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# COMPARISON OF YOUTH MIGRATION PATTERNS ACROSS COHORTS:

# EVIDENCE FROM TWO NATIONAL LONGITUDINAL SURVEYS OF YOUTH

by

Yan Guo

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

of

DOCTOR OF PHILOSOPHY

in

Sociology

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UTAH STATE UNIVERSITY
Logan, Utah

2009

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# ABSTRACT

Comparison of Youth Migration Patterns across Cohorts:

Evidence from Two National Longitudinal Surveys of Youth

by

Yan Guo, Doctor of Philosophy

Utah State University, 2009

Major Professor: Dr. E. Helen Berry and Dr. Sandra T. Marquart-Pyatt (co-chairs)
Department: Sociology, Social Work & Anthropology

This research is a systematic comparison of youth migration experiences between two birth cohorts, using the first ten rounds of two national longitudinal surveys of youth, NLSY79 and NLSY97. Results show both changes and continuities in youth migration patterns across cohorts for ages16-25. Specifically, youth today have a delayed but stronger migration momentum than the late baby boom generation, the dividing point being at age 22. Women are more likely to migrate than men in the recent cohort, but not in the older cohort. Whites migrate considerably more than blacks and Hispanics consistently across cohorts. The likely life events in youth's transition to adulthood are important indicators of youth's migration propensity for both cohorts. Particularly, graduating with a bachelor's degree is the most powerful predictor of youth's migration propensity. Other life events such as getting married; becoming separated, divorced, or widowed; dropping out of college; and losing a job are also significantly associated with

youth migration. In general, the effects of these life events on youth's migration propensity are weakened across cohorts, but the importance of having a college degree on migration propensity has been increasing.

(155 pages)

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# CHAPTER I

# INTRODUCTION

## The Purpose of the Research

As more and more people in the past decades have moved, both internally and internationally, the late twentieth century has been characterized as "the age of migration" (Castles and Miller 2009). This migration momentum has not shown any sign of diminishing in the twenty-first century. With the declining fertility and mortality rates, the inflow and outflow of population are increasingly more important for local societies, at either the county, state, or country level, because where migration flows are large, they affect the development of both the sending and receiving societies by changing local demographic, economic, and social structures in a relatively short period of time (Castles and Miller 2009). To understand the implications of this mass migration, the first and foremost task is to have a picture of the migration trend itself as well as the understanding of the causes of this mass migration. Since most migrants are young and their migration patterns and motivations are distinctly different from people in other age groups (Long 1992, 1973; Pandit 1997), this research will focus on the migration of young people and explore the important factors that are associated with their migration experience.

In order to understand migration trend from a historical perspective, this research compares the migration patterns of two youth cohorts in the United States using two national longitudinal surveys of youth (NLSY), NLSY79 and NLSY97. The individual data from the two longitudinal surveys allows the analysis at both aggregate and individual levels. This dissertation is aimed to answer questions at both levels: 1) At the

aggregate level, do youth born in different cohorts migrate differently? Specifically, do youth in the late 1990s and early 2000s show different migration patterns from those in the late 1970s and early 1980s? If yes, what are those patterns? 2) At the individual level, have factors associated with youth migration changed or remained the same between these two periods and cohorts? Since the youth in this research are in their transition to young adulthood, the life events in this transition will be closely examined as important indicators of migration propensity. Specifically, the research will focus on the effects of changes in status, such as marriage, enrollment and education, and employment, on the likelihood of youth migration, from the life cycle change perspective. In addition, by comparing the effects of the same factors on migration propensity, the relative importance of these factors on migration propensity will be revealed.

The first part of the research presents an overall picture of migration patterns between two generations of youth in the United States. Migration rates will be compared by different individual characteristics across the two cohorts, especially by age, gender, and race/ethnicity. The second part of the research investigates the relative importance of the factors on migration propensity of youth, including different individual characteristics as well as change in status characteristics. The individual characteristics include age, gender, race/ethnicity, education, enrollment status, marital status, employment status, duration of residence (length of staying in the same place), living arrangement (whether living with any parental figures), incarceration status (whether living in prison), and rural/urban origin of the individuals. Change in status characteristics, specifically, change in marital status, enrollment and educational attainment, and employment status, are the

focus of the analysis. Within the cohorts, this research is to test if the life events that are likely to occur in the transition to young adulthood, including getting married or divorced, going to college or dropping out of college, graduating with a college degree, and getting a job or losing a job, are powerful predictors of youth migration propensity. Across the cohorts, the analysis is focused on identifying how the effects of these factors have changed or remained the same over time.

The comparison of these two generations of youth (about twenty years apart in their migration experiences) allows the examination of the changes in their migration patterns. In addition, the research also explores the answer to the question of what factors in youth's transition to young adulthood are associated with their migration experiences, focusing on the life course events in this transition. Furthermore, the historical comparison between the two cohorts helps to understand how the relative importance of these attributes and events on youth migration propensity has evolved over time.

## Research Background

### *Why Studying Youth Migration*

First and foremost, this research is to examine the migration experiences of young people. It is important to distinguish young people from other age groups for at least three reasons. First, youth have higher migration rates than other age groups. Higher rates are particularly prevalent among young people in their twenties (Long 1992, 1973; Pandit 1997). Actually, young people in their twenties and late teens constitute most of migrants (Lee 1966). Second, in the past decades, youth show a distinct migration flow from the

overall population in the United States. In the 1970s and early 1990s, there emerged an urban-to-rural migration trend which had never been seen in about 150 years in the United States (Beale 2000). However, youth are found to migrate consistently from rural to urban areas in spite of varying overall migration trends in the United States over the past decades (Johnson and Fuguitt 2000). Third, in this expansion life cycle stage, individuals have different motivations for migration from persons in other age groups, motivations that are more related to economic and occupational concerns rather than other concerns such as residential and amenity preferences (Borjas, Bronars, and Trejo 1990; Bowles 1970; Mills and Hazarika 2001). The following paragraphs will explain these three aspects in detail.

The age pattern of migration clearly indicates the high mobility of young people compared to other age groups. A typical age profile of migration, as described by Pandit (1997) among others, begins with an initial peak; infants in the first few years of life show high mobility rates that mirror those of their parents. Mobility and migration rates then decline to a low point in the mid-teen age groups. Then mobility and migration rates increase sharply to the highest peak during the early-twenties. Thereafter, migration levels decline with age, with the exception of a slight increase around the age of retirement (Long 1992; Pandit 1997). This age pattern of migration is found to be one of the most prominent regularities noted in migration studies (e.g., Hansen 1994; Pandit 1997; Long 1973, 1992; Rogers 1979; Rogers, Raquillet, and Castro 1978).

It is important to differentiate migration experiences of youth from those of middle-aged and older people not only because youth have higher migration rates than

other age groups, but also because they demonstrate a distinct migration flow that is sometimes not in accordance with the aggregate migration trend of all ages. For instance, rural areas in the United States experienced, for the first time in about 150 years, notable turnaround in population loss in the 1970s and then rebound in the early 1990s, meaning that during those times population loss in nonmetropolitan areas was exceeded by gains in population from inmigrants (e.g., Banks and Beale 1973; Beale 2000; Cromartie 2001; Fuguitt 1985; Johnson and Cromartie 2006). Therefore, in the 1970s and early 1990s, rural areas in the United States experienced net population gains from an urban-to-rural migration. However, contrary to this overall migration trend, Johnson and Fuguitt (2000) found that nonmetropolitan areas of all types—from farm counties to recreational counties—experienced net outmigration of young adults in every decade between 1950 and 1990. Thus, youth showed a reversed migration flow from the overall migration trend in the 1970s and early 1990s.

The particular reasons and causations of youth migration could be explained by the neoclassical economic theory and life cycle change perspective. It is argued that in the early stage of their life cycle, youth are driven largely by economic incentives that lead them toward metropolitan areas, as suggested by neoclassical economic theory (Johnson and Fuguitt 2000). Individuals, considered as rational actors, migrate with the attempt to maximize their anticipated economic returns on their education and training (Bowles 1970; Sjaastad 1962). Since youth have longer productive labor market time to recoup the costs associated with migration, they are more likely to migrate than the older age groups (Borjas et al 1990; Bowles 1970). By contrast, the overall urban-to-rural

migration in the 1970s and the early 1990s was driven largely by residential preferences among the middle-aged and the elderly (Johnson and Cromartie 2006; Sandefur 1985). From the life cycle change perspective, the relative importance of the factors affecting people's migration behaviors could change as they go through their life cycle (Detang-Dessendre and Ian 1999; Detang-Dessendre et al. 2002; Sandefur 1985). As for young people in their transition to adulthood, Detang-Dessendre and his colleagues (2002) found that occupational concerns have a significant effect on migration choice, especially among youth from rural areas. Therefore, according to the life cycle change perspective, people in different life cycle have different priorities when it comes to migration. For young people, they are more likely to migrate driven by economic motivation and/or occupational aspiration.

### *Demographic and Economic Effects Between the Two Cohorts and Periods*

Even though the shape or age pattern of migration has been enduring regularity over time and space, research shows that the level (or intensity) of migration schedule is sensitive to demographic and economic cycles, with the effect of cohort size being relatively more influential than the economic cycles (Milne 1993; Pandit 1997; Plane 1992; Rogerson 1987). People born into large cohorts have been found to exhibit lower migration rates in their young adult years than persons born into small cohorts, mainly because they face greater competition in the labor market and more depressed job opportunities (Milne 1993; Wilson 1983). In addition, empirical evidence indicates a positive relationship between migration rates and economic conditions. People tend to

migrate more during periods of economic boom and less during recessionary periods (Greenwood 1981; Milne 1993). Together, cohort and period effects are likely to influence the level of migration momentum over time and across cohorts.

In general, the demographic and economic situations are more in favor with the recent cohort compared with the older cohort in terms of migration levels. Comparing the two cohorts, the late baby-boom generation (born between 1957 and 1964), or the older cohort, has a relatively larger cohort size than the recent cohort (born between 1980 and 1984). The recent cohort can be roughly seen as the next generation of the older cohort in this research.

As an effective indicator of macroeconomic situation, unemployment rates are, on average, higher in the 1970s and 1980s (when the older cohort experienced migration) than in the late 1990s and 2000s (when the recent cohort experienced migration). After a golden time of about two decades immediately following World War II, the unemployment rate was rising in the early 1970s. In the 1970s-1980s, the unemployment rate mostly stayed above 6 percent (U.S. Bureau of the Census 2007a). The 1970s economic recession in the U.S. coincided with the oil price shocks that occurred at the same time the economy was adjusting to the end of the Vietnam War (1959-1975) (Greenwood 1981). In the latter half of the 1980s, the United States witnessed irreversible flows of manufacturing activities overseas, accompanied by the loss of many jobs (Tolbert, Blanchard, and Irwin 2006). By contrast, driven by high technology, innovation, and great gains in productivity in the information sector, the U.S. welcomed a New Economy in the latter half of the 1990s (Alcaly 2003). 1995-2000 was a period of

robust economic growth and tight labor markets with an average unemployment rate dropping to 4.9 percent (Tolbert et al. 2006). Between 1995 and 2006, the unemployment rate mostly stayed below 6 percent (U.S. Bureau of Labor Statistics 2009). The combined favorable demographic and economic situations for the recent cohort suggest a higher migration level for the recent cohort compared with the older one.

***Life Cycle Changes across Cohorts***

Besides the level (or intensity) of migration, another feature is the timing of migration momentum, which is closely related to the important life events in youth's transition to young adulthood. Youth may experience some or all of the life cycle changes in marital status, enrollment and educational attainment, and employment status during the transition. Although previous research has examined the association between the change in marriage status and migration, or between the change in other statuses (enrollment and educational attainment and employment status) and migration, few have been designed to investigate all of these changes at the same time as related to youth's migration propensity. The timing of migration momentum is closely related to the timing of these life cycle changes.

Compared with the older cohort, the recent cohort experienced the transition to young adulthood differently. As to marital status, there has been an emergence of delayed marriage, delayed and diminished childbearing, and increasing divorce rates during the decades between the selection of the two cohorts (e.g., McLanahan and Percheski 2008; Morgan et al. 2006). The median age at marriage for women in the United States rose from 20.8 years in 1970 (U.S. Bureau of the Census 2004) to 26 years in 2005 (U.S.

Bureau of the Census 2007b), more than a five-year increase. Women 40 to 44 years old (who are nearing the completion of their childbearing years) in 2002 had only 1.9 children on average compared to women of the same age group in 1976 with 3.1 children on average (Downs 2003). Divorce rates have risen sharply over the past decades. The three-year average of divorce rates from 1978 to 1980 were only 40 per 1,000 married women between ages 15 to 44 years old (U.S. Bureau of the Census 1992), while in 2006, for those who are married, half of them ended up in divorce (U.S. Bureau of the Census 2007c).

Marital status is an important indicator of migration propensity and, more important than marital status as it is related to migration, is the change in marital status, such as getting married or divorced. Compared to married people, those who are not currently married (including never married, separated, divorced, and widowed) have higher migration rates (Schachter 2004). One of the reasons married couples are less likely to migrate is that married couples, especially those with children, are more likely to develop stronger ties to the community than singles because of more contacts with the community, thus lowering their propensity to migrate to other places (Sandefur 1985). Compared to static marital status, change in marital status is even more significantly related to people's migration behavior with those who change their marital status more likely to move than those whose marital status remains unaltered (Falk, Hunt, and Hunt 2004; Mincer 1978; Wilson 2005). Therefore, those who get married or divorced are more likely to migrate than those who stay married or stay single.

Besides family formation, other life cycle events among youth in their transition to young adulthood involve full-time education and labor force activity that are also key factors on youth migration (Domina 2006; Hogan 1978; Sandefur 1985; Speare, Goldstein, and Frey 1975). It is well-documented in the literature that, theoretically and empirically, educational attainment is one of the most important factors on migration. People with more education are more likely to migrate than those with less education (see Bowles 1970; Domina 2006; Greenwood 1997; Mills and Hazarika 2001). For example, rural college graduates are three times more likely to migrate to the urban areas than their less educated fellows (Domina 2006). In the labor force, workers with higher education also have higher internal mobility. As documented by Greenwood (1997), the group of 25-29 year-old workers with 5 or more years of college has a migration propensity 4.6 times higher than that of the group with 0-8 years of elementary school in the U.S. Education does make a difference in youth's migration propensity, with those who are more educated significantly more likely to migrate than those less educated.

Compared with the older cohort, the life chances for the recent cohort has been broadening for both men and women in the U.S. in terms of higher levels of educational attainment among people aged 25 and older and higher labor force participation rates in 2000 than for those coming of age in 1980 (e.g., Buchmann, DiPrete, and McDaniel 2008; Iversen and Rosenbluth 2008). The improvement of life chances, especially in education, has been more noticeable for women between the two cohorts. With prolonged life expectancy and delayed parenthood with fewer children as well as the changing norms of gender roles in society, women in the new cohort are not only pursuing higher education,

but also increasingly achieving more education than men, which reverses the historical trend (Buchmann et al. 2008). For example, in 1979, about 52% of all bachelor's degrees were awarded to men (U.S. Bureau of the Census 2007d). However, from 1982 onward the percentage of bachelor's degrees awarded to women continued to increase such that by 2005 more women received bachelor's degrees than men, 58 versus 42 percent (Snyder, Dillow, and Hoffman 2007). It is predicted by the U.S. Department of Education that this new "female-favorable" gap in college education will continue to widen over the next decade (Buchmann et al. 2008). The gains in women's education in the past decades may play an important role in shaping their migration behaviors that were never seen before.

For the recent cohort, the higher educational attainment in both men and women, especially the latter, prolongs their stay at schools and postpones their first full-time employment, compared with the older cohort. The higher educational attainment of young people in the recent cohort can be partly explained by the great expansion of the community college system starting in the mid 1970s (e.g., Leigh and Gill 2003, 2004; Rouse 1995; Walker 2008). Community colleges are considered to serve as feeder schools for the traditional four-year college that they charge lower fees and allow students to reside at home while attending the college (Walker 2008).

Compared with the older cohort, the recent cohort has relatively higher labor force participation. The labor force participation rate—the proportion of the working-age population either working or actively looking for work—had been rising since 1950 and peaked in the late 1990s but dropped after 2001 (Mosisa and Hipple 2006). However,

compared to the late 1970s and 1980s, the labor force participation was, on average, relatively higher in the latter half of 1990s and the first half of 2000s (U.S. Bureau of Labor Statistics 2009). In addition, the transition to a full-year job took longer for the recent cohort than the older one. Partly due to a shift from jobs in manufacturing and government to the retail and business sectors, which pay low wages and suffer high turnover, a cohort in 1980 took longer to make the transition to a full-year job than for a 1960 cohort (Morris et al. 1998).

