In sum, migration selectivity can depend to a large extent on the residential locations involved. Blacks and other ethnic groups are more likely to have migrated than whites, especially if they have lived in non-SMSAs. On the contrary, blacks and other groups are less likely to move than whites, especially if they have lived in SMSAs. For non-SMSA residents, migration is selective of high potential achievers, while for SMSA residents, it is more likely to be the less educated or the lower income gainers who are forced to migrate.

Household Characteristics and the Probability and the Direction of Migration

Migration Status

In the third step of analysis, the relationship between household characteristics and the propensity to migrate is tested by logistic regressions, which are presented in Table 16. In the first column, the respondent's migration status is predicted by his or her household demographic structure only.

These household demographic variables show the strong explanatory power of the regression (the model chi-square by 890 for 7 degrees of freedom). As indicated, the propensity to migrate decreases with the size of household: the odds of migration for those living with four household members are about 60% of the odds for those living alone. In agreement with other household migration studies, this study finds that people without children are more likely to migrate than are people with children. The age of

TABLE 16. ODDS RATIOS FOR HOUSEHOLD-LEVEL FACTORS OF THE PROBABILITY OF MIGRATION

	All Household		Married/Cohabiting	
	Model 1	Model 2	Model 3	Model 4
Constant	.348	.377	.280	.262
Household Size				
(1)				
2 ^a	.675**	.698**		
3	.689**	.713**	1.107	1.080
4	.614**	.640**	.903	.955
5 and more	.606**	.624**	.951	1.071
Children				
(No child)				
0-5yrs	.734**	.729**	.736**	.799**
6-12yrs	.561**	.557**	.559**	.739**
13-18 yrs	.459**	.454**	.449**	.685*
Household Income				
(Less than \$10,000)				
\$10,000 to \$29,999		.886**	.876*	.850**
\$30,000 to \$49,999		.797**	.746**	.715**
\$50,000 and over		.908**	.767**	.704**
Spouse/Partner's Age				
(Less than 21 yrs)				
21-25 yrs				1.036
26-30 yrs				.847
31-35 yrs				.697*
36 yrs and older				.566**
Spouse/Partner's Education				
(Not a high school graduate)				
High school graduate				1.080
Some college graduate				1.303**
Bachelor's degree or more				1.811**
Model Chi-Square	890	940	188	368
Degrees of Freedom	7	10	9	16
Person-Years	58,574	58,574	26,774	26,774

* p < .05

** p < .01

() indicates reference category

^a reference category for the married and the cohabiting couples

children is negatively associated with the probability of migration. People with teenage children are the least likely to have migrated.

The second column of Table 16 shows the results when including the total household income variable. This inclusion increases the model chi-square by 50 for 3

additional degrees of freedom. The effect of household income is not linear: the lowest income groups show the highest probability of migration, while the upper middle income groups (\$30,000-\$49,999) have the lowest probability.

For the respondent who is married or cohabiting with a partner, three household level variables are included in Model 3 and his or her spouse's or partner's age and education variables are added in Model 4. The inclusion of spouses' and partners' information for married and cohabiting people increases the model chi-square by almost twice. It reduces the quantitative effects of the Children variable, while slightly increasing the effects of the Household Income variable. Both the negative relationship between age and migration and the positive relationship between education and migration are also true for spouses and partners.

To examine whether there is a relative marital power effect on the probability of migration, logistic regressions are run for husbands and wives separately, and the results are presented in Table 17. The gender-role effect on the tendency to migrate is revealed by these results. When comparing the model chi-square for wives (Model 6) with those for husbands (Model 3), the probability of migration for husbands explained by household variables is smaller than that of wives.

Husbands and wives are affected differently by household characteristics. Among husbands, the probabilities of migration are significantly lower when they have school age children and when they live in a household with a relatively higher income. The tendency to migrate among wives is negatively correlated with household size and income level. These results are different from other household migration research findings, which suggests that the presence of children has a negative effect on

TABLE 17. ODDS RATIOS OF MIGRATION FOR HUSBAND AND WIVES

	Married		Husbands		Wives	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.384	.450	.420	.494	.369	.428
Household Size (2)						
3	1.074	1.066	1.349	1.323	.840	.832
4	.808	.800	1.123	1.098	.578*	.573*
5 and more	.830	.820	1.106	1.076	.623	.618
Children (No child)						
0-5yrs	.747	.750	.585*	.600*	.966	.963
6-12yrs	.584**	.588**	.463**	.473**	.757	.760
13-18 yrs	.514**	.517**	.447*	.457*	.627	.634
Household Income (Less than \$10,000)						
\$10,000 to \$29,999	.667**	.667**	.591**	.592**	.713**	.716**
\$30,000 to \$49,999	.539**	.537**	.493**	.495**	.563**	.561**
\$50,000 and over	.543**	.529**	.518**	.504**	.543**	.536**
Power Variables						
Power Age (Wife < Husband)						
Wife >= Husband		1.207**		1.135*		1.256**
Power Education (Wife < Husband)						
Wife >= Husband		.758**		.746**		.769**
Power Income (Wife < Husband)						
Wife >= Husband		.926		.991		.885
Model Chi-Square	217	270	84	106	143	175
Degrees of Freedom	9	12	9	12	9	12
Person-Years	18,414	18,414	8,081	8,081	10,333	10,333

* p <= .05

** p <= .01

() indicates reference category

women's mobility rather than on men's (Shauman and Xie 1996). The reasons for this are unclear.

To test whether the relative power between husbands and wives has an effect on the propensity to migrate, power variables are included in Models 4 and 6 in Table 17. These inclusions increase the explanatory power for both husbands and wives, but the increased power is slightly stronger for wives than husbands: the model chi-square

increases by 32 for wives compared with 22 for husbands. These results lead this study to accept that the relative personal power held by each spouse has an effect on migration, particularly among wives.

The effect of the Power Age variable is different from other power variables. The probability of migration for both husbands and wives increases in relation to the wife's relative age, while it decreases in the wife's relative educational level and income. When comparing the odds ratios of power variables for wives (Model 4) with those for husbands (Model 2), the effects of Power Age and Power Income are stronger for wives than for husbands.

Direction of Migration

To investigate whether there is a difference between migrants to SMSAs and migrants to non-SMSAs according to household characteristics, several logistic regression analyses are conducted.

Household characteristics affect non-SMSA residents and SMSA residents differently (columns 1 and 3). For non-SMSA residents, all three household variables are significant, while for SMSA residents, only the Household Income variable is significant. Among non-SMSA residents, as the household size increases migration rate to SMSA clearly decreases, while among SMSA residents, the deterring effect of household size on migration is present, but it does not deter as much as for non-SMSA residents. For non-SMSA residents, the presence of children, regardless of their age, has a significantly negative effect for the parents: the odds of migration for people with teenage children are 32.1% of the odds for people without children. For SMSA residents, the effect of the children makes a little variation, but only the presence of school age children (6-12 years)

has a significant deterring effect on the probability of migration. The different effects on higher income families between non-SMSA residents and SMSA residents are also interesting. Among non-SMSA residents, if people come from a wealthier household, they are more likely to move to a SMSA, while among SMSA residents, people living in the wealthier families are less likely to move to a non-SMSA.

The results in columns 2 and 5 suggest that the inclusion of spouses' and partners' information for married and cohabiting people for both non-SMSA residents and for SMSA residents makes a little variation on the probability of migration, especially non-SMSA residents. However, the effects of spouses'/partners' characteristics are not the same for non-SMSA residents as for SMSA residents. Among non-SMSA residents, a person with a higher-educated spouse or partner is more likely to have migrated to SMSAs. Among SMSA residents, an increase in the spouse's/partner's age decreases the probability of migration.

Household migration literature documents that well-educated couples are more likely to live in urban areas because of the dual-career constraint (Costa and Kahn 2000). Whether the relative power between husbands and wives has an effect on the direction of migration is tested (columns 3 and 6). In the regression for married couples in non-SMSAs, only the relative educational power between husband and wife is significant: the odds of migration for wives who achieve more educational attainment than husbands are 76.3 % of the odds for the wife got less educational power. For the SMSA residence, none of the three power variables is significant, but the wife's higher educational attainment or higher earning power than the husband's slightly deters the likelihood of migration to non-SMSAs.

**TABLE 18. ODDS RATIOS FOR HOUSEHOLD-LEVEL FACTORS OF THE DIRECTION OF
MIGRATION**

	Migrated from Non-SMSA to SMSA			Migrated from SMSA to Non-SMSA		
	All Household	Married/ Cohabiting	Married	All Household	Married/ Cohabiting	Married
Constant	.329	.128	.165	.053	.089	.104
Household Size						
(1)						
2	.617**			.881		
3	.691**	.915	1.189	.797*	1.180	.552
4	.692**	.947	1.171	.813	.960	.493
5 and more	.652**	1.130	1.143	.718**	1.087	.530
Children						
(No child)						
0-5yrs	.656**	1.008	.778	.934	.746	1.270
6-12yrs	.488**	.800	.611	.794*	.851	1.393
13-18 yrs	.321**	.619	.493	.762	1.130	1.417
Household Income						
(Less than \$10,000)						
\$10,000 to \$29,999	.835**	1.021	.975	.825**	.696**	.528**
\$30,000 to \$49,999	.840*	.928	.885	.684**	.531**	.320**
\$50,000 and over	1.264**	1.334*	1.310	.590**	.488**	.313**
Spouse/Partner's Age						
(Less than 21 yrs)						
21-25 yrs		1.188			.901	
26-30 yrs		1.027			.790	
31-35 yrs		.944			.666*	
36 yrs and older		.919			.453**	
Spouse/Partner's Education						
(Not a high school graduate)						
High school graduate		.991			.922	
Some college graduate		.994			.813	
Bachelor's degree or more		1.466**			.960	
Power Variables						
Power age						
(Wife < Husband)						
Wife >= Husband			1.201			.998
Power education						
(Wife < Husband)						
Wife >= Husband			.763**			.963
Power income						
(Wife < Husband)						
Wife >= Husband			1.092			.954
Model Chi-Square	243	45	29	102	95	60
Degrees of Freedom	10	16	12	10	16	12
Person-Years	13,558	6,818	4,593	45,196	19,956	13,821

* p < .05

** p < .01

() indicates reference category

In sum, household size and children depress the parents' mobility, regardless of where they live. Household income has a negative effect on mobility, but it is true for SMSA residents rather than for non-SMSA residents. Wives' higher educational attainments or higher earning power than their husbands slightly deters the likelihood of migration, but these effects are stronger for wives rather than for husbands and vary from SMSA residents to non-SMSA residents.

Community Characteristics and the Probability of Migration

Six regression results, predicting the migration status by community characteristics, are presented in Table 19. From prior discussing the effects of community characteristics on the probability and the direction of migration, one needs to recall the relationship among community variables. In Table 6, the correlation coefficients between community variables are presented.⁸ Both the percent of the white population and unemployment rates are negatively related with the population size, whereas the population size is positively related to both the percent of the 4-year college-graduated and of the personal per capita income.

Model 1 includes only the population size. The effects of population size on the probability of migration are significantly negative. The odds of migration for someone residing in counties with the population sizes of 1 million and over 61.7% of the odds for someone living in counties with less than 1000,000 people.

⁸ Because community variables are ordinal categories which ranked from lower to higher values, the direction of the relationship between two variables could be interpreted from the sign of coefficients.

TABLE 19. ODDS RATIOS FOR COMMUNITY-LEVEL FACTORS OF THE PROBABILITY OF
MIGRATION

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.237	.161	.205	.379	.379	.242
Population Size						
(Less than 100,000)						
100,000-499,999	.940**		.850**		.983	.870**
500,000-999,999	.810**		.629**		.831**	.718**
1 million and over	.617**		.535**		.627**	.628**
% of the White Population						
(Less than 70%)						
70-79%		1.149**	1.074*			1.094**
80-89%		1.142**	1.048			1.075*
90% and over		1.372**	1.111**			1.157**
% of 4-Year College-Graduated						
(Less than 7%)						
7-10.9%		.951*	1.099**			1.135**
11-14.9%		1.197**	1.532**			1.597**
15% and over		1.170**	2.234**			2.441**
Per Capita Personal Income						
(Less than \$15,000)						
\$15,000 to \$19,999				.785**	.847**	.831**
\$20,000 to \$24,999				.670**	.774**	.757**
\$25,000 and over				.695**	.919**	.667**
Unemployment Rate						
(Less than 3%)						
3-5.9%				.775**	.803*	.948
6-8.9%				.709**	.759**	.959
9.0% and over				.641**	.678**	.889
Model Chi-Square	306	534	903	181	411	989
Degrees of Freedom	3	6	9	6	9	15
Person-Years	72,032	72,032	72,032	72,032	72,032	72,032

* $p < .05$

** $p < .01$

() indicates reference category

Model 2 includes two other indicators of demographic characteristics: the percent of the white population and the percent of the 4-year college-graduated. The effects of these variables are positively monotonic. People living in places with a higher proportion of whites or places with a higher proportion of the more educated, are the more likely to have migrated. When the population-size variable is added in Model 3, the positive effects of the proportion of the white population and of the more educated on the

likelihood of migration do not changed, but the effect of the percent of the 4-year college-graduated is much stronger than for the previous model.