The comparison of the life cycle changes between the two cohorts provides a general picture that looks like this: young people in the recent cohort are more likely to prolong their education; they are more likely to postpone their marriage and diminish childbearing; and they take longer to switch to full-year employment, but are more likely than the older generation to participate in the labor market, especially women. The changing behaviors between the two cohorts are likely to influence their migration experiences accordingly. The level (or intensity) and timing of migration of young people are likely to change correspondingly. This research will examine the changes in youth migration patterns and explore the possible explanations for these changes, focusing on the influences of life events in youth's transition to young adulthood.

**Contribution of the Research**

Migration literature has long recognized the importance of using longitudinal data to examine individuals' migration experiences (see Bilsborrow and Akin 1982; Massey and Espinosa 1997; Toney, Berry, and Cromartie 2004). Compared to cross-sectional data, longitudinal data provide the advantage of constructing the important life events

with exact timing and allow the researchers to examine their relationship with individuals' migration behavior. However, few studies have examined this important relationship between individuals' life events and their migration behaviors comprehensively. This dissertation seeks to explore closely the relationship between the important likely occurring life events in youth's transition to young adulthood and their migration behaviors. In a more comprehensive manner, three types of changes in youth's family formation, enrollment and educational attainment, and labor force participation are included in the analysis.

In addition, using two national longitudinal surveys of youth, NLSY79 and NLSY97, this dissertation is a historical comparison of youth migration patterns across two birth cohorts in the United States. No research to date has compared the migration patterns between a more recent cohort of youth in the late 20$^{th}$ century and early 21$^{st}$ century and those about twenty to thirty years ago. Since "the continued replacement of one cohort by another greatly facilitates transformations in societies" (Sweeney 2002), the comparison of their migration patterns and behaviors, in this research, is a way to study societal change in a specified way, if change does occur. It may help to extend our understanding of the roots and meanings of change in contemporary youth migration patterns from a historical perspective. More specifically, this dissertation will expand our knowledge in the changing migration behaviors of youth in the United States and the important individual characteristics and life events associated with youth migration behaviors over time.

Finally, the results of this research on young people's continual or changing migration behaviors can be of great interest not only to academia but also to the public in general. For example, policy makers concerned with attracting young people in the local areas can make better informed decisions once they understand their particular motivations to leave or stay. The implications of the results of this research may help policy makers make more informed decisions.

**Overview of the Research**

Chapter II is the literature review for the research. The chapter first reviews the general trend of youth migration and then the cohort and period effects that help to explain the changes in the level (or intensity) of migration rates. Two theories are introduced to explain the unique youth migration experiences: neoclassical economic theory and life cycle change perspective. Chapter II further reviews cohort changes as they are related to migration. After that, changes in gender and migration are reviewed, followed by changes in race/ethnicity and migration. Finally, Chapter II ends with a summary and hypotheses for the research.

Chapter III introduces the two longitudinal datasets utilized in this research and the corresponding methods to answering the research questions. It describes in detail how the dependent and independent variables are constructed, the format of the data structure, and the methodological framework employed to analyze the data. The limitations of the data and methodology are also discussed in the end.

Chapter IV reports the descriptive and logistic regression results to answers the research questions. The descriptive results provide the answers to the changing patterns

of youth migration: Do youth migrate different across cohorts? If yes, what are the differences? By comparing the aggregate migration rates and the differential rates by age, gender, and race/ethnicity as well as other characteristics between these two cohorts, it presents a broad picture of how youth at present migrate differently from or similarly to those in the late baby boom generation. Logistic regression results help to understand the important contributors to youth's migration propensity, particularly the strong effects of the life course events on the odds of youth migration. In addition, changes in the importance of these contributors to youth's migration propensity are examined across the two cohorts.

Chapter V concludes the research by first summarizing and highlighting the key findings of the study. Then the limitations of the research are discussed. A discussion of policy implications of the results is followed. Chapter V ends with a discussion on future research.

# CHAPTER II

# LITERATURE REVIEW

The literature review will focus on youth migration experiences and the important factors influencing youth migration behavior over time and across cohorts. Since the study of migration is clearly interdisciplinary (e.g., Brettel 2000), the review will cover economic, geographic, and sociological perspectives in understanding youth migration behaviors.

The literature review will start with general youth migration patterns over the past decades, followed by literature on how broad demographic and economic cycles will lead to different migration levels (or intensities). After that, two theories are introduced to explain the motivations and reasons for youth migration. Economic motivations of young migrants will be examined through the perspective of neoclassical economic theory. From the life cycle change perspective, the importance of life events in youth's transition to adulthood, such as going to college, getting married or divorced, finishing school and entering the labor market, on migration propensity will be explored. Then it will review the important cohort changes over time. At least partly due to these cohort changes, the differences in youth migration experiences across cohorts and over time are expected and explained. Following will be a section that reviews the literature specific to changes in women's life course in relation to youth migration, followed by another section on the migration experiences by race/ethnicity. Finally, the chapter will end with a summary and hypotheses drawn from the literature.

**General Youth Migration Trend**

Before reviewing the youth migration trend, it is necessary to understand the general migration trend of all age groups in the United States over the past few decades, because this gives a context within which the youth also participated. Through most of the 20th century, people moved from rural to urban areas. However, for the first time in at least 150 years, the migration trend changed in the 1970s, with more people migrating from metropolitan areas to nonmetropolitan areas (Beale 2000; Johnson and Cromartie 2006). The trend of internal migration in the U.S. changed again in the early 1990s with the emergence of the rural rebound — population gains in rural areas again exceeding those in urban areas; however, it did not sustain to the latter half of the 1990s (Beale 2000; Cromartie 2001; Johnson and Cromartie 2006).

Contrary to the overall trend of internal migration in the United States, the internal migration of youth shows a different pattern. No matter how changeable in direction the aggregate internal migration trends were in the past decades, young people consistently moved from rural areas to urban areas. Johnson and Fuguitt's (2000) research shows that nonmetropolitan areas of all types—from farm counties to recreational counties—experienced net outmigration of young adults in every decade between 1950 and 1990.

It is important to differentiate migration behaviors of youth from those of other age groups not only because they show different migration direction (rural-to-urban migration) and that they are more likely to migrate, but their migration behaviors are also likely to be influenced by different reasons. For example, the rural turnaround in the

1970s and rebound in the 1990s were largely driven by residential preferences among the middle-aged and the elderly (Sandefur 1985). However, it is suggested that youth, in the early stage of their life cycle, are largely driven by economic incentives which lead them toward metropolitan areas (e.g., Johnson and Fuguitt 2000).

The migration experience of young people in the past decades suggests that economic theory is more appropriate to explain youth's migration direction and their motivations (Domina 2006; Frey 1987). The neoclassical economic theory on migration will be explained in detail in a later section. In general, young people have more productive labor market time to recoup the costs associated with migration; therefore, their migration behaviors are more responsive to economic opportunities than those of older people as suggested by human capital theory (Borjas et al. 1990; Bowles 1970; Mills and Hazarika 2001). Even though there are occupational and other economic considerations throughout most of the lifetime, the relative influence of residential preferences on migration might become more important as a person goes through different life stages such as forming a family, raising children, children growing up and not living at home any more, and retiring (Detang-Dessendre and Ian 1999; Detang-Dessendre et al. 2002; Domina 2006; Johnson and Fuguitt 2000; Sandefur 1985).

**Cohort and Period Effects**

Even though the direction (rural-to-urban) of youth migration stays constant in the past decades, the level (or intensity) of migration varies from time to time due to the combined influences of cohort and period effects (Milne 1993; Pandit 1997; Plane 1992;

Rogerson 1987). Previous literature suggests that members of small cohorts have higher migration rates than members of large cohorts (Pandit 1997; Plane 1992; Rogerson 1987). According to Easterlin's relative cohort size hypothesis (1980, 1968), individuals from large cohorts face greater competition for jobs and housing than their counterparts from smaller cohorts; therefore, the increasing proportion of young adults generates a downward pressure on young men's relative wages. The unfavorable conditions faced by members from large cohorts, baby boomers for example, have a tendency to inhibit their migration rates (Plane 1992; Rogerson 1987; Wilson 1983). Research found that the mobility rates in the U.S. declined dramatically in the 1970s, which can be partly attributed to the entry of the large postwar baby-boom generation into the labor force (Rogerson 1987).

Numerous empirical studies have documented the positive relationship between economic conditions (period effect) and mobility rates, namely that economically prosperous periods are associated with higher migration rates while recessions tend to dampen migration (e.g., Greenwood, Hunt, and McDowell 1986; Long 1988; Milne 1993; Pandit 1997). The economic situations in the 1970s and 1980s are fundamentally different from those prevailing in the late 1990s to 2006. After the postwar economic expansion in the 1950s-1960s, especially in the manufacturing and construction sectors, the United States experienced economic recession in the 1970s. It coincided with the oil price shocks that occurred when the economy was adjusting to the end of the Vietnam War (1959-1975) (Greenwood 1981). The unemployment rate soared after the early 1970s. The economic restructuring in the 1970s and early 1980s moved production

facilities from the “rustbelt” of the northeast and Midwest to nonunion southern U.S. locations and rural areas (Falk and Lyson 1988). This nationwide economic restructuring can partly explain the rural turnaround in the 1970s, because large numbers of unemployed baby boomers followed the economic opportunities to the rural areas.

The 1980s witnessed a so called “deindustrialization” in the United States, referring to the reduction of industrial activity, especially heavy industry or manufacturing industry, in a country or region. At the time, the production activities moved again from the southern U.S. and rural areas to the countries with cheaper labor and more appealing policies (Tolbert et al. 2006). Many jobs were lost in the U.S., both in the rural and urban areas. During the 1970s-1980s, when the baby boom generation in this research had the migration experience, the unemployment rate mostly stayed relatively high, above 6 percent (U.S. Bureau of the Census 2007e).

In the latter half of the 1990s, metropolitan areas revived, coinciding with a New Economy driven by the fast-growing information technology sector that generated a period of robust economic growth and recovery of urban employment (Alcaly 2003; Tolbert et al. 2006). Between 1995 and 2006, when the recent generation in this research experienced migration, the unemployment rate was relatively low, mostly staying below 6 percent (U.S. Bureau of Labor Statistics 2009). The average unemployment rate between 1995 and 2000 was only 4.9 percent (Tolbert et al. 2006).

Since migration propensity is the joint outcome of cohort and period effects, the more favorable cohort size and economic situations of the more recent cohort are likely to generate higher migration momentum than that of the baby boom generation. Thus, the

recent cohort is expected to have higher levels of migration rates than the baby boom generation.

**Neoclassical Economic Theory**

Neoclassical economic theory examines the economic motivations for people to migrate. As mentioned above, economic theory is more appropriate to explain youth's rural-to-urban migration direction and their motivations of migration (Domina 2006; Frey 1987). This theory has both macro and micro levels of analysis and is used to explain both internal and international migration (De Haas 2007; Frey and Liaw 2005; Van Hook, Brown, and Bean 2006).

At the macro level, neoclassical economic theory focuses on geographic differentials in wages and employment opportunities between regions. It postulates that, in the free labor market, migration flows tend to occur from low-wage to high-wage areas until equilibrium is achieved when wage differences are equal to the costs of migration. The larger the wage differences, the greater the volume of migration (e.g., Greenwood 1981; Harris and Todaro 1970). This theory is often used to explain the rural-to-urban internal migration and international migration from developing countries to developed countries at macro level.

The corresponding micro level analysis of neoclassical economic theory conceives of migration as individuals' rational decision for income maximization (Lewis 1954; Ranis and Fei 1961; Sjaastad 1962). Based on cost and benefit calculation, individuals tend to migrate from an area to another to maximize their economic gains, given their human capital endowment. This proposition at the micro level of neoclassical

economic theory is widely known as the *human capital theory of migration*, attributed to Sjaastad (1962). From this perspective, migration is understood as a human capital decision in which rational actors attempt to maximize the anticipated returns on their investments in education and training. Theoretically, at the micro level, a potential migrant goes to where the expected net returns are the greatest. Since median incomes and returns to education in American metropolitan areas have always been higher than those in nonmetropolitan areas (Ghelfi 2002; Gibbs and Parker 2001), the economic theory of migration predicts that people in the rural areas, especially the better educated young people, are more likely to migrate to urban areas.

Theoretically and empirically, educational attainment is shown to be the most important predictor of the odds of outmigration for nonmetropolitan residents (Domina 2006). According to Domina (2006), between 1989 and 2004, wages have been increasingly stratified by educational attainment in metropolitan areas. During that time, earnings for college graduates increased by nearly one-third in metropolitan areas, whereas earnings for metropolitan high school graduates stagnated, and the same could be noted for college graduates in nonmetropolitan areas. Thus, educated and ambitious rural youth migrate to metropolitan areas for better returns on their education as suggested by human capital theory (Bowles 1970; Mills and Hazarika 2001). Rural college graduates are three times more likely than their less educated fellows to migrate to the urban areas (Domina 2006). This trend became more noticeable in the mid-1990s, corresponding with the rising of the New Economy which demands higher educated and highly skilled workers, and has remained pronounced since (Domina 2006). To

understand the motivations of migration of young people has not only implications for migrants themselves, but also for the local communities that gain or lose these young people.

Human capital theory of migration suggests that education is a key indicator of youth's migration behaviors. The more educated are more likely to migrate. In addition, due to the higher rewards for education in metropolitan areas, people of rural origins, especially those with a college degree, are more likely to migrate to metropolitan areas.

**Life Cycle Change Perspective**

Research shows that an individual's life cycle not only has direct effects on the likelihood of migration, but also establishes a context within which the motives to migrate are adjusted and acted upon (Detang-Dessendre and Ian 1999; Detang-Dessendre et al. 2002; Sandefur 1985). People use a somewhat different "subjective cost-benefit calculus" in making migration decisions at different stages of life to pursue respective goals (Clark and Hunter 1992; Gordon and Vickerman 1982; Heaton, Clifford, and Fuguitt 1981; Sandefur 1985). The important life course events include the formation or dissolution of marriage with or without children, involvement in full-time education, and entry or exit of the labor force. These life course events usually occur in certain ages; however, it is argued that the major events work over and above age to make certain points in the life cycle—most notably the transition to young adulthood and retirement to a lesser degree—points at which people tend to migrate more to achieve particular goals. In addition, stages of life cycle also have implications for individuals' independence,

identity, and their ties to the community, which might have differential influences on their migration decision-making.

Sandefur (1985) argues that in the earlier stages of their life cycle, individuals migrate largely to satisfy their needs of occupational and social integration. Credentials will play a significant role in the migratory processes of these individuals. Later on, as individuals start a family and the family gets larger, there is an increasing need for residential satisfaction that may be the deciding factor. He points out that occupational considerations are present throughout the working life, but the importance of these motivations can vary throughout individuals' life cycle. As the time of retirement draws near, individuals' needs and preferences change again. They favor either the pleasures of country living or the superior services of the city (Sandefur 1985).

Detang-Dessendre and his colleagues (2002) confirm the changing importance of factors in migration decision as individuals go through their life cycle. Using a national sub-sample extracted from the French Permanent Demographic Sample (EDP), they find that, among individuals aged 15 to 24 in 1982, occupational concerns have a significant effect on migration choice, especially among the youth from rural areas. Among people aged 25 to 44, family structure, such as the birth of children and residential motivation, dominates occupational concerns accounting for migration, even though the latter does not disappear. Those older age groups, 45 to 64, are more influenced by retirement combined with changes in family structure such as the separation or death of a spouse or the departure of the last child, particularly for those in urban areas (Detang-Dessendre et al. 2002). This and other research shows that the motivations of migration can be

significantly different between youth and other age groups. Economic and occupational concerns are the dominant reasons for young people to migrate, and their concerns change as their characteristics change (such as age, marital status, and employment status).

Previous literature suggests that the specification of the life cycle stages should include factors such as involvement in full-time education, labor force activity, marital status, and childbearing (Detang-Dessendre 2002; Hogan 1978; Riley, Johnson, and Foster 1972; Sandefur 1985; Speare et al. 1975). Union formation and dissolution with or without having children, getting higher education or not, and entry and exit from the labor force all shift the parameters of the decision for individuals. Some or all of these life events are likely to occur for young people in their early life cycle depending on their differential personal characteristics and other structural constraints or opportunities.

In their transition to adulthood, young people start a family by getting married and having children, though the path can vary from person to person and over time. Marital status is an important indicator for migration. Compared to married people, those who are currently not married (including single, divorced, separated, and widowed) tend to have higher migration rates (Schachter 2004). Furthermore, some prior research also suggests that it is not only the marital status, but also the change of marital status, that is closely related to people's migration propensity, with those who change their marital status more likely to move than those whose marital status remains unaltered (Wilson 2005). Sandefur and Scott (1981) found that when life cycle variables such as marriage and family size were included in the analysis, the relationship between age and migration

almost completely disappeared for individuals aged 19-40. For the purpose of this research, marital status and particularly the change in marital status will be included as important individual characteristics related to youth migration behaviors.