Model 4 shows the results when economic community characteristics are included. When comparing the explanatory powers indicated by the model chi-square between Model 2 and Model 4, which people migrate is explained more by demographic characteristics in the counties where they are involved than by the relative income or overall employment opportunities in the counties. People living in counties offering a relatively high personal per capita income are less likely to move; likewise, people living in counties with higher unemployment rates are also less likely to move. This is a quite interesting phenomenon, because the directions of effects of both higher per personal capita income and unemployment rates on the probability of migration are the same, even though there is a negative relationship between personal per capita income and unemployment rates. The reason for this is not clear. However, as mentioned earlier, this discrepancy partly results from the positive relationship between unemployment rates and the percent of the white population. Because of high migration propensity of whites, higher unemployment rates areas show a higher probability of migration.

Controlling for the population size (Model 5), the negative effects of both economic characteristics on the probability of migration are still found, but the quantitative effects of personal per capita income are reduced, while those of unemployment rates slightly increase.

At first sight, these results are different from a common expectation that counties with higher incomes may have higher migration rates. Because incomes generally are higher in larger metropolitan areas than in smaller areas (Hoover and Giarratani 1999),

this income differential causes high in-migration rates in high per capita income areas. Also, places with higher unemployment rates may have higher migration rates, because of high out-migration. One should remember that all independent variables at the community level in this study are assessed at $t-1$ in each time period, because they are possible causes of, rather than results of, migration. It means that community characteristic variables will reflect the push factors of the origin area rather than the pull factors of the destination area. Hoover and Giarratani have suggested that "in most cases the so-called push factor explaining out-migration from an area is not primarily the economic characteristics of the area (such as low wages or high unemployment) but the demographic characteristics of the population of the area ... The pull factor (that is, the migrant's choice of where to go) is, however, primarily a matter of the economic characteristics of areas" (1999: in Chapter 10). According to their argument, the small effect of economic variables at the community level would not be contradictory to other findings.

The last column of Table 19 includes all community variables. The findings are generally similar to those in the previous model. Overall odds ratios of migration measures remain strongly significant, but unemployment rates lose their statistical significance. The quantitative effects of the percent of the 4-year college-graduated become slightly stronger than before. The odds of migration for those who have lived in counties with the highest proportions of the well-educated are almost two and half times greater than for those who have lived among the lowest proportion of the well-educated.

In sum, population size, personal per capita income, and unemployment rates have negative effects on the probability of migration, while the percent of the white

population and the percent of the 4-year college-graduated have positive effects on the likelihood of it.

Contextual factors certainly have an impact on the probability of migration, but it is useful to investigate how the locational characteristics interact with migration selectivity. According to the previous results of this study, the most mobile types of people would be whites with at least some college education, and the least mobile types of people would be blacks with educational levels of less than or equal to high school graduates. The average mobility rates for the most mobile types of people are 21.8%, while that for the least mobile types are 12.8% (results are not shown).

Table 20 shows the variation in the propensity to migrate for both the most mobile groups and the least mobile groups according to community characteristics. To control for the effects of age and gender, the sample in Table 20 includes only those between the ages of 21-25 and is analyzed separately for males and females.

As one might see in Table 20, community characteristics explain more about the probability of migration of the most mobile groups rather than that of the least mobile groups. The explanatory power indicated by the model chi-square is about two times higher for the more educated white males than that for the less-educated black males, but explanatory powers of the model are the same for both white and black females. It seems that the least mobile people are less likely to be affected by community characteristics than are the most mobile people.

There are different quantitative effects of community factors between the most mobile groups and the least mobile groups. For the most mobile groups, the population size and the percent of 4-year college-graduated appear to make significant variations in

TABLE 20. ODDS RATIOS OF MIGRATION FOR BOTH THE MOST MOBILE GROUPS AND THE LEAST MOBILE GROUPS ACCORDING TO COMMUNITY CHARACTERISTICS

	The Most Mobile Group			The Least Mobile Group		
	Total	Male	Female	Total	Male	Female
Constant	1.240	2.001	.811	.294	.199	.457
Population Size						
(Less than 100,000)						
100,000-499,999	.691**	.741*	.660**	1.020	.921	1.225
500,000-999,999	.512**	.408**	.629**	.667**	.490**	1.023
1 million and over	.385**	.345**	.425**	.693*	.547**	.991
% of White Population						
(Less than 70%)						
70-79%	.724**	.692*	.741*	1.518**	1.015	2.600**
80-89%	.822*	.904	.754*	1.189	.983	1.616*
90% and over	.805*	.806	.812	1.794**	1.536	2.271**
% of 4yrs College-Educated						
(Less than 7%)						
7-10.9%	1.172	1.033	1.289*	.592**	.629**	.518**
11-14.9%	1.539**	1.495**	1.558**	.912	1.042	.727
15% and over	1.762**	1.584**	1.870**	1.367	1.360	1.316
Per Capita Personal Income						
(Less than \$15,000)						
\$15,000 to \$19,999	.931	.874	.997	.776	.755	.700
\$20,000 to \$24,999	.950	.966	.941	.915	1.021	.703
\$25,000 and over	.806	.722	.921	.808	1.068	.462**
Unemployment Rate						
(Less than 3%)						
3-5.9%	.675	.489	.888	1.053	2.252	.458
6-8.9%	.586	.477	.706	.665	1.398	.290
9.0% and over	.556	.423	.713	.706	1.450	.319
Model Chi-Square	157	112	65	99	58	65
Degrees of Freedom	15	15	15	15	15	15
Person-Years	5,620	2,625	2,995	3,775	1,904	1,870

* p < .05

** p < .01

() indicates reference category

the probability of migration regardless of sex. For the least mobile groups, the variations have responded to differences in the percent of the white population in their counties, particularly for females. Also, it is interesting to note that the effects of unemployment rates seem to run in an opposite direction between white males and black males, even

though odds ratios are not statistically significant. The migration propensity for black males seems to be sensitive to local labor market opportunities.

Proportional Hazard Models for Migration

Someone may migrate sooner after the observation period began, while others may have lived in the hometown during the entire observation period. The proportional hazard model proposed by Cox (1972) takes this into consideration. It is accomplished by utilizing a variable of survival to the occurrence of migration (subsequent duration of residence) as a dependent variable in this study (see the appendix for frequencies of subsequent duration of residence according to independent variables). The estimation technique corrects for the censoring that occurs. Some of the respondents may not have completed information regarding their migration because of the lost follow up, because of drop out, or because of the termination of the study. The virtue of the Cox proportional hazard model is that no assumption is needed about the distribution of the subsequent duration of residence, but it indicates only relative, not absolute, hazard rates (Allison 1984).

In Table 21, estimates are shown for seven proportional hazard models for assessing the relative effects of individual, household, and community variables on subsequent duration of residence and for determining which levels of explanatory variables are highly significant for it. Since hazard ratios represent the risk of migration for each individual in this study, a hazard ratio greater than 1 indicates that the hazard of migration increases and the subsequent duration of residence decreases, and that migration occurs sooner.

TABLE 21. COX HAZARD MODELS OF MIGRATION

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
<i>Individual Variables</i>							
Age							
(Less than 21 yrs)							
21-25 yrs	1.007	.891**	1.032			.823**	.914**
26-30 yrs	.995	.824**	1.038			.732**	.865**
31-35 yrs	.959	.772**	1.005			.705**	.865**
36 yrs and older	.874**	.694**	.918			.656**	.830**
Gender							
(Male)							
Female	.920**	.864**	.897**			.881**	.919**
Race/Ethnicity							
(White)							
Black	.736**	.776**	.726**			.851**	.823**
Other	.776**	.814**	.775**			.906**	.878**
Marital Status							
(Never-married)							
Married	.881**	.962*	.893**			1.145**	1.119**
Cohabited	1.005	1.156**	1.011			1.010	.884*
Other	1.003	1.185**	1.013			1.431**	1.353**
Education							
(Not a high school graduate)							
High school graduate		.974				.935**	
Some college graduate		1.309**				1.266**	
Bachelor's degree or more		2.367**				2.079**	
Employment Status							
(Employed)							
Unemployed		1.033				1.072*	
Out of labor force		1.263**				1.272**	
Income							
(Less than \$10,000)							
\$10,000 to \$19,999		.941**				.904**	
\$20,000 to \$29,999		.918**				.841**	
\$30,000 and over		.926**				.844**	
Status Inconsistency							
(Consistent)							
Underrewarded			1.101*				1.209**
Overrewarded			.877*				.828**
Mixed			.993				.979
<i>Household Variables</i>							
Household Size							
(1)							
2				.737*		.697**	.650**
3				.617**		.592**	.531**
4				.588**		.579**	.505**
5 and more				.584**		.599**	.510**

Continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Children							
(No child)							
0-5yrs				.962		1.022	1.020
6-12yrs				.776**		.905**	.845**
13-18 yrs				.684**		.868	.771**
Household Income							
(Less than \$10,000)							
\$10,000 to \$29,999				1.010		1.061*	1.052*
\$30,000 to \$49,999				1.046		1.058	1.104**
\$50,000 and over				1.216**		1.133**	1.308**
Community Variables							
Population Size							
(Less than 100,000)							
100,000-499,999					.956*	.929**	.948*
500,000-999,999					.821**	.778**	.804**
1 million and over					.754**	.682*	.716**
% of the White Population							
(Less than 70%)							
70-79%					1.057*	1.006	1.006
80-89%					1.044	.985	.956
90% and over					1.187**	1.056*	1.026
% of 4-Year College-Graduated							
(Less than 7%)							
7-10.9%					1.088**	.994	1.019
11-14.9%					1.283**	1.088**	1.163**
15% and over					1.788**	1.391**	1.519**
Per Capita Personal Income							
(Less than \$15,000)							
\$15,000 to \$19,999					.936*	.982	.955
\$20,000 to \$24,999					.936*	.990	.962
\$25,000 and over					.974	1.055	1.022
Unemployment Rate							
(Less than 3%)							
3-5.9%					.962	1.018	.987
6-8.9%					.871*	.919	.880*
9.0% and over					.822**	.823**	.804**
Model Chi-Square	391	2,043	449	955	843	3,157	2,010
Degrees of Freedom	10	18	13	10	15	43	38
Person-Years	29,844	29,844	29,844	29,844	29,844	29,844	29,844

* p < .05

** p < .01

() indicates reference category

The first model shows the results when including demographic characteristics at the individual level, but no socioeconomic characteristics. It will be used as a basic model for all individual level hazard models. An increase in the age of the individual postpones migration. The hazard of migration for those aged 36 and older is about 87.4% of the hazard for those aged less than 21. Males migrate sooner than females. The effect of race and ethnicity is clear and strong. Blacks postpone migration compared with white migrants: the hazard of migration for blacks is 73.6% of the hazard for whites. Never-married people move sooner than married people.

Model 2 adds three socioeconomic indicators: education, employment status, and income. Their inclusion not only strongly increases the explanatory power (the model chi-square by 1,652 for additional 8 degrees of freedom), but also changes quantitative effects among hazard ratios of demographic variables. This result indicates that socioeconomic characteristics have indirect effects on the subsequent duration of residence through interaction with individual demographic characteristics as well as direct effects on the subsequent duration of residence. When comparing Model 1 with Model 2, the relative hazard of migration for those age 36 years and older than that for the youngest group is increased about 18%. The effect of gender becomes greater in Model 2. In addition, the hazard of cohabiting people becomes significant, and they migrate sooner than never-married and married people. Individuals with a bachelor's degree or more education migrate quite a lot sooner than individuals without high school diplomas. Going to four years of college shortens the subsequent duration of residence by more than two and a third times. Those who do not participate in the labor market move sooner than

those who are employed. The effects of income are negatively associated with the risk of migration, but they are not monotonic.

Status inconsistency variables are added in Model 3, and their inclusion increases the explanatory power from the basic model (the model chi-square by 58 for 3 additional degrees of freedom). It leads this study to accept that the risk of migration is affected by status inconsistency. Two status inconsistency variables are significant. As expected, the underrewarded individuals migrate slightly sooner than the status consistent individuals, while the overrewarded individuals migrate later than the status consistent individuals. In other words, someone whose occupational and monetary rewards are significantly lower than those of individuals with similar education migrates sooner, while someone whose occupational and monetary rewards are higher than those with similar education postpones migration.

Model 4 includes three indicators of household characteristics only. As the number of the household size increases, the risk of migration decreases, although it has become less effective when the number of the household rises to four and more. The presence of teenage children decreases the hazard ratio by about 32 %. The higher household income is correlated with a higher risk of migration, but the effects of household income are only statistically significant for the highest household income groups.

Model 5 includes five community indicators, and most variables are statistically significant. An increase in the population size of the counties decrease in the hazard of migration and migration occurs later. The percent of the white population and the percent of the 4-year college-graduated are positively related with the hazard of migration. The

effects of the percent of the 4-year college-graduated on the subsequent duration of residence clear and monotonic. The hazard ratio for those who live in the counties with the highest percent of the well educated is 1.788 times greater than that for those who live in the counties with the lowest percent of the well educated. Both increasing per capita personal income and high unemployment rates slightly reduce the risk of migration. Someone whose county offers the highest per capita income is more likely to migrate sooner than someone whose county has the lowest per capita income. The hazard rate of those who live in the counties with the highest unemployment rate is 82.2% of the hazard for those who lived in the counties with the lowest unemployment rates.