When the family grows larger, not only is it more costly to move economically, but the ties to the community of residence are also likely to strengthen. Among singles, married couples without children, and married couples with children, the last household type is the most likely to have the strongest ties to the community since it has more contacts with the community than other types of households (Sandefur 1985). Previous research shows the positive relationship between the length of duration and the strength of social ties (e.g., Bach and Smith 1977; Lee 2008; Toney 1976). Community ties as reflected in the length of residence will be treated as another important factor in youth's migration behavior.

Educational attainment is usually an integral part of youth's transition to adulthood. When young adults are pursuing a college education not available or not preferred in the local place, they move to the place with the desired educational opportunities (DaVanzo and Goldscheider 1990). Education has been an important factor for migration study because it is closely related to human capital accumulation and the ability to process information effectively as well as the attitude toward risks.

Leaving their parents' home is widely considered by the youth as an important indicator of being independent. Young people have this nearly complete agreement that both men and women should leave home when they arrive at a certain point of life. From a random sample of 319 adults in the Chicago metropolitan area, a large majority of

respondents perceived an age deadline for leaving home which is between the ages of 18 and 25 (Settersten 1998). The reasons reported for these deadlines were largely related to the development of self and personality. Correspondingly, there is a "cultural migration" that has also been observed in certain Mexican communities. A large proportion of young people consider migrating to the U.S. as a rite of the transition to adulthood (Kandel and Massey 2002). Comparatively, the youth in this research (16 to 25 years old) are in a state of leaving their parents' home and of developing their own personal identities. Therefore, an indicator of whether the respondent is living with any parental figures will be included in the analysis. The proposition is that independent young people (not living with any parental figures) are more likely to move than those who live with parental figures.

From life cycle change perspective, the transition to young adulthood is a certain life stage where life course events are most likely to occur, events including family formation or dissolution, pursuing and completing higher education, and entry or exit of the labor force. The following section will review the changes in these life events between the two cohorts and two periods in this research.

**Cohort Changes**

Since the transition to adulthood for youth varies from cohort to cohort, it is likely that the changing behaviors of youth influence their migration propensity accordingly. Since the 1960s, the transition to adulthood has become more variable (Shanahan 2000). Instead of a standardized life course of school-work-marriage sequence of earlier times, the timing and sequence of the markers of the transition to adulthood have become more varied. These markers include leaving school, starting a full-time job, leaving the home

of origin, getting married, and becoming a parent for the first time (Shanahan 2000). These changes are captured by three types of changes in this study: in marital status, enrollment and educational attainment, and employment status.

As to the changes in family formation, there has been an emergence of delayed marriage, delayed and diminished childbearing, and increasing divorce rates (e.g., McLanahan and Percheski 2008; Morgan et al. 2006). In the United States over the decades, the median age of marriage has been increasing and women, on average, are having fewer children. For example, in 1970 the median age at marriage for women was 20.8 years and for men 22.5 years (U.S. Bureau of the Census 2003). By 2007, the median age at first marriage for females had risen to 25 years (U.S. Bureau of the Census 2007b), while for males it had increased to 27.7 years (U.S. Bureau of the Census 2007g). Partly due to the later age of first marriage, women have fewer children than they used to. In the United States, women 40 to 44 years old (who are nearing the completion of their childbearing years) in 2002 had 1.9 children on average, much less than women of the same age group in 1976 with 3.1 children on average (Downs 2003).

In addition, families have reached new levels of instability with more marriages ending in divorce over time. A study by Schoen and Standish (2001) using life table methodology shows that between 1970 and 1995, not only the average age at marriage was increasing, but the percentage of marriages ending in divorce was also increasing.

The life chances for young people have been broadening in the U.S. in terms of higher level of educational attainment (e.g., Buchmann et al. 2008; Iversen and Rosenbluth 2008). In 2007, more than 4 out of 5 (84 percent) adults aged 25 and over

reported having a high school education, while over 1 in 4 (27 percent) reported a bachelor's degree or higher (Crissey 2009). About three decades ago, in 1980, only 2 out of 3 (66 percent) adults aged 25 and over had a high school education, while less than 1 in 6 (16 percent) had a bachelor's degree or more (Bauman and Graf 2003).

Education and labor force participation are closely related, with the former positively affecting the latter (Van der Lippe 2001), but labor force participation is also affected by other factors, such as cohort size and life cycle (Mosisa and Hipple 2006). Recent research (Mosisa and Hipple 2006) found that the labor force participation rate—the proportion of the working-age population either working or actively looking for work—after rising fairly steadily for more than five decades since 1950 and peaking in the late 1990s, dropped after 2001. One important reason for the overall change of participation rate, as suggested by Mosisa and Hipple (2006), is the aging of the "baby-boom" generation—those born between 1946 and 1964. During the 1970s and 1980s, with baby boomers moving into high-participation-rate ages—for example, 25 to 44 years, and the increase in participation among women, the labor force participation rate rose rapidly. However, with the first of the baby boomers (those born in 1946) reaching age 55 in 2001 and the movement of the baby-boom generation into the 55-years-and-older age group, there is a downward pressure on overall participation due to the traditionally lower participation rates in this age group. However, compared to the late 1970s and 1980s, the labor force participation was, on average, relatively higher in the latter half of the 1990s and the first half of the 2000s (U.S. Bureau of Labor Statistics 2009).

Education, especially having a bachelor's degree, has been increasingly important in the labor market (Card and Lemieux 2001; Katz and Autor 1999; Light and Strayer 2004). Historically, less-educated young men experienced the largest declines in relative and real wages during the economic recession decades of the 1970s and 1980s (Katz and Autor 1999). The phenomenon of "college premium" has been experienced by the college graduates, earning more than twice as much annually as those who are high school graduates (Card and Lemieux 2001; Light and Strayer 2004). Among men aged 31-35, for example, the wage differences between college and high school graduates grew from 18 percent in 1979-81 to 41 percent in 1989-91 (Card and Lemieux 2001).

The changing behaviors among young people, such as marriage, childbearing, education, and labor force participation, combined with the fluctuating economic cycles are likely to influence the youth migration experiences. These changes, reflected at the individual level, might have changed the youth's migration behavior from one cohort to another. From neoclassical economic theory and life cycle change perspective, this research is to investigate the influences of factors at individual level, especially the likely life events such as going to college or dropping out of school, graduating with a high school or college degree, getting married or divorced, and having or losing a job, on youth's migration propensity. In addition, the focus will also be on how the importance of these factors or events on migration propensity has changed over time from the comparison of the two cohorts.

Race and gender, in general, are important concepts in sociology which help significantly stratify migration flow. Literature suggests that race/ethnicity and gender are

important individual characteristics related to people's migration experiences. The following two sections will review the differential migration experiences by gender and race/ethnicity in a historical perspective.

**Changes in Gender and Migration**

Gender is one of the important social forces shaping migration patterns (Parrado and Flippen 2005); however, research on gender differences in migration that has developed only relatively recently shows that, until the 1980s, researchers had not critically considered the nexus between gender and migration (Hondagneu-Sotelo 2003; Parrado and Flippen 2005; Pessar and Mahler 2003; White et al. 2005). Migration, as a social phenomenon, can highlight many aspects of gender relations. Conversely, incorporating gender perspective can increase our understanding of migration (Carling 2005).

Today in the United States, women have almost similar rates of migration as do men. Between 2002 and 2003, the intercounty migration rates for males was 5.6 percent, while for females was 5.3 percent (Schachter 2004). Broken down by age, between 2005 and 2006, the migration rates are about the same for men and women at ages 20 to 24, 11.4 percent for women versus 11.5 percent for men (U.S. Census Bureau 2007f). Most notably, in 2005, is the age group of 18 to 19; women in this age group have much higher migration rates than men, 7.2 percent versus 5.8 percent (U.S. Census Bureau 2007f). These are the ages that young people go to college to have higher education. The increasing educational attainment, especially for women, may have played an important role in the climbing migration rates, particularly at ages 18 to 19. Similar rates of

migration between young men and young women also reflect increasing gender equality in the society.

Due to the changing gender roles over the past decades, women are increasingly apt to migrate on their own rather than to move only because they are trailing a husband. According to tied-migration thesis, women's migration behaviors are greatly contingent on their marital status, and a family's migration decision is primarily based on the husband's economic prospects, even on the sacrifice of the wife's economic opportunities (Adelman, Morett, and Tolnay 2000; Jacobson and Levin 1997; Markham et al. 1983; Maxwell 1988; Pooley and Turnbull 1998). The emergence of delayed marriage, delayed and diminished childbearing, and increased divorce rates mentioned in the previous section allows women to be more likely to make independent migration decisions since women are more likely to be single than to be married. Even in marriage, partly due to their increasing educational attainment and labor force participation, women's bargaining power with their husbands has been increasing over time.

Young women are not only more educated than previous generations, but also increasingly achieve more education than men, which reverses the historical trend. It is argued that women, compared to men, are more affected by demographic transition from high mortality and fertility to low mortality and fertility which is intricately related to the empowerment of women and rising gender equity. That is because the combination of longer lives and less children expands the life chances for women in a way that spares them more time to develop their talents beyond the burdens of full-time parenting responsibility. In 2006, among young people aged 25-34 who are most likely to finish

their education, about 89 percent of women in the United States were high school graduates compared to 85 percent of men, and about 32 percent of women were college graduates compared to 27 percent of men (U.S. Census Bureau 2007h). Back in 1980, both men and women had less education, but women were much less likely than men to have a bachelor's degree at the time. Only about 68 percent of women had a high school degree compared with 69 percent of men; much less had a college degree, about 13 percent of women versus 20 percent of men (Weeks 2008; 410). Therefore, women have been achieving more education, especially college education, than previous generations, and they are more likely to have higher education than men.

In addition to educational attainment, women's labor force participation rates have increased significantly since 1950, narrowing the gap between rates for women and men (Fullerton 1999). Between the two periods in this research, women's labor force participation rates rose from 51 percent in 1980 to 59 percent in 2005; however, men's labor force participation rates dropped by four points, from 77 percent in 1980 to 73 percent in 2005 (U.S. Bureau of Labor Statistics 2007a). The same trend can be observed in almost every age group, including 16 to 24 and 25 to 34; women have had increasing participation rates while men have had decreasing participation rates. Other changes among women, such as delaying marriage and childbearing, increasing divorce rates, and educational attainment, reinforce their rising labor force participation and, conversely, their rising labor force participation influences these other changes among women.

Changing behaviors among women and men between the two cohorts in family formation, enrollment and education, and labor force participation are likely to influence

the level of migration and the timing of migration momentum. With the delaying of marriage and childbearing, prolonged education, and increasing labor force participation rate, women in the recent cohort are likely to migrate more than previous generations. Since they are pursuing more education than ever before, and more than men too, the importance of education on migration should be increasing for the members in the young cohort more than in the old cohort, particularly for women. With the narrowing gap between men and women in their labor force participation and education, which is actually a reversed gap, the gap in migration rates between them will narrow too between the two cohorts.

**Changes in Race/Ethnicity and Migration**

Since the presence of race is ubiquitous, in both the smallest and the largest feature of social relationships, institutions, and identities, race has always been a significant sociological theme, from the founding of the field to the present (Winant 2000). In the study of migration, race, like gender, is another important individual characteristic to include. Numerous empirical research shows the distinct migration patterns among whites, blacks, and Hispanics. To understand how and why racial distinctions endure in the changing circumstances, comparative historical research is required (Winant 2000). This research is an empirical study of an important social phenomenon, migration, through a historical comparison of migration behaviors of two generations of youth, to explore, to some extent, the racial/ethnic stratification in migration. In this specific social phenomenon, this study tries to answer the question: do racial distinctions in migration patterns endure in the changing circumstances (between

the late baby boom generation and a recent young cohort that was born in the early 1980s)? This will serve as the starting point of answering the follow-up question: if yes, then how and why do racial distinctions endure in the changing circumstances?

Migration, as a catalyst of social change, is closely related to many race stratified social phenomena. For instance, the race stratification systems, such as residential segregation, occupational segregation, and unequal access to educational and training opportunities (Bayard et al. 1999; Massey and Denton 1993), can be both the cause and result of migration. Thus, the study of changes in migration patterns by race/ethnicity could shed a light on other racial/ethnic issues and racial/ethnic relations over time.

Empirical studies show that, in general, blacks and Hispanics have lower migration propensity than whites to move across county boundaries (Berry 2000; Tolnay, Crowder, and Adelman 2000; Wilson 2005). A study based on U.S. 2000 census data reveals notable racial/ethnic disparities in migration rates in which whites have much higher migration rates than blacks, 93.9 per 1,000 versus 71.1 per 1,000 (Saenz and Morales 2006). Research on Hispanics usually focuses on immigrants and immigration issues; relatively less attention is paid to internal migration of Hispanics. Nonetheless, recent literature shows an emerging trend of internal migration of Hispanics to nontraditional destinations in the United States (see Durand, Massey, and Charvet 2000; Leach and Bean 2008; Singer 2004). Toney et al. (2004) found that Hispanics are especially less likely to make a following move than whites or blacks once they have moved to a new place. Since many moves made by internal migrants are repeat moves followed by a first move out of place of origin, as suggested by considerable literature on

repeat migration (e.g., DaVanzo 1983; DaVanzo and Morrison 1981; DaVanzo and Goldscheider 1990; Toney et al. 2004), Hispanics' unwillingness to continue to move might be a reason, among others, for their lower migration rates than whites. It is suggested in the literature that there is a great disparity in migration rates among white, black, and Hispanic groups. The higher migration rates among whites than other minority groups do not seem to change over time, because the disparities among them in education and other aspects endure over time.

Significant differences in educational attainment exist among whites, blacks, and Hispanics, with whites consistently having higher educational attainment than blacks and Hispanics. In 2007, whites reported the highest percentage of adults with a high school education (89 percent) and with a bachelor's degree or higher (30 percent); Hispanics reported the lowest percentage at each attainment level—61 percent had completed high school, and 13 percent had a bachelor's degree or higher. Educational attainment among blacks was in the middle, lower than whites, but higher than Hispanics, with 80 percent of high school graduates and 17 percent of college graduates with a bachelor's degree (Crissey 2009).

Even though educational attainment has been increasing for all racial/ethnic groups, the differences between whites and the other two minority groups in college education have been enlarging over time, especially the difference between whites and Hispanics. In 1981, 71 percent of whites had a high school education and 17.8 percent had a college education (U.S. Bureau of the Census 1984). According to the data from the U.S. Census Bureau, the difference in the percentage of college education between whites

and blacks rose from about 10 percent in 1981 to 13 percent in 2007. The difference in the percentage of college education between whites and Hispanics rose even faster, from 10 percent in 1981 to 17 percent in 2007. Therefore, the hierarchy of educational attainment among whites, blacks, and Hispanics has not changed over time. Since college education is an important indicator of migration propensity, and college experiences (such as going to college, graduating with a college degree, etcetera) are associated with greater migration propensity, the increasing disparities in higher education among whites, blacks, and Hispanics are likely to sustain the existing hierarchy in migration rates among them.

In comparison with the differences in educational attainment among whites, blacks, and Hispanics, the differences in labor force participation are much more moderate and have not changed much between 1980 and 2006. The labor force participation rates of all races were not much different from each other in 1980, 64 percent for both whites and Hispanics, and 61 percent for blacks (Fullerton 1999). The participation rates of all races rose slightly from 1980 to 2006, about 2 percent increases for whites, 3 percent for blacks, and 4 percent for Hispanics (U.S. Bureau of Labor Statistics 2007b).

Compared to education and labor force participation, family formation is more complicated among these race/ethnic groups. In general, black people are less likely to get married than whites and Hispanics. Research shows that black men and women aged 25 to 44 have lower percentages who have ever been married than whites and Hispanics of the same age (Goodwin, McGill, and Chandra 2009). The estimated median age at first

marriage varies more among women than men of different racial/ethnic groups. For example, according to a three-year averaged median age at first marriage based on 2000-2002 American community survey data, black women have the highest median age at marriage, 28 years, compared with about 25 years for white women and 22 years for Hispanic women, the age difference being as high as 6 years, while the age difference among men in these three racial/ethnic groups is only 2 years, between 28 years for black men and 26 for Hispanic men (Simmons and Dye 2004). However, increasing cohabitation makes the family formation more complicated for the younger cohort. Comparatively, black women have higher probability of cohabiting than white and Hispanic women, but are less likely to make the transition from cohabitation to marriage (e.g., Bumpass, Sweet, and Cherlin 1991; London 1991; Schoen and Owens 1992).

From the above review of the changing behaviors among different racial/ethnic groups, the increasing disparities in college education among them may be an important factor for the enduring hierarchy of migration rates among whites, blacks, and Hispanics. Changes in other behaviors such as labor force participation and family formation may have compound influences on the level of migration rates and timing of migration momentum.