Once all individual, household, and community level variables, except status inconsistency, are included in Model 6, this model shows a strong explanatory power: the model chi-square of 3,157 with 43 degrees of freedom. It confirms that the hazard of migration for each individual is more fully explained by multilevel variables rather than by a single level variable. When compared with model-chi squares among individual, household, and community level models, individual characteristics are much more important determinants of residential mobility than are household and area characteristics.

The interesting note in Model 6 is that the risk of migration for the married turns positive. A change in the direction of a relationship between the risk of migration and being married mainly comes from the inclusion of household level variables, especially the Household Size and the Children. An indication is that the generally low migration propensity of married people results from the high migration costs caused by a large household size and the presence of children. In addition, the magnitudes of hazard ratios

increase in the Income and in the Population Size variables, whereas they decrease in the Children and in the percent of the 4-year college-graduated.

Instead of the individual level socioeconomic variables, the last column in Table 21 includes status inconsistency variables to assess the interaction with other independent variables. As indicated, the underrewarded are more likely to migrate sooner than the consistent, whereas the reverse is true for the overrewarded. This inclusion of other independent variables slightly reduces the hazard of migration for the overrewarded but enhances that for the underrewarded.

CHAPTER V

DISCUSSION

This research investigates the spatial mobility of young adults in a multilevel framework by using longitudinal data from the NLSY79 from 1980 to 1998. The young adult years are important in migration studies, because propensities to migrate reach their peak in the early young adult years and begin a decline that lasts until the later young adult years. Although young adults have the highest rates of migration, there is heterogeneity within this age group.

The focus of this study has been on identifying the factors affecting young adult migration. The primary objective has been to examine the relationship between migration and 1) individual; 2) household, and 3) community characteristics. Individual characteristics included in the analysis are age, sex, race and ethnicity, marital status, length of residence, education, employment status, income, and status inconsistency. The household-level factors included in the examination are the household size, the presence and ages of children, and the total net household income. Community-level factors introduced into the study are the population size, the percent of the white population, the percent of 4-year college-graduated, the per capita personal income, and the unemployment rate.

The time frame for measuring migration in this study is 1980 through 1998. Migration is measured by a 2-year interval during the study period and therefore the study data set contains nine times of the migration histories of respondents. To represent any change in characteristics of the respondents over time during the study period, the data are converted into a person-year format. This procedure yields a maximum study

sample of 76,124 person-years. Because of incorporating the three different level analyses, the study sample size varies at each level of analysis: about 67% of the maximum study sample are analyzed for the individual level study; about 80% for the household level, and about 99% for community level.

Three measures of migration are employed as dependent variables in this study. The first measure, migration status, indicates whether the place of residence at the beginning of a 2-year interval is the same as the end of the interval. Migration is taken as an intercounty migration. This study is therefore concerned with migration which involves breaking away from social and community ties. The second measure, direction of migration indicates whether migration between non-SMSAs and SMSAs occurs. The last dependent variable, subsequent duration of residence, is the number of years in one's residence before his/her first migration occurs since 1980.

The study sample is analyzed by using logistic regressions to examine determinants of probability and direction of migration at each level of analysis, and by the estimating via the Cox proportional hazards model to assess relative effects of individual, household, and community variables on subsequent duration of residence.

Results in this study revealed a number of important features of young adult migration. At the individual level, demographic and socioeconomic characteristics act as important determinants of young adult migration. Life-course events create incentives for individuals to change their residences, but migration decisions are shaped not just by their life-cycle factors, but by their personal resources as well as by their socioeconomic costs.

Statistical results show that there are systemic variations in the migration rates of individuals according to demographic characteristics such as age, sex, race and ethnicity,

and marital status. Variations in migration propensities with age are found within the young adult group; propensities to migrate continue to rise until age 25. More than one out of five person-years contributed by individuals in ages 21-25 show changes in their residences and it is the highest migration rates within young adult ages. It could be that those ages are related to relative higher frequency of life-course events such as graduation from school, entering the labor market, and the formation of a household. After age 25, migration propensities begin to decline. This downward trend of mobility with age is also true for non-SMSA-to-SMSA migration, but the variation of migration propensity with age is larger for non-SMSA residents than for SMSA residents.

Many migration studies have been documented regarding the sex selectivity of migration and have concluded that the lower workforce participation rates for females over males seem to contribute to the lower propensity to migrate for females (Bailey 1989; Maxwell 1988). The effect of gender on migration propensities is evident in the NLSY79. Results from the logistic regressions show that only after controlling for socio-economic variables does the probability of migration for females over males become statistically significant. The effects of gender are significant and strong for SMSA residents but not for non-SMSA residents. Among SMSA residents, females are less likely than males to have moved to non-SMSAs. This result supports Marwell, Rosenfeld, and Spilerman's argument (1979) that females are more likely to live in large urban areas than males, whereas the reverse is true for small rural area residents. Marwell et al. have explained that the difference in locational choice between gender is closely related to the local labor market size.

In agreement with the literature on migration, this study also finds that of all race and ethnicity groups in the NLSY79, whites are the most likely to migrate. It may be partly due to the extended household structure of blacks and other ethnic groups, but it seems more likely to be that the discrimination against minority groups plays a role making the racial difference in the propensity of migration. Results from Table 19 reveal that the proportion of the white population in one's counties makes little variation in the probability of migration for whites, whereas the probability of migration for blacks highly responds to the percent of the white population in his or her county. The racial difference in the direction of migration is also an evidence for the presence of geographical segregation. The non-SMSA-to-SMSA migration rate is similar for blacks and whites, while the SMSA-to-non-SMSA migration rate for blacks are about a half time less than whites. It would be explained by a higher proportion of the white population in non-SMSAs than in SMSAs.

Married individuals are less likely to migrate than unmarried individuals. Some of this variation could be explained by differences in mean age by marital type, because among the NLSY79 sample, the married people are older than the never married people. A more important factor would be the presence of household constraints for the married. Migrants respond to costs and benefits. The opportunity cost of migration (e.g., dual-career constraints, adaptation to new labor market, and locational specificity of children's schooling) of married couples is increased over unmarried individuals (Mincer 1978; Sandefur and Scott 1981). Results from the Cox's hazard analyses confirm that after controlling for other individual and household level variables, the low propensity to migrate for the married disappears and even became greater than the never married.

Never-married people would be favor to living in the large urban areas. Among marital types, the never-married are most likely to have moved from non-SMSAs to SMSAs, whereas they are least likely to have moved the opposite direction. An interesting note is that if cohabiting people have lived in a SMSA, their mobility to a non-SMSA is about 40% higher than never-married people, even though the general mobility of cohabiting people is not statistically different from that of never-married people.

Socioeconomic individual characteristics also help to explain the variation in the likelihood of migration among young adults. Higher education is closely associated with a higher propensity to migrate. Among the NLSY79 sample, people with a bachelor's degree or more education are about 41% more likely to have migrated than people without a high school diploma, when controlling for other demographic factors. This result is consistent with migration studies that find a positive relationship between the level of education and migration rates (Goss 1985; Long 1973). As Sjaastad (1962) points out, "migration is an activity which requires resources," (80) and education is recognized as the single most important general resource which can be readily transferred from area to area (Sandefur and Scott 1981). Education increases employment opportunities and expands the ability of gathering information about opportunities elsewhere.

Educational selectivity, however, can depend on the characteristics in the current residential area. For non-SMSA-to-SMSA migrants, the probability of migration for people with a bachelor's degree or more education is about 90% higher than people without a high school diploma. For SMSA-to-non-SMSA migrants, the picture is quite different: the probability of migration for the more highly educated is about one and a third times less than that for the least educated. It indicates that those who with a higher

education are more likely to move away to the urban city, leaving behind in the origin area those who are less educated, while the less educated are forced to migrate from urban to rural areas. This finding is consistent with Gabriel and Schmitz's study (1994) which showed that rural-to-urban migration compared with urban-to-rural migration is strongly selective of high potential earning achievers.

The individuals having a job are more likely to postpone migration compared with people lacking labor market experience, but there is only a small difference in the hazard of migration between the employed and the unemployed. However, rural and urban characteristics have played a role in the differences in mobility by employment status. For non-SMSA residents, the probability of migration for the unemployed is 27.7% higher than that for the employed, whereas for SMSA residents, the employment status does not make any statistically significant variation in the migration propensity.

The higher the income, the greater the likelihood that individuals postpone migration. When controlling other household and community factors, the hazard of migration for the individuals in the highest income ties is about 16% higher than for those in the lowest income ties. This downward trend of income is much stronger for SMSA-to-non-SMSA migrants rather than non-SMSA-to-SMSA migrants. In other words, urban residents in the higher income category are much less likely to move to rural areas compared with rural residents.

A major concern at the individual level investigation is to test whether status inconsistency arguments hold potential relevance for explaining the differences in the propensity to migrate and in the locational preference. Numerous past studies on migration find variation in geographic mobility depending on the level of education.

However, there has been little research on variations of migration rates within groups with a similar educational level. Are there variations in the migration rates of individuals within the same educational level as well as between different educational levels? To address this question, status inconsistency variables are employed in this study. Education can be considered as an investment, and occupation and income can be considered as rewards. Relative status within the same educational group is thought to reflect a comparison made by individuals between their investments and their rewards considered conventionally necessary by their social group.

It is hypothesized that if one's rewards do not suffice to meet the normative level of others with the same educational level, one will probably consider oneself worse off than others, and may be more likely to migrate than others. Conversely, if the rewards received by one exceed the normative level, one will consider oneself better off than others, and may be less likely to migrate than others. Based on the results of statistical analyses, these hypotheses are supported by this study. The underrewarded people, measured by the degree of status consistency between their investment and their rewards, are more likely to migrate than are the status consistent people, whereas the overrewarded individuals are less likely to migrate than are the status consistent people. Many migration studies document that individuals use migration as a strategy to enhance their social status or to maximize their future discounted benefits (Goss 1988). The underrewarded people have a strong incentive to adopt migration as a status enhancing strategy, while the overrewarded have little incentive to enhance their social status through migration.

However, the effects of status on migration are neither frozen in time nor insensible spatial differentials in socioeconomic opportunities. Differing patterns of migration behavior between the underrewarded and the overrewarded appear to be clearer for newcomers than for longer-term residents. Two years after a move, the negative effect of the overrewarded status inconsistency on the migration propensity seems to diminish, but the positive effect of the underrewarded inconsistency appears to strengthen. The spatial differential complicates the variation of the migration propensity with status inconsistency. For urban residents, the expected differing patterns between the underrewarded and the overrewarded are present. For the non-SMSA residents, people with status inconsistency regardless of the direction of their inconsistency show higher probabilities of migration than do status consistent people. This outcome would be related to the effects of education on migration, which have been working in the opposite direction between rural and urban.

Although the subcategories of mixed inconsistency in terms of the balance between two dimensions of rewards (income and occupation) has not been separated out for this study because of overclassification, it is worth noting that there are differing patterns of migration behavior within the mixed inconsistency people by racial and ethnic groups. For whites, the migration rates are higher when someone has just obtained higher occupational prestige than monetary income rewards, but the rates are lower when someone has received higher income rewards than occupational prestige. For other ethnic groups (mainly Hispanic), the migration rates are not significantly different between two mixed inconsistency categories. These results indicate that the mobility of whites has

responded to increases in income level alone, while that of other ethnic groups has responded to both occupation prestige and income level.

These findings imply that status inconsistency could bring different responses according to racial and ethnic groups, because cultural norms and socialization forces play an important role in interpreting one's social position in the status hierarchy, and make certain kinds of unbalanced status tolerable (Smith 1996; Zurcher and Willson 1979).

According to the NLSY79, length of residence is the single most important factor governing the likelihood of migration. If one has been in a county for more than 5 years, his or her probability of migration is only one-third that of someone who has been in the county less than 2 years. This deterring effect of length of residence is stronger for urban residents than rural residents. In addition, the differences in mobility between individuals are measured by demographic and socioeconomic variables which differed over the length of residence. For newcomers, there are no significant differences in the likelihood of migration based on education, while for longer-term residents, going to 4 years of college increases the probability of migration by a little more than two and a half times.

At the household level, this study investigates whether the likelihood and the direction of migration differed by household characteristics. The expected deterring effects of household size and children are found in the NLSY79. Consistent with Sandefur and Scott's findings (1981), household migration responds to constraints. Increasing smaller household units could be conducive to higher rates of migration and to greater flexibility in adapting to altering economic opportunities. The negative effect of household size on migration propensities is evident in the NLSY79 data. An increase in

the size of household decreases the probability of migration, although there is little variation when household size grows to three and more. This deterring effect is stronger for rural residents than for urban residents. Young adult migrants are likely to be people without children. If migrants have children, they are likely to be preschool age. Again the presence of children makes relatively little variation on the propensity to migrate for urban residents rather than for rural residents.