**Summary and Hypotheses**

To understand the changing migration patterns of youth across cohorts, previous literature suggests that the recent cohort, due to the combined influences of smaller cohort size and more favorable economic situations, is likely to have higher levels of migration rates than the late baby boom generation. In addition, the recent cohort is more

likely to go to college, delay marriage, and get divorced, which also suggests higher migration propensity. However, the recent cohort has also prolonged education and thus delayed full-time employment, which may postpone the related higher migration propensity, suggesting a postponed but stronger migration momentum than that of the late baby boom generation.

Broken down by gender, migration patterns of women may show the same trend as the general migration pattern. Considering the changes in behaviors, young women today are not only more educated than previous generations but also increasingly achieve more education than men, especially college education. In 2005, for instance, women received 58 percent of all bachelor's degrees (Snyder et al. 2007). Since 1980, with women's significant increases in labor force participation and men's slight decline in labor force participation, the gap in labor force participation between women and men has narrowed (Fullerton 1999; U.S. Bureau of Labor Statistics 2007a). All these changes suggest that women today are not only more likely to migrate than previous generations, but the difference in migration rates between women and men is also narrower than it was before. Just like the general pattern, the migration momentum for women might also be postponed.

The hierarchy of migration rates among whites, blacks, and Hispanics, with whites migrating more than the other minority groups, is not likely to change across the cohorts. The enduring differences in migration rates among racial/ethnic groups can be partly attributed to the continuing disparities in education, especially college education, between the two periods (Crissey 2009; U.S. Bureau of the Census 1984).

One theme that stands out through the literature review is the increasing importance of education that is so intricately related to people's employment prospects and their migration behaviors. The concomitant youth response is increased school enrollment and prolonged education to face the challenges of the New Economy and greater competition for jobs from baby boom generations as well as from increasing immigrants. The importance of education on migration is expected to increase over time.

As suggested by the life cycle change perspective, life cycle events are key to understanding migration motivations. It postulates that changes in marital status, educational enrollment and attainment, and employment status are significantly related to people's migration propensity. The important life events, such as getting married or divorced, going to college, graduating with a bachelor's degree, and getting or losing a job, will be key factors in this research on the migration propensity of young people.

Even though the life events in youth's transition to young adulthood are closely related to migration propensity, the importance of these events on migration propensity might have changed over time. Due to the increasing divorce rates, becoming divorced has become more and more common (McLanahan and Percheski 2008; Morgan et al. 2006; Schoen and Standish 2001). The effects of becoming divorced on migration today may not be as influential as it used to; because of the increasing incidence of divorce, people may have developed better coping strategies than moving back to their family, as suggested in the literature. With greater access to community colleges since the 1970s, going to college does not necessarily mean moving to another place (or county).

Therefore, the effect of going to college on migration propensity may also have been weakened in the recent cohort compared with that in the late baby boom cohort.

Several main hypotheses are proposed based on the review of the literature:

Hypotheses on youth migration patterns:

*Hypothesis 1*: Youth in the younger cohort will have higher levels of migration rates than youth in the older cohort.

*Hypothesis 2*: Youth in the younger cohort will delay migration compared to youth in the older cohort.

*Hypothesis 3*: Women in the younger cohort will have higher levels of migration rates than women in the older cohort.

*Hypothesis 4*: Women in the younger cohort will delay migration compared to women in the older cohort.

*Hypothesis 5*: Gender gap in migration rates between young women and men will shrink in the recent cohort than the late baby boom cohort.

*Hypothesis 6*: Whites are more likely to migrate than blacks and Hispanics, and this pattern is not likely to change from cohort to cohort.

Hypotheses on the factors on youth's migration propensity:

*Hypothesis 7*: The importance of education, especially having a bachelor's degree, on migration propensity has increased in the younger cohort compared to the older cohort.

*Hypothesis 8*: Change in status variables are more influential predictors of migration propensity than the status variables for both cohorts.

*Hypothesis 9*: Those who become separated, divorced, or widowed are more likely to migrate compared to those who stay married for both cohorts, but the effect of becoming separated, divorced, or widowed on migration propensity is weakened in the younger cohort than in the older cohort.

*Hypothesis 10*: Those who go to college are more likely to migrate compared to other high school graduates for both cohorts, but the effect of going to college on migration propensity is weakened in the younger cohort than in the older cohort.

Other factors such as length of residence (or duration of the place), rural/urban origin, whether living with parental figures, and whether in prison are also included in the research. These variables are shown from previous literature to be influential on individuals' migration propensity. They will be considered as control variables, and their influences will be discussed too. The next chapter will introduce, in detail, the two data sets that will be used for the research and the corresponding research methods that will help accomplish the research goals set up at the beginning of the introduction and this chapter. The historical youth migration experience in the United States between the two cohorts will be examined and compared in a systematic way that has been rarely done in the previous research.

# CHAPTER III

# DATA AND METHOD

This chapter will first introduce the two datasets used in this research, the national longitudinal survey of youth in 1979 (NLSY79) and in 1997 (NLSY97), respectively. This is followed by a discussion of how the variables have been operationalized and the research method that will be used to answer the research questions. The chapter will conclude with a discussion of the limitations of the research.

## Data

The data used in this research comes from two national longitudinal surveys of youth (NLSY), NLSY79 and NLSY97, which are comprised of nationally representative samples. The NLSY79 cohort was first interviewed in 1979 with an initial sample of 12,686 young men and women between the ages of 14 and 21 (as of December 31, 1978). Respondents were interviewed annually from 1979 through 1994, after which time they were then surveyed biennially. A younger cohort, the NLSY97 cohort, was first interviewed in 1997 with an initial sample of 8,984 young men and women between the ages of 12 and 16 (as of December 31, 1996). Respondents have been interviewed every year since 1997. These surveys are ongoing panel surveys. The most recent round for the NLSY97 cohort is 2006, the tenth wave of the longitudinal survey. From the current available data and for the purpose of this research, the comparable age group from both cohorts is between 16 and 25 years, comprising the first ten rounds of the surveys for both cohorts.

**Table 1. Sample design for NLSY79 and NLSY97**

| Sample Design | Initial Sample Size | Remaining Sample Size | Retention Rate (%) |
|---|---|---|---|
| **NLSY79** | **12586** | **10465** | **90.2** |
| Cross-Sectional Sample | 6111 | 5513 | 90.2 |
| Supplemental Sample[a] | 5295 | 4777 | 90.2 |
| Military Sample[b] | 1280 | 175 | 87.1 |
| **NLSY97** | **8984** | **7338** | **81.7** |
| Cross-Sectional Sample | 6748 | 5437 | 80.1 |
| Supplemental Sample[c] | 2236 | 1901 | 85.0 |

a NLSY97 supplemental sample oversampled civilian Hispanic, black, and economically disadvantaged, non-Hispanic, non-black youth.
b A total of 201 military respondents were retained from the original sample of 1,280 in 1985 due to the budget cut.
c NLSY97 supplemental sample oversampled black and/or Hispanic respondents.
Source: NLSY79 and NLSY97 User's Guide 2008.

The sample design of these two surveys helps us to understand the composition of the respondents. The NLSY79 used three independent probability samples to represent the entire population of youth aged 14 to 21 as of December 31, 1978 (NLSY79 User's Guide 2008), including a cross-sectional sample of 6,111 youth to be representative of the noninstitutionalized civilian segment of young people, a set of supplemental samples of 5,295 youth to oversample civilian Hispanic, black, and economically disadvantaged, non-Hispanic, non-black youth, and a military sample of 1,280 to represent military population of the same age group. The military sample, however, was dropped after 1985 due to funding issues. The NLSY97 cohort comprises two independent probability samples: a cross-sectional sample and an oversample of black and/or Hispanic respondents. The cross-sectional sample consists of 6,748 respondents for the initial interview, which is designed to be representative of young people living in the United States aged 12 to 16 as of December 31, 1996. There were 2,236 respondents in the first round for the supplemental sample of black and/or Hispanic respondents. The

respondents in this research include the cross-sectional sample and the oversampling of blacks and Hispanics for both cohorts. In other words, the military sample and the oversample of economically disadvantaged non-Hispanic, non-black whites in the NLSY79 cohort are dropped from the survey in this research. The military sample in the NLSY79 cohort has been excluded because the migration patterns of military youth can be distinctly different from those of civilian youth (Cooney 2003). Military personnel are required to be highly geographically mobile, which means that their migration behaviors are not the reflections of their own choices as it is usually the case for civilians. They are, on average, move once every two to three years (Croan, Levine, and Blankinship 1992; USGAO 2001), about 2.4 times more likely to move than employed civilians, usually in longer distance (Cooney 2003).

To exclude the oversample of economically disadvantaged non-Hispanic, non-black youth in the NLSY79 cohort makes the sample design comparable to the NLSY97 cohort since the latter does not have this oversampling. With respect to the oversample of blacks and Hispanics in the research, it may increase the potential for drawing reliable inferences for the black and Hispanic subgroups (Bacolod and Hotz 2006). Therefore, besides the cross-sectional sample, the oversample of blacks and Hispanics is included in the research.

Both the NLSY79 and NLSY97 cohorts showed a high degree of retention. At the tenth interview in 1988 for the NLSY79 cohort, for example, the retention rate is 90.2 percent for both the cross-sectional sample and the supplemental sample. In other words, 5,513 out of 6,111 respondents in the cross-sectional sample and 4,777 out of 5,295

respondents in the supplemental sample were reinterviewed in 1988 for the NLSY79 cohort (NLSY79 User's Guide 2008). For the NLSY97 cohort, thus far, the released retention rate (up to the ninth round) is 80.1 percent for the cross-sectional sample and 85 percent for the supplemental sample. In terms of the number of respondents, there were 5,437 out of 6,748 in the cross-sectional sample and 1,901 out of 2,236 in the supplemental sample that remained in the sample (NLSY97 User's Guide 2008). The main reasons for noninterview in the NLSY97 cohort are refusal of interview, not being able to locate the respondents, and the unavailablity of the respondents (NLSY97 User's Guide 2008).

The restricted-access geocode file combined with the public-use file for both NLSY79 and NLSY97 surveys used in this research provide the necessary information for migration studies. Geocode files provide the state, county, and metropolitan areas of residence for each respondent in each survey year that are not available for public use. To protect the confidentiality of respondents, geocode files are granted by the Bureau of Labor Statistics (BLS) only to researchers in the United States and research purposes alone. The datasets in this research meet almost all the criteria developed by Bilsborrow and Akin (1982) for migration studies. For the purpose of this research, first of all, the federal information processing standards (FIPS) codes in both surveys allow for identifying migrants across county and/or state boundary adequately over time, which meets the criterion of migration in this research, as migration is defined as a cross-county move in this research. In addition, the public-use data provide rich longitudinal records of respondents' significant life events and their changing socioeconomic status such as

martial, enrollment, employment status, and educational level. Thus, the combination of the geocode and public-use data for both cohorts in a longitudinal framework allows for a detailed examination of youth migration patterns and the relationships between the life events in youth's transition to adulthood and their migration behaviors as well as the changes in these patterns and relationships across cohorts and over time.

**Methodological Framework**

I will use a person-year period instead of an individual as each case to effectively explore the longitudinal data. Each interval between two interviews is considered a person year. Therefore, a person has multiple records in the analysis. In this research, for example, if a person stays continually in the period covered in the research, he/she should have nine records of migration history from ten survey rounds. One major advantage of constructing person-period data rather than person-level data is to be able to track the time-varying variables such as marital status, employment status, and enrollment and educational levels. It is important to have these variables measured for each interview, especially for youth in their transition to adulthood since their migration behaviors are likely to be closely related to these changes in their demographic and socioeconomic status. In addition, not only the statuses alone can be constructed in person-year periods, the timing of the changes in these statuses can also be captured along with that of the respondent's migration status. Thus, the relationships between these changes in statuses and youth's migration propensity can be closely examined. Furthermore, an individual is likely to have multiple migration events even during this comparatively short period of time (10 years). Past research shows the importance of treating migration as repeat events

(e.g., DaVanzo 1983). The data set up in a person-year manner allows capturing each migration occasion for the same person which is more in accordance with the complexity of youth migration experience.

To answer the first part of research questions regarding differential migration patterns within and across cohorts, age-specific migration rates for each cohort will be calculated and compared. These migration rates will be further examined by gender and race/ethnicity as well as other characteristics. The migration patterns of men and women are assumed to change across cohorts due to the changing values and norms on gender roles and the improvement of women's status over time. The migration patterns of whites, blacks and Hispanics will be compared among them within the cohort and across cohorts. A series of t-tests will be conducted for the significance of the differences in migration rates. In addition, besides age, gender, and race/ethnicity, other characteristics of migrants including education, marital status, employment status, changes in these three statuses, duration of residence, rural/urban origin, whether the respondent is living independently, and incarceration status will also be explored.

Even though customized weights are available for the users for both cohorts, weights are not used in the analysis for several reasons. First and foremost, in statistical analysis, logistic analysis in this research, weights will inflate the statistical significance, resulting statistical significance of almost every coefficient due to the increased case numbers by using weights. Because of this particular reason, weights are not commonly used in statistical analysis. Another problem is related to the missing cases, or the dropping observations with items nonresponses. In the logistic regression analysis, the

cases (person-year) are dropped if there is nonresponse in one or several variables included in the analysis. Item nonresponse because of refusal, don't knows, or invalid skips is usually quite small (NLSY79 User's Guide 2008), except for the variables with relatively high nonresponse rates, such as family income, which are not included in this analysis. However, the accumulative dropping observations with nonresponses from one or more variables among all the variables may aggravate the problem. The subsamples used in the analysis are confined to those cases with valid answers to certain questions. In this case, a weighted mean does not represent the entire population, but rather those persons in the population who would have given valid responses to certain questions. Furthermore, data from multiple waves, ten waves in this research, complicates the situation. Customized weights provided on the website (NLS web investigator) are calculated based upon the persons for whom complete data are available for multiple waves (NLSY79 User's Guide 2008). However, in this research, those respondents who occasionally miss one or several interviews but are contacted in the subsequent wave(s) are also included in the analysis. Therefore, the customized weights provided for the dataset are not suitable for the purpose of this research. Therefore, the combined problems due to logistic regression analysis, missing observations with nonresponses, and data from multiple waves make the usage of weights not correspond to the purpose of this research.

As to the second part of the research questions regarding how important these factors are related to youth's migration propensity and how it has changed or remained consistently across the two cohorts, a series of logistic regression models are built to

explore the key predictors of youth's migration propensity for both cohorts. Special attention will be given to the changes in status as key factors, including marital status, enrollment and educational attainment, and employment status. The likely life events captured by these changes in statuses assumed to be significantly associated with youth migration behaviors in their transition to adulthood. The relative importance of the factors on youth's migration propensity will be compared within and across cohorts. For within cohort comparison, the models are used to examine the relative effects of the factors, particularly the changes in statuses, on the likelihood of youth migration. For across-cohort comparison, the changing or similar effects of the same factors on youth's migration propensity can be revealed.

By comparing the FIPS codes, or the state and county's codes of the residence, of the same individual between two interviews, one can identify if the individual has changed his/her location across county or not during the interval (every year). As previously mentioned, migration in this research is defined as a cross-county boundary move. Migration status is coded as 1 if the individual migrated during the interval and as 0 if not. In logistic regression, migration status is treated as dependent variable. The main purposes of conducting logistic regression are first, to quantify the relative effects of different factors on youth's migration propensity for each cohort, and second, to compare the possible changes of the influences of these factors on youth migration across cohorts. The following section will explain in detail the function of the logistic regression method. Then, the construction of each variable, especially those key variables and those more

difficult to create, is described in detail next. In this research data management and analysis are conducted using SAS 9.1.

**Logistic Regression**

Given that our dependent variable (to migrate or not) is binary, it is appropriate to use logistic regression for this research (e.g., Hoffmann 2004; Hosmer and Lemeshow 2000; Kleinbaum et al. 2007). Instead of predicting the expected value of the dependent variable, Y, the key to this model is to estimate the probability of Y = 1 given the series of independent variables. In this research, it is to estimate the probability of migration between two interview intervals, or between two continuous years.

The formula for estimating the probability of Y = 1 in logistic function is equation 3.1.

$$P(Y=1)=\frac{1}{1+\exp[-(\alpha+\beta_1 X_1+\beta_2 X_2+...+\beta_k X_k)]} \tag{3.1}$$

The part of the denominator in the parentheses looks like linear regression function. This part is multiplied by -1, exponentiated, added 1, and then inverted, thus comes to the probability of Y = 1. It is estimated by maximum likelihood (ML) techniques. The advantage of this logistic function is that it guarantees the probability being in the range from 0 to 1 as the exponentiation function predicts values from 0 to positive infinity no matter what the values of the independent variables, Xs, may be.

The above function can also be written as

$$\log it[p(Y=1)]=\alpha+\beta_1 X_1+\beta_2 X_2+...+\beta_k X_k \tag{3.2}$$

where the logit link function is

$$\log it[p(Y=1)] = \log_e \left[ \frac{p(Y=1)}{1-p(Y=1)} \right] \tag{3.3}$$

The part in the square brackets in equation 3.3 is called odds. In this research, the odds of migration is the probability of migration, $p(Y=1)$, over the probability of staying, $1-p(Y=1)$. From the link function, it is easy to understand why the logit is also called the log-odds.

To interpret the results of logistic regression, it is essential to understand odds ratios (OR). An odds ratio is just two odds compared to determine whether one group has higher or lower odds of some binary outcome. An odds ratio of one indicates that the odds are the same for the two groups. An odds ratio greater than one indicates a positive relationship between an independent variable and the dependent variable given the way the variables are coded, while a number between zero and one indicates a negative relationship (e.g., Hoffman 2004: 49). For example, if we compare the odds of migration among male and female youth, the formula appears as follows

$$OR_{malesvs.females} = \frac{odds_{males}}{odds_{females}} = \frac{p_{males}}{1-p_{males}} \Bigg/ \frac{p_{females}}{1-p_{females}} \tag{3.4}$$

If the odds ratio is 1.2, it means that the odds of migration among male youth are 1.2 times the odds of migration among female youth. In other words, male youth, with higher migration propensity, are more likely to migrate than female youth.

**Operationalization of the Variables**

For the purpose of this comparative research, it is necessary to construct the variables in a way that is comparable for both cohorts. In other words, the variables and the categories of the variables need to be identical across cohorts. For most of the variables in this research, the questions asked in the surveys are comparable across the two cohorts.

Table 2 presents the summary of the dependent and independent variables. The following paragraphs will describe in detail the construction of each variable especially the key variables in detail.

***Migration***: As described in the methods section, the dependent variable is an individual's migration status between two interviews which were conducted annually. By comparing the state and county's FIPS codes of the youth's residence between every two rounds of interviews, the migration status of the youth can be determined. If the state and county's FIPS codes are different, for example, between 1979 and 1980, then the individual made a cross-county move during the time. That move is coded as a migration (coded as 1). If the state and county's FIPS codes are the same during the interval, then the individual did not move or did not make a cross-county-boundary move at the time. It is coded as a nonmigration (coded as 0). Instead of treating each individual as one unit of analysis, this research treats each person year as a unit of analysis. It should be noted that the comparison of the FIPS codes is between every continuous interview from 1979 to 1988 for the NLSY79 cohort and from 1997 to 2006 for the NLSY97 cohort, or the first ten rounds of each cohort.

**Table 2 Summary of the Dependent and Independent Variables**

| Dependent Variable [a] | Category description |
|---|---|
| Migration | Migration and non-migration |
| **Independent Variables[b]** | |
| *Individual Characteristics* | |
| Age | Between 16 and 25 coded as the exact year of age |
| Gender | Male and female |
| Race/ethnicity | White, black, and Hispanic |
| Marital Status | Married, never married, andseparated, divorced, or widowed |
| Enrollment Status | Enrolled and unenrolled |
| Education | Less than high school, high school graduate, associate, bachelor or above |
| Employment Status | Employed and not employed |
| Duration of Residence | 0~2 years, 3~5 years, and more than 5 years |
| Relation | Lived with parental figures and not lived with parental figures |
| Place of Origin | Rural and urban |
| Prison | In prison and not in prison |
| *Change Characteristics[c]* | |
| Marital Status | Stayed married,<br>stayed never married,<br>stayed separated, divorced, or widowed,<br>got married,<br>got separated, divorced or widowed |
| Enrollment and Education | Stayed enrolled in high school,<br>stayed unenrolled with less than high school degree,<br>stayed unenrolled with high school degree,<br>stayed unenrolled with Associate degree,<br>stayed unenrolled with a bachelor's degree or higher,<br>stayed enrolled in college,<br>got enrolled in high school,<br>got enrolled in college,<br>dropped out of high school,<br>dropped out of college,<br>graduated with high school degree (unenrolled),<br>graduated with Associate degree (unenrolled),<br>graduated with a bachelor's degree or higher (unenrolled) |
| Employment Status | Stayed employed,<br>stayed not employed,<br>employed to not employed,<br>not employed to employed |

a Measured at the end of migration intervals (time t)

b Measured at the beginning of migration itnervals (time t-1)

c Measured by comparing the status at the beginning and the end of migration intervals (between tim t and t-1)

Altogether there are nine migration intervals during each period of time. If a respondent stayed through all the ten waves, there are nine person-years for this same individual for the purpose of the research.

The starting point for migration in this research is the first round of each survey, or 1979 for NLSY79 and 1997 for NLSY97, respectively. Even though the FIPS codes at age 14 are available for the NLSY79 cohort, this information is not used in this research. The reason is that some of the individuals' characteristics can be quite different between at age 14 and the first interview in 1979 (ages 14-22) and the timing of the changes in these characteristics are not available. Therefore, the explanatory power of these changes on youth's migration propensity can be severely affected. Since change variables are the key explanatory variables in this research and the timing of these changes is important, it is more appropriate to use the first round of each survey as the starting point to construct the migration variable.

Independent variables include individual characteristics and change characteristics during the intervals. Individual characteristics include age, gender, race/ethnicity, marital status, enrollment and educational attainment, employment status, duration of residence, place of origin, whether the youth was living with parental figures, and whether the respondent was in prison. Actually, except gender and race/ethnicity, all other individual characteristics change over time. Therefore, it is better to treat each interval instead of a person as one unit of analysis. Frequently occurring life events in youth's transition to adulthood such as going to college, graduating with a college degree, getting married, and having a job are captured by change variables. They are measured by

comparing the statuses between the end and the beginning of the intervals. These change variables are the key factors in explaining youth's migration propensity in this research.

Variables are constructed differently depending on the availability of the pertinent and comparable information across cohorts. Some of the variables are provided directly from the datasets such as age, gender, and place of origin. The age variable is given for each interview. The gender variable is treated as consistent throughout the rounds in this research and it is given in the first round. Place of origin in terms of "rural" or "urban" area from which the youth comes is also given at each interview for both cohorts. As suggested from previous literature, rural origin of the respondents is hypothesized as an important indicator of youth's migration propensity across cohorts, with rural youth more likely to migrate out of their place of origin.

Some variables are slightly modified (often collapsed) from the existing variables provided by the datasets to make them comparable across cohorts. These variables include employment and marital status. For the employment status variable, the category of "in active forces" is not included in this research as people in military forces have different migration patterns and reasons for migration from civilians (Cooney 2003). In addition, since the focus here is to distinguish those with a job and those without, the two categories of this variable "unemployed" and "not in the labor force" are collapsed into "not employed" category. As such, there are two categories in employment status: employed and not employed. The marital status variable is collapsed into three categories: "married", "never married", and "separated, divorced, or widowed". This variable is one of the key variables and an important indicator of adulthood transition for youth.

However, it is only available for youth age 16 or older for the NLSY97 cohort. Therefore, it restricted the comparison age group in the research to 16 years and above. For the NLSY97 cohort, though the oldest respondents in the tenth round of the survey (the most recent wave released) are 26 years old, they only constitute about 0.10 percent of the total sample that is not sufficient to allow meaningful analysis. Thus, the comparison age group in this research is restricted to 16-25 years old.

Other variables are constructed in a more complicated way that involves combining different variables and data managing. The following paragraphs will describe how those variables are constructed.

***Race/ethnicity***: The race/ethnicity variable has three categories: "white," "black," and "Hispanic." Due to the differing information provided from the two datasets, the creation of this variable is different between the two. The construction of the race/ethnicity variable for the NLSY79 cohort is based on two variables. The first variable created from "sample identification code" identifies three categories: "Hispanic," "black," and "non-black/non-Hispanic." The creation of this variable is based on both race and ethnic origin information collected at the time of household screening in 1978. In this variable, "Hispanics" were those who self-identified as Hispanic while other categories like "non-black/non-Hispanic" and "black" are more dependent on the interviewer's judgments. The problem with this variable is that it does not distinguish whites from other race/ethnic groups such as Asians.

In order to separate whites from other race/ethnic groups for the NLSY79 cohort, a second variable is introduced that comes from a self-identification question: with which

race/ethnic origin you identify most closely? This variable is intended to separate "whites" from other "non-black/non-Hispanic" groups including Asians (Asian Indian, Chinese, Japanese, Korean, Filipino, and Vietnamese), Hawaiian/Pacific islanders, American Indians, and other groups. All the above mentioned "other groups" are dropped out of the sample in this research. One of the reasons for excluding Asians in this research is because of its small sample size in the NLSY79 cohort, only 117 Asians sampled in the first round. Combining the two variables mentioned above, a final race/ethnicity variable for the NLSY79 cohort is created with three categories: "white," "black," and "Hispanic."

The comparable race/ethnicity variable is given for the NLSY97 cohort. It is constructed from two key variables—"key!ethnicity" and "key!race" which were based on the household informant's identification. The combined race/ethnicity variable gives priority on Hispanic origin. If the respondent is of Hispanic origin, then he or she is Hispanic, if not, then the corresponding race (black or white or mixed) will be assigned to the respondent. Again, for the purposes of this research, mixed race (or other races) category is dropped from the sample, only white, black, and Hispanic groups are kept in the analysis.

The major problem with the creation of race/ethnicity variable lies in the inconsistency of the source of judgment on the respondents' identity. That is who gets to decide the youth's identity, the respondents themselves, the interviewer, or the household informant? Actually youth in neither of the cohorts self-identified their race/ethnicity in terms of white, black, Hispanic, or other groups, except that youth in the NLSY79 cohort

self reported their Hispanic origin. The identity given by the household informant in the NLSY97 cohort, partly due to the young ages of the respondents back then (12-16 years old), is probably closer to the respondent's self-identification than that given by the interviewer in the NLSY79 cohort. Even though there are certain inconsistencies in the identity between the respondents' self-identification and others' judgment, their conceptions of race/ethnicity may not be too far away from each other. The cross tabulation of sample identification by the interviewers and the respondents' self report race/ethnic origin in the NSLY79 cohort supports the above statement. The majority cases are consistent with people's general conception. Since the sample size of both of the surveys are large enough, the general migration patterns by these three race/ethnic categories might not be much influenced by this problem.

***Enrollment and Education***: These two variables are closely related. Enrollment indicates if the respondent is enrolled in school or not, while the education variable indicates the educational level of the respondent, from less than high school education to bachelor's degree or above with high school and associate degrees in between.

For the NLSY79 cohort enrollment and education are given as two separate variables. Enrollment, in this research, is collapsed from a revised enrollment status variable from the original four categories to only two categories: enrolled or not enrolled. The original four categories include: enrolled in high school, enrolled in college, not enrolled with less than high school education, and not enrolled with high school degree. The problem with this variable is that it does not have the information if the respondent has a college degree or not. Since college degree is a key category in measuring the

educational level of the respondents, as the importance of college education has been increasing in the past decades, it is necessary to include college degree in the education variable. This is achieved by incorporating a variable from a survey question asking if the respondent has received any degree since last interview, which includes associate, bachelor, master, or any other professional degrees. However, this variable is available only for the years 1979-1984, and 1988-2004. The missing educational variables 1985, 1986, and 1987 are copied from the year 1984, to be conservative. The possible problem is that if a respondent graduated with a college degree in those years and at the same time a migration occurred, the potential relationship between these two events may not be captured in the analysis. Therefore, the influence of graduating with a college degree on the youth's migration propensity may be somewhat underestimated for the NLSY79 cohort.

For the NLSY97 cohort, enrollment and education are created from one variable only, the edited enrollment status variable, the eleven categories of which provide detailed information on enrollment at high school, 2-year, or 4-year college, or graduate program, and educational attainment including less than high school education, GED, high school degree, some college, 2-year, or 4-year college graduate, and graduate degree.

For the later creation of a variable that captures the change in enrollment and educational status, enrollment and education variables are then combined into one variable, indicating if the respondent is enrolled in high school or college, or if not enrolled, with what educational level, including less than high school education, high

school, associate, or bachelor or above degree. A detailed description of the construction of the change-in-status variables is followed in the next few paragraphs.

***Change-in-status Variables***: Change-in-status variables, or change variables, are intended to capture the likely life course events in youth's transition to adulthood. Particularly, the changes in youth's enrollment and educational attainment, marital status, and employment status are the key independent variables. The change variables are measured by comparing the status variable at the end of each interval with that in the beginning of the interval. With regard to the changes in enrollment and educational attainment, the key is to construct the life events of youth such as going to college, dropping out of school or graduating with different educational degrees, especially with a college degree. It is obtained by comparing the enrollment and educational attainment at the end of the migration interval with that in the beginning. For example, for the migration interval between 1979 and 1980, the change variable in enrollment and educational attainment is created by comparing the enrollment and educational level in 1980 with that in 1979. In this way, the changes in statuses and migration status are constructed as concurrent events. Thus, methodologically, it is hard to sort out a causal relationship between these life events and migration behaviors without distinguishing the time-order of these events. Rather, it is more appropriate to call it an association between the life events and migration behavior. However, theoretically, these important life events are most likely to initiate migration behaviors or cause migration at the same time (such as going to college).

***Changes in Enrollment and Educational Attainment***: This change variable is created by comparing the combined enrollment and educational attainment variables (see enrollment and education variable for details) at the end of each migration interval with that in the beginning of the interval. To reconstruct detailed life events in these changes, the variable contains thirteen categories. Among them, there are six categories without any change in status during the interval, including enrolled in high school or college, and not enrolled with four types of educational attainment (less than high school education, high school, associate, and bachelor or above degree). There are two categories capturing the changes of becoming enrolled in either high school or college. The latter is usually referred to as going to college. Two more categories capture dropping out of high school or college. And the last three categories document graduation with differential degrees: graduating with high school, associate, and bachelor or above degrees. Some unusual cases occurred in creating this change variable when comparing the enrollment and educational attainment between two continuous interviews. For example, an individual's educational attainment had been a 4-year college degree several years in a row, while in one year, it suddenly changed to a 2-year associate degree, and then the following several years, it was a 4-year college degree again. In this case, the associate degree in that year in the middle is considered unreasonable for its inconsistency with other years, and thus is changed into a 4-year college degree accordingly. These similar changes are made manually by the author. There are 13 unreasonable cases in NLSY79 and 40 cases in NLYS97 cohort. With the increasing returns to college education, events like going to

college and graduating with a college degree will be given special attention regarding their effects on youth's migration behaviors.

***Changes in Marital Status***: Compared to changes in enrollment and educational attainment, changes in marital status have fewer categories. From the three marital statuses: single, married, and separated/divorced/widowed, five categories in change variable are recorded, among which three categories are in the same status, and two are the changes in marital status: getting married and getting separated/divorced/widowed. The questions revolved in the relationships between changes in marital status and migration are: Is forming or dissolving a family usually associated with migration? How important are these events on youth's likelihood of migration? How has the importance of these events on youth's migration propensity changed, if at all, across cohorts?

***Changes in Employment Status***: The change variable in employment status has four categories, with two staying the same: either employed or not employed, and the other two on changing statuses: from employed to not employed, or from not employed to employed. The first change usually refers to losing or quitting a job (sometimes only referred to as "losing a job" for short even though losing and quitting a job do not have the same connotations) and the second category means getting a job. Not employed can be either unemployed or out of labor force. According to the NLSY definition, unemployed are those who are not working, but have been actively looking for work during the four weeks prior or have been laid off, while those who are out of the labor force are not working, and not actively looking for work. Out of the labor force could be persons who are engaged in their own home housework, in school, unable to work due to

physical or mental illness, retired, and other. Here, getting or losing a job is the key changes in youth's life cycle and another important independent variable.

***Duration of Residence:*** This variable is intended to measure the strength of the location capital. It is hypothesized that for both cohorts the longer a respondent stays in a place, the more location capital he/she possesses in that place, and thus the less likely he or she is to leave the place, or more likely to return to the place after having left.

Duration of residence, or length of residence, is constructed with three categories: 0~2 years, 3~5 years, and more than 5 years. This guarantees effective statistical analysis with enough cases in each category. The starting point for the duration calculation is at age 14. The information on state and county residence (FIPS code) at age 14 is available for the NLSY79 cohort. So if an individual stays in the same place since age 14 until, say 1979 in the first survey year, at age 20, then the length of his or her stay in the place is 6 years. But, if he or she moved across a county or state boundary between age 14 and the first round of the survey in 1979 at age 20, in this case, the length of residence in the place in 1979 is considered as 0 year in 1979, because we do not know when exactly, during the time, he/she moved. This is the most conservative way to calculate duration of residence. If he/she stayed in the same place from 1979 to another year in 1980, then the length of residence is considered as 1 year in 1980. The calculation of duration of residence in this way is accurate for those who did not move between age 14 and the first round of survey in 1979. However, for those who migrated in the interval, it is likely to shorten their duration of residence in 1979. This is because the move can happen anytime in between, but the way it is calculated assumes that those who migrated all made the

move in the last year 1979. This is a conservative way to calculate the length of residence for those who migrated between age 14 and 1979 (possible age range 14-22). The possible effect is to have stronger negative relationship between the length of residence and migration propensity. Another way to deal with the problem is to assign half of the length in between age 14 and 1979 as the length of residence for individuals that migrated during that time. In this way, it assumes that the migration events are evenly distributed in the time between age 14 and 1979, or all migrants made the move in the middle of the time period. This assumption is dubious since we know from the age pattern of migration, starting from the mid-teen ages, individuals' migration propensity sharply rises to the peak in the early 20s. In other words, the older the respondent, the more likely he/she moves in the late teen ages and early 20s. To assume that the moves are evenly distributed during the period is certainly questionable. Therefore, though not accurate, the conservative way of calculating length of residence for those who migrated between age 14 and the first survey round in this research is probably a better way to construct the variable for the NLSY79 cohort.