It is generally believed that people living in families in lower-income categories are more likely to have migrated than are those in higher-income categories, because in the household context, migration could be considered as a means by which families can improve their living standards. In the NLSY79, there is a negative relationship between the household income level and the likelihood of migration, but it does not seem to be linear: the probability of migration according to household income is the highest at the lowest income level, while it is the lowest at the upper-middle income level. It reflects that household income variable as being associated with age. People in higher-income categories are more likely to be older than are those in lower-income categories.

Of all types of households, married-couple families are least likely to have migrated, but there are variations of migration rates within married-couple families based on their conjugal relations. According to the NLSY79, it is clear that adding conjugal relational power variables to the model accounts in some ways for the differences between married couples.

A major research question at the household level investigation is how the relative status of wives and husbands influences their probability of migration. Much research shows that wives' labor force participation deters household migration (Bird and Bird

1985; Mincer 1978; Shauman and Xie 1996). In this study, within married-couple families, a greater marital power of wives, as based on the degree of power relations between spouses, is hypothesized to decrease the probability of migration. This hypothesis is guided by the family resource theory. Based on the results of logistic regression analyses, the study hypothesis is only partially supported by this research. Among the three power variables, Power Education is the only variable that shows an expected pattern of the effect on the probability of migration. The probability of migration for a wife with a higher educational attainment than her husband is about a quarter less than that for a wife with lesser educational attainment. However, the quantitative effects of relative power are not the same for husbands and for wives. With the exception of Power Education variable, the effects of power variables are all greater for wives than for husbands.

Although not explicitly tested here, differences between wives' and husbands' income levels could not be attributed solely to differences in educational levels between them. Descriptive statistics show that in the NLSY79, about 67% of married couples belong to the category, in which wives have an equal or higher educational level, but in only 29% of the couples, wives have an equal or higher income than their husbands. Loprest (1992) has examined that the gender wage gap by using the NLSY79 and finds that young men working full-time show 35.6% of real wage growth over the first four years after labor-market entry, but that the growth for young women is only 29.1%. Although growing rates both in women's educational attainment and in married women's labor force participation have turned couples into dual career families, the wives' relative

economic position does not greatly increase nor depress the probability of migration for married people.

The final focus of this study has been on investigating the effect of community characteristics on the likelihood of migration. Results from statistical analyses confirm that contextual factors are crucial to understanding the dynamic reaction of people through migration. By using logistic analyses, this study find that most variances in mobility differentials could be explained in terms of three significant community-level variables: the population size, the percent of 4-year college-graduated, and the per capita personal income.

This study finds that there is a tendency for migration rates to be lower in the larger metropolitan areas than in smaller areas. This result may derive from two reasons. First, the spatial expansion of a county is larger and denser for the large population urban cities rather than for small population rural cities. Although results are not shown, intercounty migration rates are much higher in a small population county than in a large metropolitan county. This higher intercounty migration rate in smaller population areas would account in some ways of differences in migration rates according to population size.

Second, perhaps more important reason is that the population size in a county means more than just how many people live there. According to the NLSY79, large population size in a county is related to higher proportions of an well-educated population, to higher personal per capita income, and to low unemployment rates. Because opportunities are more plentiful and secure in large population areas, if young

adults are in large areas that seem to offer better conditions, their motivation for searching non-local opportunities which facilitates migration would decrease.

Rather than thinking of migration as forced simply by contextual factors, it is useful to investigate potential interactions between the locational characteristics and the individual migration selectivity. This study finds that the basic determinant in the migration rates is who they are and where they live is secondary, involving a somewhat different set of dynamics. The most mobile people (whites and the well educated) are more likely to move regardless where they live, and the least mobile types of people (blacks and the less educated) are less likely to have migrated regardless of the place.

However, there are different quantitative effects of community factors between the most mobile groups and the least mobile groups. Community characteristics explain more of the probability of migration for the most mobile types of people than for the least mobile types of people. For the most mobile groups, the amount of variation in the likelihood of migration has resulted from differences in the population size and in the percent of the 4-year college-graduated, while for the least mobile groups, the variation has resulted from differences in the percent of the white population. These results imply that the propensity to migrate for the most mobile groups does fit a "rational" pattern in relation to observable differences in socioeconomic opportunities such as educational levels, income levels, and unemployment rates. On the other hand, the propensity to migrate for the least mobile groups seems to be restricted by such social distance as racial discrimination.

The Cox proportional hazard analyses are used to analyze the importance of individual, household, and community variables on subsequent duration of residence and

their interactions. Results reveal that the basic determinant in the number of years until the next migration appears to be individual factors, especially socioeconomic factors, and that community factors are secondary. Individual characteristics are the most significant determinants of the hazard of migration among the three level factors.

However, the hazard of migration for young adults is more fully explained by the multilevel model rather than by a single level model. This result confirms Massey's arguments (1987) for the importance of the multilevel analysis in migration studies. In order to understand the issue of how differently people make the selection to migrate, it is necessary to combine individual, household, and community level factors into an integrated model of migration.

CHAPTER VI

CONCLUSION

The primary objective of this research has been to investigate the propensity to migrate, the destination choices of young adults, and the importance of individual, household, and place characteristics in these migration choices. Migration is not only a matter of personal decision; it is necessary to take into account the characteristics of who moves and also of the features of the region. The micro level migration studies have focused on the effect of individual characteristics on migration outcomes. However, it is not entirely satisfactory in understanding the strength and direction of the relationship between the probability of migration and individual background variables without also assessing information on the local social and economic conditions. The household level analyses interpret household migration decisions as a strategy for net household gain. But it is necessary to incorporate the individual characteristics of household members and to place migration within a broader community context.

An attempt has been made to specify the set of multilevel factors and to provide a complete account of migration behavior. Eighteen years of panel data from the NLSY79 have been analyzed using logistic regression and the Cox proportional hazard analysis techniques to determine the effects of individual characteristics (age, sex, race and ethnicity, marital status, education, employment status, income, and status inconsistency), household characteristics (the household size, the presence and ages of children, and the total net household income), and community characteristics (population size, the percent of the white population, the percent of 4-year college-graduated, the per capita personal income, and the unemployment rate). Results indicate that the effects of all three levels of

variables on mobility are clear and that the migration propensity is more fully explained by multilevel variables rather than by a single level variable. Among the three levels of factors, individual characteristics are shown to have a dominant influence on the probability of migration.

This research has three foci within the primary objective. First, at the individual level, this study tests whether the status inconsistency variables are viable predictors of the analysis of determinants and constraints of migration. Most research on characteristics of migrants has focused on the differences in educational level, but it has accounted for little about variations in mobility rates within a group with a similar educational level. The status inconsistency arguments are adopted in this study to illuminate the role of the unbalanced status between the investment and the reward dimensions on the likelihood and the direction of migration. This study has found that underrewarded individuals are more likely to migrate than are those who have balanced status. This is because, as much research suggests, individuals use migration as a strategy to balance their social status or to maximize their future discounted benefits (Goss 1988). In contrast, overrewarded individuals are less likely to migrate than are those who have balanced status, because overrewarded individuals have little incentive to enhance their social status through migration. These status inconsistency effects are clear for the newcomers rather than for the longer-term residents. This study is the first step in research that intends to suggest the usefulness of status inconsistency arguments on migration studies.

Second, at the household level investigation, this research has focused on the migration of married households and the effects of relative conjugal power between

husbands and wives on migration. The wife's relative age, education, and income are included to test the hypothesis that the greater marital power of wives may increase the proportion of couples with a colocation problem and may decrease the probability of migration. This is because the colocation problem is likely to be particularly severe for couples if the wife enjoy a favorable socioeconomic position. Among the three power variables, only differences in educational level between wives and husbands deter the migration propensities, but the quantitative effects of relative power variables are greater for wives than for husbands. Results suggest that differences in relative power between husbands and wives have only minor effects on the migration propensities.

Third, at the community level investigation, this study has focused on analyzing the interaction between the residential mobility of individuals and the characteristics of the residential areas where they are located. The probability of the most mobile types of people (the well-educated whites) is to respond more to differences in community characteristics than do the least mobile types of people (the less-educated blacks). Among the most mobile groups, economic developmental status in the residential area, which indicated by the population size and by the proportion of the 4-year college-graduated, increase the variation in the probability of migration, while among the least mobile groups, the proportion of the white population increases the variation. Social distances between communities and regions tend to restrict migration flows for the least mobile groups in some ways. Their distorted migration flows have perhaps played a role in the development of many of today's urban ghettos and in reducing the national labor market efficiency.

Some limitations, methodologically and theoretically, emerge in this study.

From the methodological aspect, the NLSY79 does not provide annually updated community level information. As this study has had to analyze the effects of community characteristics from the sparse data available, it is not clear how far the results are from the real characteristics of the counties. Community characteristics are dynamic social factors which affect migration. Some places have consistently higher growth rates than others, and some places are likely never to change. If annual information on community characteristics had been available, the influence of environmental, social, and economic factors on the observed differences in migration behavior could have been more clearly elucidated.

In the theoretical aspect, this research indicates some important questions for future research. First, according to DaVanzo (1983), in the United States, the probability of a migrant returning to the initial location (return migration) within a year is 12.6%, while the probability of onward migration is 15%. One may expect that onward and return migration involve a somewhat different set of factors and dynamics. The likelihood of migration varies markedly from individual to individual, but it would be true for both onward migrants and return migrants. Are people with certain characteristics or experiences more likely to return to their original location than are people with other characteristics or experiences? What factors determine individuals' probabilities of return and onward migration? These questions can be pursued in the longitudinal framework that allows distinguishing types of migration as well as changes in migration status through time. It would give a more complete picture of migration dynamics.

The second theoretical question is related to the concept of status inconsistency. Changes in status are an important factor that accompanies migration. Particularly, the individual's relative status would be changed over time. Not only is the relative degree of inconsistency of individuals important in explaining their migration behavior, but how long they stayed in a certain inconsistency status, and whether they have experiences with changes in inconsistency status, are also useful to predict their migration behavior. Do people with a sudden loss or gain in a status dimension tend to move away or never move? If sudden changes in status inconsistency increase or decrease the probability of migration, how long does it last? As Smith (1996) clearly states, the effects of status inconsistency would not be frozen in time, because status inconsistency is a dynamic concept.

Although the relationship between status inconsistency and migration has been approached from the "objective" viewpoint (or structural perspective) in this research, social psychological approaches are also relevant. Certainly, it is likely that status inconsistency will influence a number of attitudes and motivations that help determine if an individual migrates. An examination of attitudes and motivations in relation to status inconsistency and migration may be a fruitful area of future research.

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APPENDIX

APPENDIX TABLE 1. SUBSEQUENT DURATION OF RESIDENCE BY INDEPENDENT VARIABLES (N=40,169)

	Mean	S.D.
<i>Individual Variables</i>		
Age		
Less than 21 yrs	8.22	.110
21-25 yrs	7.96	.068
26-30 yrs	8.15	.067
31-35 yrs	8.37	.080
36 yrs and older	8.76	.170
Gender		
Male	7.91	.053
Female	8.44	.053
Race/Ethnicity		
White	7.60	.044
Black	9.60	.080
Other	10.11	.160
Marital Status		
Never-married	8.09	.060
Married	8.26	.057
Cohabited	8.11	.130
Other	8.23	.130
Education		
Not a high school graduate	9.18	.100
High school graduate	9.78	.058
Some college graduate	7.90	.075
Bachelor's degree or more	4.25	.068
Employment Status		
Employed	8.24	.040
Unemployed	8.80	.160
Out of labor force	7.07	.130
Income		
Less than \$10,000	7.99	.072
\$10,000 to \$19,999	8.91	.076
\$20,000 to \$29,999	9.62	.084
\$30,000 and over	7.38	.071
Status Inconsistency		
Consistent	9.18	.052
Underrewarded	7.62	.091
Overrewarded	8.90	.100
Mixed	9.17	.091
<i>Household Variables</i>		
Household Size		
1	5.75	.077
2	7.62	.080
3	8.89	.084
4	9.19	.084
5 and more	9.50	.089

Continued	Mean	S.D.
Children		
No child	7.46	.048
0-5yrs	8.84	.690
6-12yrs	9.86	.120
13-18 yrs	10.39	.300
Household Income		
Less than \$10,000	8.05	.084
\$10,000 to \$29,999	8.40	.069
\$30,000 to \$49,999	8.60	.078
\$50,000 and over	7.68	.072
<i>Community Variables</i>		
Population Size		
Less than 100,000	7.99	.069
100,000-499,999	7.66	.065
500,000-999,999	8.21	.086
1 million and over	9.37	.089
% of White Population		
Less than 70%	9.26	.082
70-79%	8.46	.090
80-89%	8.21	.072
90% and over	7.30	.063
% of 4yrs College Graduate		
Less than 7%	8.94	.069
7-10.9%	8.73	.061
11-14.9%	7.60	.079
15% and over	5.04	.100
Per Capita Personal Income		
Less than \$15,000	7.96	.110
\$15,000 to \$19,999	8.29	.065
\$20,000 to \$24,999	8.54	.064
\$25,000 and over	7.51	.082
Unemployment Rate		
Less than 3%	6.46	.290
3-5.9%	7.49	.061
6-8.9%	8.45	.061
9.0% and over	8.86	.077

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