As for the NLSY97 cohort, the construction of length of residence is comparable but somewhat different due to the information availability. The information on state and county residence at age 14 is not readily available for the NLSY97 cohort. But since the individuals surveyed in the first round were only 12-17 years old, the residence FIPS codes at age 14 thus are available for most individuals during the survey years. So for those 14 years old or younger in the first round, the length of residence since age 14 can be calculated by comparing the current FIPS code of residence with that at age 14. For

those older than 14 years in the first round, the starting point for residence comparison is the first survey round in 1997. Such calculation has similar effects on those who have stayed between age 14 and the first round of the survey with those who migrated during the time, a few less years (no more than 3 years) in their length of residence. The possible consequence may be to somewhat reduce the negative effect of length of residence on migration.

Using the available information from both cohorts, the length of residence variable is constructed as accurately as possible from the starting point of residence at age 14. It is an important control variable which, suggested from the previous literature, may be one of the most powerful explanatory factors on an individual's migration propensity (e.g., Toney 1976; Sandefur 1985; Wilson 2005; Lee 2008). It assumes that the longer the length of duration in the place, the less likely the respondent is to leave the place.

***Relation***: The relation variable indicates whether a respondent is living with any parental figures at the time of the interview as a sign of dependence. Parental figures encompass biological and step parents, adoptive and foster parents, grand parents, and uncles and aunts. It takes two steps to create a relation variable at each interview. First, from a series of variables indicating the relationship of each household member to the youth, a series of dummy variables are constructed indicating whether the youth lives with any of the parental figures listed above. Based on these dummy variables, a relation variable is created indicating whether the youth lives with any of the parental figures mentioned above. This relation variable is created in the same way for both cohorts.

***Prison***: The prison variable indicates whether the respondent is incarcerated or not at the time of interview. The reason to include this variable is based on the assumption that the migration patterns are different for people in prison than other civilians. Since 1980, the majority of new prisons built to accommodate the expanding U.S. prison population have been placed in non-metropolitan areas (Beale 2001), whereas most prisoners are from urban communities (Huling 2002). The mismatch of the origin of this prison population and the location of most prisons differentiates migration patterns among prisoners from that among civilians. In addition, the reasons for migration are different for people in prison and other civilians. The migration of prisoners is forced migration instead of voluntary migration among civilians. For the NLSY79 cohort, this variable is created from a variable indicating "type of residence respondent is living" at the time of interview each year. If a respondent is in the "jail" category, then he/she is in prison, otherwise, he/she is not in prison. As for the NLSY97 cohort, this variable is constructed from a series of variables asking "whether the respondent is currently in a correctional institute?" If yes, then he/she is in prison, otherwise he/she is not in prison.

**Limitations of the Methods**

This research is among a few studies that examine the migration patterns of youth across two cohorts and explore the factors associated with youth's migration propensity. Some limitations regarding the data and methodology in this research will be discussed in the following paragraphs including the problems with migration measurement, the construction of comparable variables for both cohorts, violation of the assumptions of logistic regression, and the plausible causal interpretation.

First, how to define and measure migration has always been an issue both theoretically and methodologically in the migration literature. How long and how far away a move can be considered as migration? As to the former question, the standard definition of migration is a relatively permanent change in usual place of residence (White and Lindstrom 2006). This relatively permanent change can be a year, half of year, or even some other period of time in different circumstances. In this research, the current address reported by the respondents is considered as their usual place of residence and the change occurs if it is different from the one they reported in the previous year's survey. However, it is also likely that young people in their highly mobile years change residence more than once in a given year and the moves during the survey intervals are not captured in the research. For example, if a respondent migrated to another place and moved back to the previous residence within a year, he/she is not considered as a migrant in this research. The change of residence needs to be at least a year to be considered as migration in this research.

Another aspect of the migration definition involves geographic scale—the identification of the migration-defining boundary (or boundaries). These boundaries can be regions and divisions, metropolitan statistical areas, state or county levels. As previously mentioned, this research defines migration as a cross-county boundary move. The county is a smaller administrative unit than other boundaries such as metropolitan areas. Therefore, this research provides a more detailed picture of youth migration experiences. But it is also noteworthy that past research shows differential selectivity of the population along socioeconomic characteristics in the United States when county,

metropolitan, and state boundaries are used (White and Mueser 1988). One of the limitations of using county boundary to define migration is not being able to separate different labor markets. In other words, the cross-county movement does not necessarily mean a change of labor market while the movement across metropolitan territory usually involves a change of labor market. Another limitation of this definition is the large variation of county size across the United States. Therefore, the distance moved across county boundary can vary significantly between the east and the west since the county size is usually much smaller in the east than that in the west.

Second, the construction of comparable variables across cohorts can be problematic in some cases. For example, the meaning and definition of race/ethnicity change over time. The conception of this very concept may be different among people and between people at present and those about twenty years ago. Even for the same person, he/she may choose a different category (categories) for his/her race/ethnicity at present than twenty years ago. In addition, the construction of race/ethnicity variable is based on the combination of two variables for both cohorts which increases the uncertainty of the consistency of the variables across cohorts. Furthermore, the percentage of foreign-born, especially for Hispanic group, can be different between the two cohorts which might influence the patterns of internal migration across the cohorts.

Third, some of the assumptions of logistic regression in this research are violated. One assumption assumes that the occurrence of each event is of the same risk. However, previous research shows that individuals with prior migration history are more likely to migrate than those without (DaVanzo 1983; DaVanzo and Morrison 1981). Therefore, a

repeat migration might be of different risk from primary migration (first migration experience for an individual). There are two approaches to investigating these multiple events. One way to deal with the differential risks for multiple events is to treat each interval as a separate observation, pooling all intervals for all respondents in a single logistic regression (Allison 1984, 1995). This is the methodology employed in this research. But the assumption violation still exists in this methodology. Another way to deal with the multiple events is to estimate separate equations for each occurrence, with decreasing sample sizes for the risk sets of later events. Future research can have separate equations for primary migration and repeat migration. But this separate-equation method suffers from proliferating parameters, which can result in ambiguous and conflicting interpretations (Allison 1984, 1995).

Another concern with the violation of the assumption of logistic regression is the interdependence of person-year periods as units of analysis. Earlier migration experience tends to resemble later ones. Pooling observations without taking the dependency into account may bias the parameters' standard errors downward and elevate their statistical significance (Allison 1995). There are limited options for correcting possible biases. One of them is to add a disturbance term to correct some or all the biased coefficients as is suggested by Allison (1995: 242-246). Another option is to use hierarchical generalized linear modeling (HGLM), which treats each person-year period as nested in individuals. The use of more refined models to control the autocorrelations among the person-years within an individual like HGLM can be one of the future research directions.

Last but not least, special caution should be paid when interpreting the results. Since migration events and life events (changes in marital status, enrollment and educational attainment, and employment status) are constructed at the same time period by comparing the current status with that in the previous interview, it lacks the precise time order which events come first, changes in status or migration. Therefore, the relationship between migration behaviors and other life events are best described as an association, rather than a causal relationship. However, theoretically, the changes in people's lives such as going to college, graduating from a college, taking a full-time job, and getting married are likely to initiate corresponding migration.

# CHAPTER IV

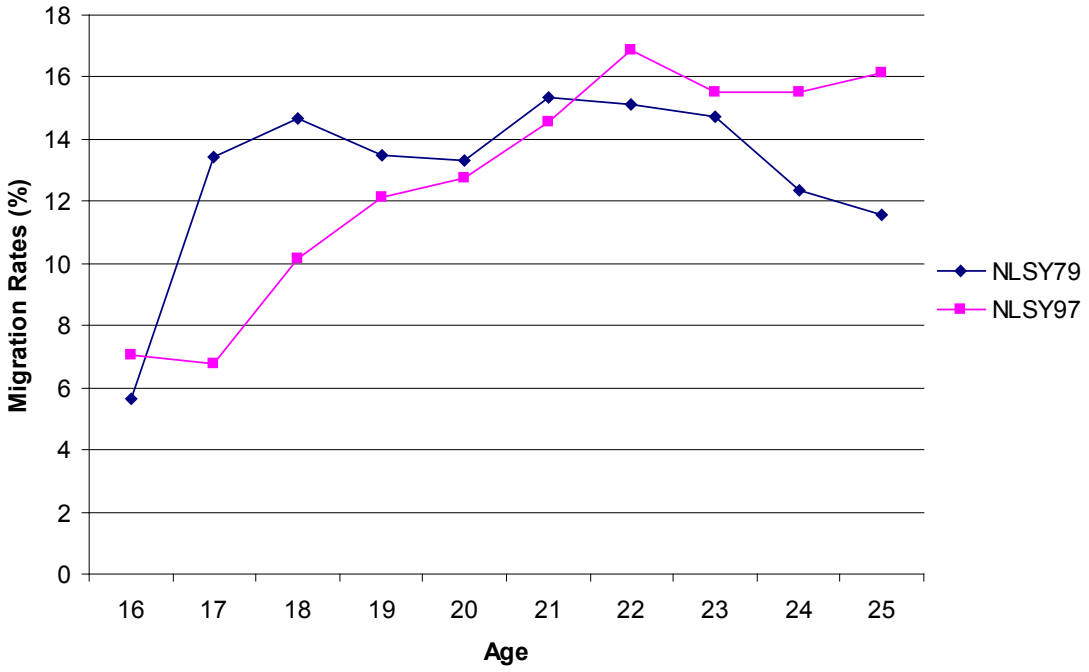
# RESULTS

There has been little research comparing youth migration patterns longitudinally across cohorts. This dissertation intends to extend understanding of youth migration experiences by comparing a recent generation (born in the early 1980s) with the late baby-boom generation (born between 1957 and 1964). The results first report the descriptive analyses, specifically, the youth migration patterns by age, gender, race/ethnicity, and other characteristics. Then logistic regression is utilized to examine the relative importance of these factors on youth's migration propensity. By comparing the odds ratios of the same factors between the two cohorts, the change of the importance of these factors could be revealed. Special attention will be given to the variables that capture the life events as an individual changes his or her life cycle stages. Specifically, changes in individuals' marital status, enrollment and educational attainment, and employment status, as they relate to migration are considered.

## Youth Migration Pattern by Age

The two cohorts show distinct migration patterns for individuals ages 16 to 25. As shown in Figure 1, among the recent cohort (NLSY97) the migration rates are increasing with some oscillations in the middle. The migration rates first peak at age 22, which is also the dividing point at which the recent cohort starts having higher migration rates than the older one. The migration rates then drop at age 23, but slowly increase at older ages, and finally reach a second peak at age 25 (the upper age limit in this research).

**Figure 1. Migration Rates by Age**




*Note*: t-tests show that the migration rates of the NLSY97 cohort are significantly different from those of the NSLY79 cohort at ages 17, 18, 19, 22, 24, and 25 at $p < .05$ (two-tailed tests). In addition, the difference in overall migration rates of all ages is significant too at $p < .05$ (two-tailed tests).

The migration rates of the older cohort show a somewhat "M" pattern. The first peak of "M" appears at age 18, and then the migration rates drop until reaching the second peak at age 21. After that, the migration rates slowly decline all the way to age 25. Between ages 17 and 21 youth in the older cohort (NLSY79) have higher migration rates than the recent cohort. The gaps in migration rates are most notable at the age of 17 and 18 between the two cohorts. T-tests show that the differences in migration rates between the two cohorts are statistically significant at ages 17, 18, and 19 (two-tailed tests). From age 22, the recent cohort starts having higher migration rates, and the gap in migration rates is increasing from age 23 to 25. Statistically significant differences in migration rates are shown at ages 22, 24, and 25 (two-tailed t-tests).

From the comparison of age patterns of migration, there is a distinct change between the two cohorts, with the recent cohort having a stronger but postponed migration momentum. This result supports the hypothesis 1 and 2. Hypothesis 1 postulates that youth in the recent cohort will have higher level of migration rates than youth in the older cohort. The level of migration rates in the recent cohort is higher than that in the older cohort starting at age 22, the level never being reached by the older cohort. This delayed migration momentum from age 22 in the recent cohort pushes youth migration rates to a higher level, higher than migration rates at any age in the older cohort. Hypothesis 2 assumes that youth in the recent cohort will delay migration compared to youth in the older cohort, which is also supported by the result. For the older cohort, the peak of migration rates first appears at age 18, then at age 21 with a slightly higher rate, however, for the recent cohort, the peak of migration appear at age 22, a delayed but stronger migration momentum than the late baby boom generation.

When comparing the overall migration rates between two populations, a problem with differential age-specific proportions of population usually rises. Table 2 shows age-specific migration rates standardized by age for both of the two cohorts. By comparing the proportions columns between the two cohorts, one can see that the NLSY97 cohort is slightly younger than the NLSY79 cohort, with lower proportions of youth above age 21, and higher proportions of youth under age 22. To standardize the population structure is to use the average age-specific proportions of the two cohorts as the standard.

**Table 3. Migration Rates Standardized by Age for NLSY79 and NLSY97**

| | NLSY79 | | | | NLSY97 | | | |
|---|---|---|---|---|---|---|---|---|
| Age | Proportions | Standardized Proportions | Migration Rates (%) | Standardized Migration Rates (%) | Proportions | Standardized Proportions | Migration Rates (%) | Standardized Migration Rates (%) |
| 16 | 0.050 | 0.038 | 5.64 | 0.21 | 0.025 | 0.038 | 7.05 | 0.27 |
| 17 | 0.066 | 0.100 | 13.45 | 1.34 | 0.133 | 0.100 | 6.77 | 0.67 |
| 18 | 0.081 | 0.115 | 14.69 | 1.69 | 0.149 | 0.115 | 10.18 | 1.17 |
| 19 | 0.096 | 0.119 | 13.50 | 1.61 | 0.142 | 0.119 | 12.14 | 1.44 |
| 20 | 0.108 | 0.125 | 13.30 | 1.66 | 0.142 | 0.125 | 12.76 | 1.60 |
| 21 | 0.123 | 0.131 | 15.32 | 2.00 | 0.139 | 0.131 | 14.53 | 1.90 |
| 22 | 0.124 | 0.117 | 15.14 | 1.77 | 0.110 | 0.117 | 16.85 | 1.97 |
| 23 | 0.117 | 0.099 | 14.71 | 1.45 | 0.081 | 0.099 | 15.51 | 1.53 |
| 24 | 0.098 | 0.075 | 12.38 | 0.93 | 0.052 | 0.075 | 15.53 | 1.16 |
| 25 | 0.079 | 0.052 | 11.55 | 0.60 | 0.025 | 0.052 | 16.12 | 0.83 |
| total | 1.000 | 0.970 | 13.32 | 13.26 | 1.000 | 1.000 | 12.50 | 12.55 |
| N | | | 68475 | | | | 46777 | |

Standardized migration rates are calculated by multiplying the unadjusted migration rates by the standardized age-specific proportions. The standardized total migration rate then is the sum of the standardized age-specific migration rates of all ages. Between the ages 16 and 25, the older cohort (NLSY79) has a higher total migration rate, both unadjusted and standardized, than the recent cohort, 13.26 vs. 12.55 percent for standardized migration rate. The difference is slightly smaller for the standardized total migration rates, after controlling for the population age structure. The age groups in this dissertation are still comparatively young, due to the data limitation. If the migration momentum keeps in the late 20s, which is quite likely, then the overall migration rate level of the recent cohort will possibly exceed that of the older cohort.

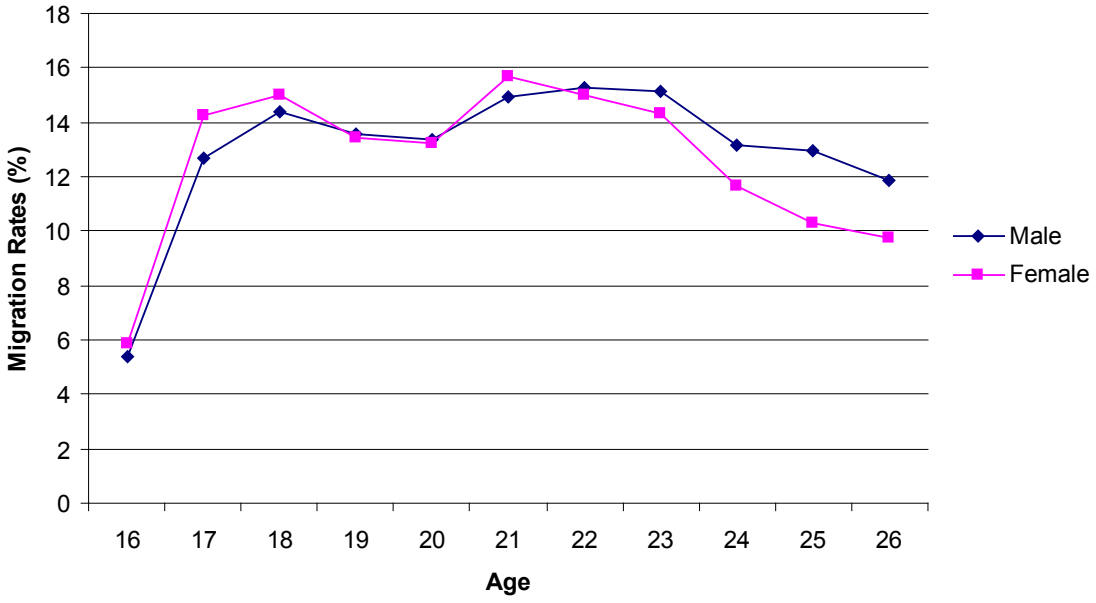
The reason to analyze the overall migration rate and the standardized overall migration rate is to point out the importance of studying age-specific migration rates. The crude comparison of overall migration rates, even after standardization, between two cohorts may lead to misunderstanding of the real scenario. In this case, a conclusion of higher migration rates among the older cohort than the recent cohort might be drawn. However, detailed examination of age-specific migration rates reveals that the recent cohort is actually having a delayed but strong migration momentum after age 22. The gap in migration rates after 22 appears increasing in the older ages.

**Youth Migration Pattern by Gender**

For the NLSY79 cohort, there are no statistically significant differences in migration rates between men and women (two-tailed t-tests). The overall migration rate is 13.50 percent for men and 13.15 percent for women. Figure 2 indicates that generally

speaking until age 21, women have equal or slightly higher migration rates. From age 22, the migration rates drop more noticeably for women than for men. Both men and women in the older cohort show a general migration pattern of an "M" shape.

**Figure 2. Migration Rates by Gender of NLSY79**

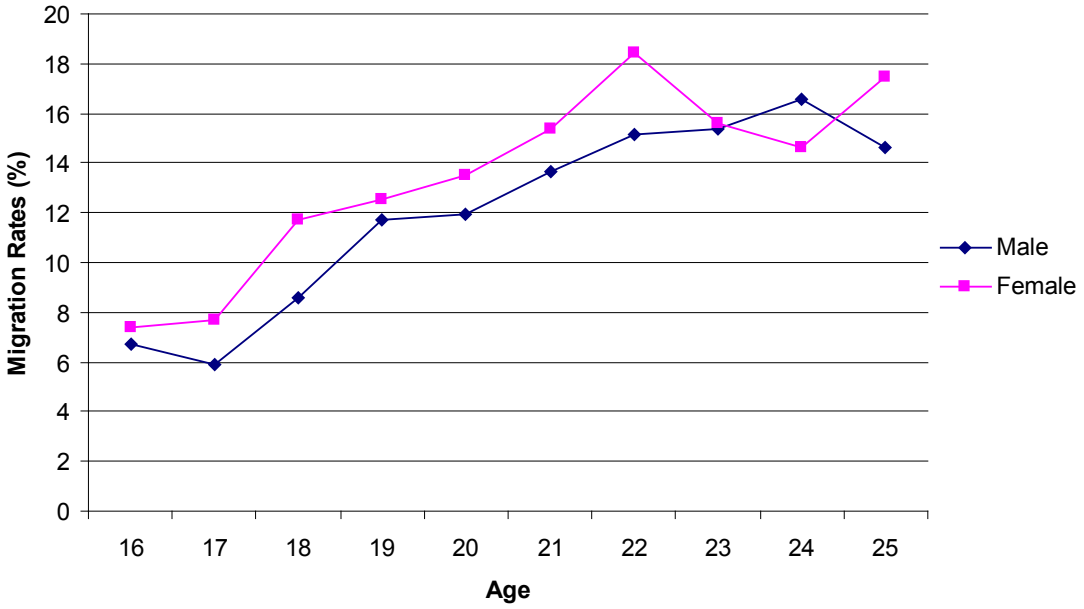



*Note*: T-tests show statistically significant difference in migration rates between men and women at ages 25 and 26 at $p < .05$ (two-tailed tests). There is no significant difference in overall migration rates between men and women of the NLSY79 cohort.

As to the NLSY97 cohort, women show higher migration rates than men at every age between 16 and 25 except at age 24 (see Figure 3). The total migration rate at ages 16-25 is 13.33 percent for women compared to 11.62 percent for men. Statistically significant differences in migration rates between women and men are found at ages 17, 18, and 22, and also in the overall migration rates of all ages (two-tailed t-tests).

The comparison of migration patterns by gender clearly shows that women in the recent cohort are significantly more likely to migrate than men, while women in the older cohort have similar or slightly lower migration rates than men. The result supports hypothesis 5 that gender gap in migration rates between young women and men will shrink in the

**Figure 3. Migration Rates by Gender of NLSY97**



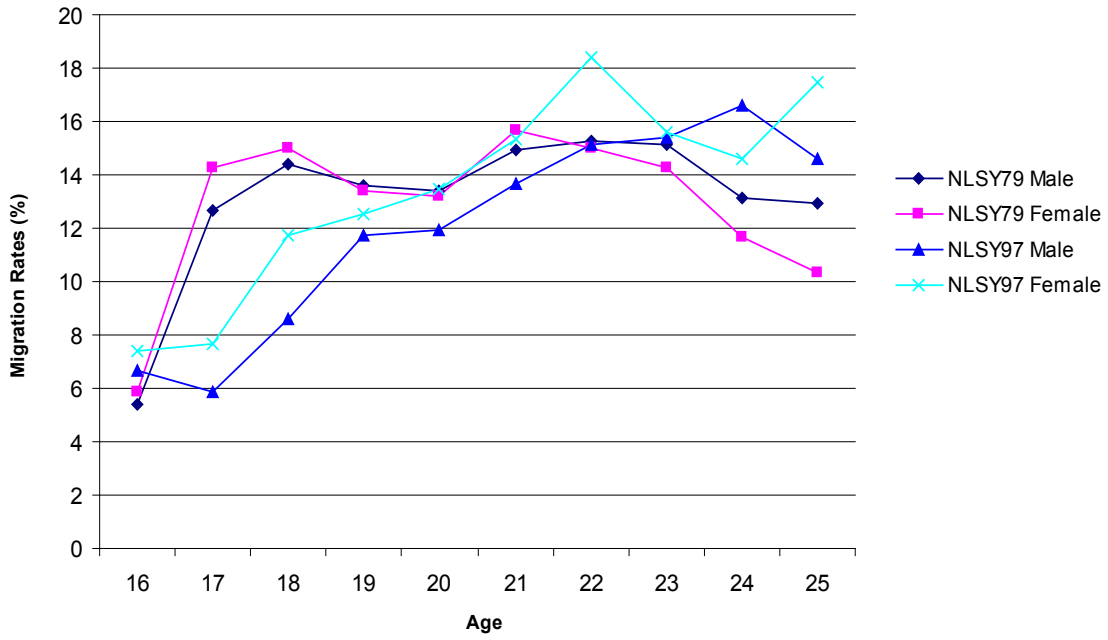

*Note*: T-tests show statistically significant difference in migration rates between women and men at ages 17, 18, and 22 at $p < .05$ (two-tailed tests). In addition, statistically significant difference in migrations rates of all ages between men and women is found at $p < .001$ (two-tailed test).

recent cohort compared with the late baby boom cohort. Actually the gender gap is reversed in the recent cohort, with young women significantly more likely to migrate than young men. What are the mechanisms that result in the changing migration patterns between young men and young women? Does the rapidly increasing educational attainment by women have anything to do with the changes in migration patterns by gender? Future research is needed to examine this change in detail and explore the underlying mechanisms for the changes in migration pattern by gender. Attention should also be given to the unusual drop in migration rates for women at ages 23 and 24 whereas men do not have this sudden drop at these ages.

The change in migration pattern between the two cohorts is largely attributed to the change in women's migration pattern. The resemblance in the change can be revealed by examining the change in migration pattern of both women and men in Figure 4. First, by comparing the change in migration pattern of women between the two cohorts, one can find a similar change in the general migration pattern. That is, a postponed but stronger migration momentum after age 22. However, the change in migration pattern of men does not show exactly the same trend. For men, the migration rates are about the same at age 22. The dividing point is even later. At age 24, men in the recent cohort start having higher migration rates than men in the late baby boom cohort. Men's migration momentum is even more delayed than women's. In the recent cohort, women's migration peak at age 22 is even higher than that of men's at age 24.

The results support hypothesis 3 and 4 on changes in women's migration across cohorts, since women's migration trend resembles that of the general migration.

**Figure 4. Migration Rates by Gender of NLSY79 and NLSY97**




*Note*: T-tests show statistically significant difference in migration rates between women in the NLSY97 cohort and those in the NLSY79 cohort at ages 17, 18, 19, 22, 24, and 25 at $p < .05$ (two-tailed tests). In addition, statistically significant difference in migrations rates of all ages between women in the NLSY97 cohort and those in the NLSY79 cohort is found at $p < .001$ (two-tailed test).

Hypothesis 3 assumes that women in the recent cohort will have higher level of migration rates than women in the older cohort. Hypothesis 4 assumes that women in the recent cohort will delay migration compared to women in the older cohort. Women in the recent cohort have delayed but stronger migration momentum, which supports the both hypothesis 3 and 4.

## Youth Migration Pattern by Race/Ethnicity

There are important differences in migration patterns among different racial/ethnic groups in terms of migration rates. Consistent with previous research, whites

have higher migration rates than blacks and Hispanics at each age between 16 and 25 for both cohorts.

Compared to the general migration pattern by age at the beginning of the chapter, whites show very similar age pattern of migration for both cohorts (see Figure 5 and 6). That is, for NLSY79, the migration pattern looks like an "M", and for NLSY97, migration rates increase with age with some oscillations in the middle. For the older cohort, blacks and Hispanics do not follow the exactly same age pattern of migration as whites. The migration rates of blacks and Hispanics do not vary as much as those of whites, and the shape is much flatter in the NLSY79 cohort (see Figure 5). Among all these three race/ethnic groups, Hispanics have the lowest migration rates at almost all ages for both cohorts. With respect to the recent cohort, Figure 6 shows a somewhat similar migration pattern among these three race/ethnic groups, which follows that of migration pattern by age. Between ages 16 and 25, the migration rates increase among all the groups with some oscillations in the middle. However, the differences in migration rates among these three race/ethnic groups are consistent across cohorts with whites having much higher migration rates at almost all ages than blacks and Hispanics.

The findings on migration patterns by race/ethnicity support the hypothesis 6 that whites are more likely to migrate than blacks and Hispanics, and that this pattern is not likely to change from cohort to cohort. In addition, among these three race/ethnic groups,

**Figure 5. Migration Rates by Race/Ethnicity of NLSY79**

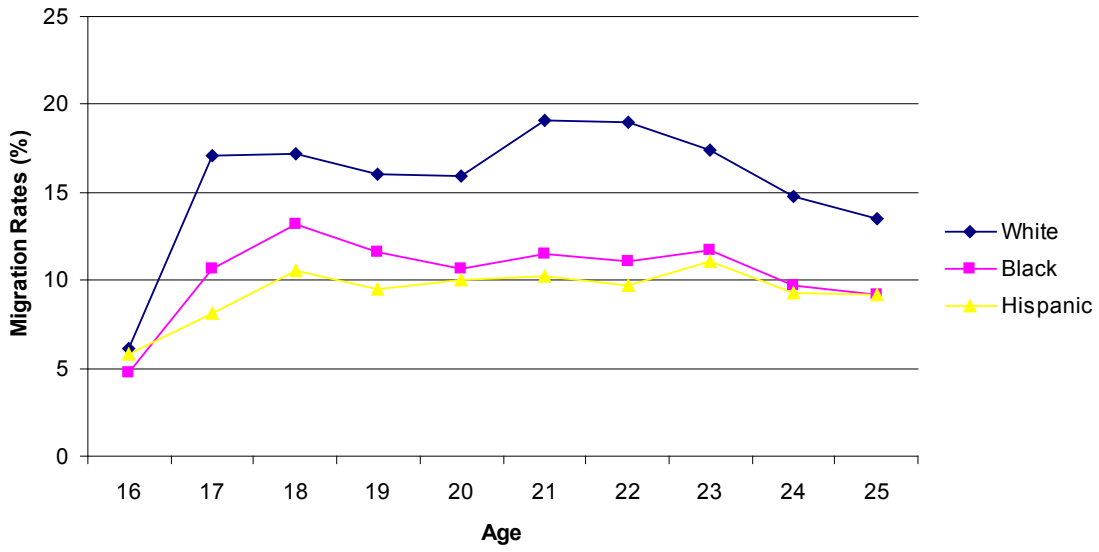
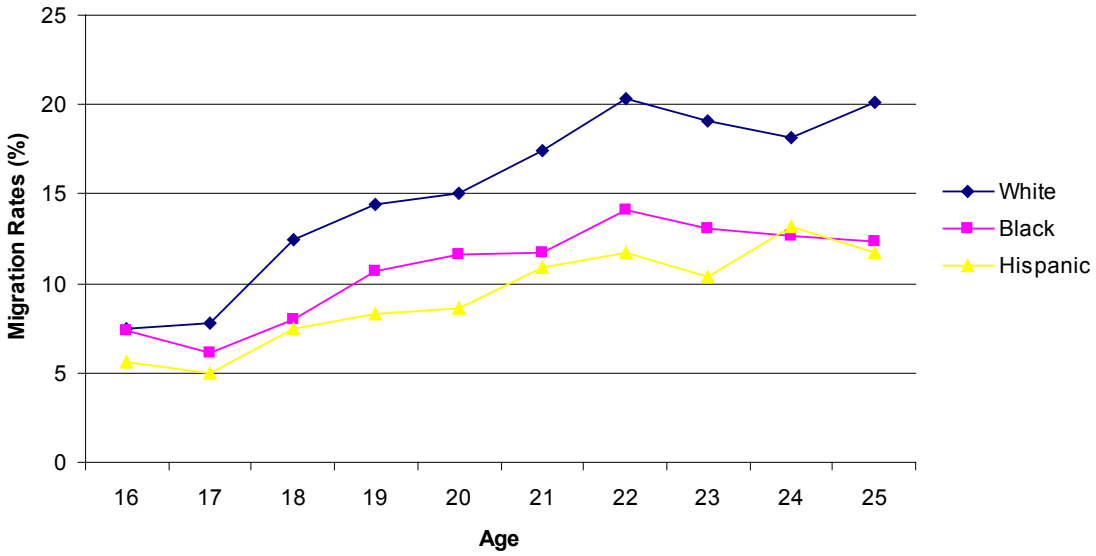



**Figure 6. Migration Rates by Race/Ethnicity of NLSY97**



Hispanics are the least likely to migrate with the lowest migration rates at almost every age, and blacks are in the middle. This hierarchical pattern of migration rates among these three race/ethnic groups is consistent across cohorts. However, the gap in the level of migration rates is more notable between whites and the other two minority groups than that between blacks and Hispanics.

Furthermore, the changing age pattern of migration across cohorts is also found in every race/ethnic group. Compared to the older cohort, the recent cohort has lower migration rates in its late teens among all the race/ethnic groups, specifically at ages 17, 18, and 19. But the migration momentum increases with age. From age 22, youth of all race/ethnic groups in the recent cohort have higher migration rates than those in the older one. Similarly, for all of the three race/ethnic groups the delayed migration momentum after age 22 in the recent cohort pushes the migration rates to a higher level than the one the older cohort had ever reached.

**Youth Migration Pattern by Other Individual Characteristics**

Migration rates differ by individual characteristics other than age, gender, and race/ethnicity, especially by the variables that capture changes as an individual goes through his or her life stages. This section will report the differential migration rates by such individual characteristics as marital status, enrollment status, education, employment status, relation (whether living with parental figures), place of origin (rural or urban), prison (whether living in prison), and duration of residence as well as change-in-status characteristics. There are three key change variables, including change in marital status, enrollment and educational attainment, and employment status. Special

attention will be paid to the differential effects of these change variables on youth's migration rates. Table 4 shows the proportions of the categories of all individual characteristics and migration rates by these individual characteristics for both cohorts.

The overall migration rates by gender and race reveal the general patterns mentioned in the prior sections. Briefly, women have significantly higher migration rates than men in the recent cohort, whereas they have slightly lower migration rates in the older cohort. Whites have significantly higher migration rates than blacks and Hispanics in both cohorts.

Migration patterns by marital status change across the cohorts. Since the members of the NLSY97 cohort are younger than the NLSY79 cohort, combined with the fact that the younger generation has delayed marriage, more than 90 percent of the cases in the recent cohort are never married compared to about 70 percent in the older cohort. In the NLSY79 cohort, consistent with previous research, those who are married have lower migration rates compared to those never married and those separated, divorced, or widowed, with the last having the highest migration rate. However, in the NLSY97 cohort, the migration pattern by marital status changes. Those married couples have much higher migration rates than those never married (16.37 percent versus 12.12 percent). One should be cautious to draw any final conclusion on this change across cohorts without controlling for other factors. For one reason, the age distributions between the two cohorts are quite different, with NLSY97 being younger than NLSY79.

**Table 3. Sample Proportions and Migration Rates by Individual Characteristics for the NLSY79 and NLSY97 Cohorts**

| | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| Independent Variable | Proportions | Migration Rates (%) | Proportions | Migration Rates (%) |
| *Individual Characteristics* | | | | |
| Gender | | | | |
| Male | 0.48 | 13.50 | 0.49 | 11.62 |
| Female | 0.52 | 13.15 | 0.51 | 13.33 |
| Race/Ethnicity | | | | |
| White | 0.53 | 16.10 | 0.52 | 14.89 |
| Black | 0.29 | 10.62 | 0.26 | 10.63 |
| Hispanic | 0.18 | 9.47 | 0.21 | 8.98 |
| Marital Status | | | | |
| Never-married | 0.71 | 13.50 | 0.92 | 12.12 |
| Married | 0.24 | 12.37 | 0.08 | 16.37 |
| Divorced, widowed, separated | 0.05 | 15.43 | 0.01 | 18.59 |
| Enrollment Status | | | | |
| Enrolled | 0.30 | 15.63 | 0.48 | 11.10 |
| Not enrolled | 0.70 | 12.33 | 0.52 | 13.80 |
| Education | | | | |
| Less than high school | 0.33 | 11.21 | 0.34 | 8.95 |
| High school graduate | 0.59 | 13.72 | 0.61 | 13.67 |
| Associate | 0.03 | 13.50 | 0.01 | 15.56 |
| Bachelor or above | 0.05 | 21.86 | 0.04 | 24.46 |
| Employment Status | | | | |
| Employed | 0.61 | 12.65 | 0.66 | 12.96 |
| Not employed | 0.39 | 14.38 | 0.34 | 11.61 |
| Relation | | | | |
| Live with parental figures | 0.54 | 11.55 | 0.68 | 9.41 |
| Live w/out parental figures | 0.47 | 15.35 | 0.32 | 19.11 |
| Place of Origin | | | | |
| Rural | 0.21 | 15.34 | 0.22 | 14.14 |
| Urban | 0.79 | 12.80 | 0.78 | 12.03 |
| Prison | | | | |
| In prison | 0.01 | 35.65 | 0.00 | 17.53 |
| Not in prison | 0.99 | 13.14 | 1.00 | 12.48 |
| Duration | | | | |
| 0~2 years | 0.33 | 22.99 | 0.38 | 18.80 |
| 3~5 years | 0.25 | 11.44 | 0.38 | 8.24 |
| 5+ years | 0.41 | 6.54 | 0.24 | 9.25 |
| Number of person years | 68475 | | 46777 | |

For example, the NLSY97 cohort has about 60 percent of cases 20 years old or younger compared to 40 percent in the NLSY79 cohort. And between ages 23 and 25, there is 35.3 percent in the NLSY79 cohort and only 15.9 percent in the NLSY97 cohort. Many more teen ages categorized as never married in the recent cohort are likely to be enrolled in high school, which might reduce their propensity to move.

A change in migration rates by enrollment status can also be found across cohorts. In the NLSY79 cohort those enrolled have much higher migration rates (15.63 percent) than those not enrolled (12.33 percent). However, this changes in the NLSY97 cohort as those enrolled are less likely to migrate (11.10 percent) than those not enrolled (13.80 percent). A closer examination of the proportions of the enrollment status reveals a notable difference between the two cohorts. In the NLSY79 cohort, about 30 percent of the cases are enrolled compared to nearly half of the cases (48.30 percent) enrolled in the NLSY97 cohort. In addition, those enrolled in the NLSY79 cohort are more likely to be enrolled in college than those in the NLSY97 cohort, because the former cohort is in general older than the latter one. Going to college is usually associated with moving to a new place, especially for the older cohort, for back then it was only the early stage of the great expansion of the community college system, which started in the mid 1970s (Leigh and Gill 2003, 2004; Rouse 1995). Compared to the older cohort (NLSY79), access to community colleges is more pervasive for the recent cohort (NLSY97) (Walker 2008). Migration rates differ significantly depending on respondents' educational levels. Consistent with previous research, more educated people are more likely to migrate than those less educated ones for both cohorts. People with a bachelor's degree have

significantly higher migration rates than those with lower educational levels, with more than 20 percent migration rates for those having a bachelor's degree for both cohorts. In addition, the effects of education on migration seem more pronounced for the recent cohort than the older one. Individuals with a bachelor's degree have migration rate as high as 24.46 percent for the recent cohort, compared to 21.86 percent for the older cohort, and those with less than high school education have migration rate as low as 8.95 percent for the recent cohort, compared to 11.21 percent for the older cohort. Thus, the difference in migration rates between those with a bachelor's degree and those without a high school degree is about 10.60 percent for the NLSY79 cohort, and even higher for the NLSY97 cohort, about 15.50 percent. Therefore, the differentiating effects of education on migration have been increasing across cohorts. The more educated people are increasingly more likely to migrate and those less educated are increasingly less likely to migrate over time.

The migration pattern by employment status changes across the cohorts. Even though the employed have about the same migration rates across cohorts, between 12.00 and 13.00 percent, the migration rates of those not employed drop significantly from 14.38 percent among the NLSY79 cohort to 11.61 percent among the NLSY97 cohort. Again, cautious conclusions can only be drawn after controlling for other variables.

The migration patterns by other individual characteristics, which include relation, place of origin, prison, and duration variables, do not change across cohorts. Beginning with relation variable, which measures whether or not the respondent is living with any parental figures, those living without parental figures between ages 16 and 25 are more

likely to migrate than those living with parental figures. The difference in migration rates between these two living arrangements increases greatly across cohorts, from 3.80 percent to 9.70 percent. The increasing difference in migration rates between the two living arrangement is the combined result of the rising migration rate of those not living with parental figures and the declining migration rates of those living with parental figures (see Table 4 under "relation").

Consistent with previous research, both cohorts show that youth of rural origin are more likely to migrate than those from urban areas. Also for both cohorts, youth who are incarcerated have much higher migration rates than those who are not, the difference in migration rates between them being as high as 22.51 percent in the older cohort, and reduced to 5.05 percent in the recent cohort. Duration of residence is an important factor in differentiating migration rates, as suggested in previous research and supported in this research. The longer the residents stay in the same place, the less likely they are to move to another place. Those who have stayed in the same place for less than two years have significantly higher migration rates than those who have stayed more than five years in the place, the difference in migration rates between them being more than 10.00 percent for both cohorts.

Among all the independent variables, the focus of this research is on change-in-status variables, specifically, on finding if changes in statuses are important factors associated with youth migration, and if yes, what changes are the most important events on youth's migration behaviors. Table 5 shows the proportions of the categories of these change variables and the differential migration rates by these change variables.

**Table 4. Sample Proportions and Migration Rates by Change-in-Status Characteristics for the NLSY79 and NLSY97 Cohorts**

| | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| Independent Variable | Proportions | Migration Rates (%) | Proportions | Migration Rates (%) |
| *Change in Status Characteristics* | | | | |
| Marital Status | | | | |
| Never-married | 0.71 | 13.50 | 0.92 | 12.12 |
| Married | 0.24 | 12.37 | 0.08 | 16.37 |
| Divorced, widowed, separated | 0.05 | 15.43 | 0.01 | 18.59 |
| Marital Status | | | | |
| Stayed single | 0.65 | 12.72 | 0.88 | 11.66 |
| Stayed married | 0.22 | 11.53 | 0.07 | 15.97 |
| Stayed separated, divorced, or widowed | 0.03 | 14.86 | 0.01 | 18.30 |
| Got married | 0.07 | 21.74 | 0.03 | 24.75 |
| Got separated, divorced or widowed | 0.03 | 19.71 | 0.01 | 22.30 |
| Enrollment Status | | | | |
| Stayed not enrolled, <HS | 0.18 | 11.49 | 0.11 | 12.22 |
| Stayed not enrolled, HS | 0.43 | 11.74 | 0.31 | 13.36 |
| Stayed not enrolled, Associate | 0.02 | 11.49 | 0.01 | 15.37 |
| Stayed not enrolled, BA or above | 0.04 | 19.12 | 0.03 | 25.37 |
| Stayed enrolled in HS | 0.07 | 3.49 | 0.07 | 3.99 |
| Stayed enrolled in college | 0.10 | 15.35 | 0.20 | 11.73 |
| Got enrolled in HS | 0.00 | 14.56 | 0.01 | 10.34 |
| Got enrolled in college | 0.05 | 21.98 | 0.11 | 9.33 |
| Dropped out of college | 0.04 | 21.13 | 0.04 | 15.97 |
| Dropped out of HS | 0.01 | 13.02 | 0.02 | 10.38 |
| Graduated w/ HS degree (not enrolled) | 0.04 | 12.00 | 0.07 | 10.43 |
| Graduated w/ Associate degree (not enrolled) | 0.01 | 20.09 | 0.01 | 19.94 |
| Graduated w/ BA or above degree (not enrolled) | 0.02 | 44.59 | 0.02 | 32.05 |
| Employment Status | | | | |
| Employed | 0.61 | 12.65 | 0.66 | 12.96 |
| Not employed | 0.39 | 14.38 | 0.34 | 11.61 |
| Employment Status | | | | |
| Stayed employed | 0.81 | 11.44 | 0.54 | 12.37 |
| Stayed not employed | 0.25 | 12.60 | 0.16 | 11.67 |
| Employed to not employed | 0.10 | 18.59 | 0.14 | 14.81 |
| Not employed to employed | 0.14 | 17.64 | 0.16 | 11.65 |
| Number of person years | 68475 | | 46777 | |

In general youth who experience change in marital status, enrollment and educational status, or employment status have higher migration rates than those without having experienced any changes. Beginning with the change in marital status, results indicate that those who have changed their marital status during the interval have higher migration rates than those without any change in marital status. Getting married is associated with the highest migration rates, and becoming separated, divorced, or widowed is associated with the second highest migration rates. This pattern is consistent across cohorts.

With respect to changes in enrollment and educational status, the differences in migration rates are more prominent than changes in either marital status, or employment status. Graduating with a bachelor's or higher degree is associated with significantly higher migration rates than all the other statuses. Based on these data, those who graduate with a bachelor's or higher degree have migration rate as high as 44.59 percent among the older cohort, and 32.05 percent among the recent cohort. Actually, for the older cohorts, any status related to college degree or college experiences is associated with noticeable higher migration rates than other statuses, events including going to college, dropping out of college, graduating with an associate's, a bachelor's or an advanced degree. For the recent cohort, going to college is no longer significantly associated with migration, which can be explained, at least partly, the great expansion of the community college system starting in the mid 1970s and thus, substantively improved access to college (Leigh and Gill 2003, 2004; Walker 2008). Among the recent cohort those going to college have only 9.33 percent migration rate as opposed to 21.98 percent in the older

cohort. Dropping out of college in the recent cohort is associated with a relatively higher migration rate (15.97 percent) than going to college, even though it is still not as high as that in the older cohort (21.13 percent). For the recent cohort (NLSY97), the effects of college experiences like going to college, or dropping out of college on youth's migration propensity are not as important as those in the older cohort. The key in differentiating migration rates, however, lies in the respondent's educational level, especially a bachelor's degree. In this younger cohort, people who graduate with a bachelor's or higher degree have the highest migration rates (32.05 percent) and those who already have a bachelor's or higher degree have the second highest migration rates (25.37 percent).

Changes in employment status have comparatively more moderate effects in differentiating migration rates than both changes in enrollment and educational attainment and marital status, especially for the recent cohort. However, for the older cohort, getting a job and losing a job are still effectively associated with migration. For the recent cohort, losing a job is still associated with a relatively higher migration propensity than those who stay employed, 14.81 versus 12.37 percent, but the effect on migration is less obvious than that in the older cohort by nearly 4.00 percent. In addition, getting a job is no longer significantly associated with migration in this younger cohort.

Among all the independent variables, four variables appear to be the most influential factors in differentiating migration rates for both cohorts. These variables are, first and foremost, change in enrollment and educational attainment, then change in marital status, duration of the place, and educational level. The differences in migration

rates are most notable in the categories of the change in enrollment and educational status variable for both cohorts. Particularly, graduating with a bachelor's or higher degree is associated with the highest migration rate among all the categories of all the variables for both cohorts. To have a bachelor's or higher degree is associated with significantly higher migration rates for both cohorts. The effect of having a bachelor's or higher degree in differentiating migration rates appears to be stronger for the recent cohort than the older one. Getting married is also associated with significantly higher migration rate for both cohorts. Last but not least, duration of residence which measures how long the respondents stay in the place also effectively differentiates migration rates for both cohorts. People who live in the place less than two years have considerably higher migration rates than those who live longer in the place.

**Logistic Regression Analysis**

This part of the analysis investigates the characteristics associated with youth's migration propensity, particularly focusing on the changes in marital status, enrollment and educational attainment, and employment status. In addition, it also explores changes over time in the relationships between these factors and youth's migration propensity across cohorts by comparing the corresponding odds ratios between the two cohorts. Five logistic models are built to explore the answers. The first logistic model includes all the individual characteristics and serves as a baseline model. The next three models add the three change variables, each variable at one model. Specifically, model 2 includes the change in marital status variable. Model 3 includes the change in enrollment and education variable. Model 4 includes the change in employment status variable. The last

model, model 5, includes all of the three change variables. Due to the high correlation between the status variable and change variable, once the change variable is included in the model, the corresponding status variable is dropped from the model. For example, if change in marital status variable is included, the marital status variable is deleted from the model. The same is true for the other change variables.

The baseline model (Table 6) shows the relationship between all the individual characteristics and the odds of migration. There are both continuities and changes in these relationships across cohorts. For youth ages 16 to 25 in this research, the older the respondent, the more likely he or she is to migrate during the interval. It is consistent across the two cohorts. Indeed, descriptive analysis reveals that migration rates increase with age in general among the recent cohort, however, among the older cohort, after age 21, the migration rates of youth start declining gradually. After controlling for other individual characteristics, there is a noticeable change in migration propensity by gender across cohorts. Among the older cohort (NLSY79), young women migrate slightly less than men, but the difference is not statistically significant. However, the young women migrate significantly more than the young men among the recent cohort (odds ratio = 1.089). After controlling all the other individual characteristics, the significantly higher migration propensity among young women than young men still remains in the recent cohort. It further supports hypothesis 5 that gender gap in migration rates between young women and men will shrink in the recent cohort compared to the late baby boom cohort.

With respect to racial/ethnic differences in migration propensity, consistent with previous research, blacks and Hispanics migrate significantly less than whites for both

cohorts. Among the NLSY79 cohort, the odds of migration for blacks and Hispanics are about 70 percent of that of whites. For the recent cohort, the odds of migration rise slightly to about 75 percent for blacks, and slightly decline to 66 percent for Hispanics. The result further supports hypothesis 6 that whites are more likely to migrate than blacks and Hispanics, and this pattern is not likely to change from cohort to cohort.

As to other attributes such as marital status, enrollment status, and employment status, the relationships between these statuses and youth's migration propensity differ across cohorts. One noticeable change is that the effects of these statuses on migration propensity are no longer statistically significant for the recent cohort as they used to for the older cohort, except for never-married status.

Beginning with marital status, for the late baby boom cohort, NLSY79, compared to those married couples (reference group in the parenthesis), those who stay single (never married or separated, divorced, or widowed) have a statistically significant higher migration propensity, with odds ratios being 1.358 for those never married and 1.440 for those separated, divorced, or widowed. The same trend can be noted among the recent cohort, NLSY97, but the odds ratios are not as high as those in the older cohort. In addition, among the recent cohort, those who are never married still have significantly higher migration propensity than those who stay married. However, the effect of becoming separated, divorced, or widowed on youth migration propensity is no longer statistically significant for the recent cohort.

The effect of enrollment status on migration is significantly and positively related to migration propensity in the older cohort, but is no longer significant in the recent

cohort. In the older cohort, those who were not enrolled in schools were less likely to migrate than those who were enrolled in schools, the odds of migration for those not enrolled being about 85 percent of those enrolled. After controlling for marital and employment status, the possible reason for the positive effect of enrollment on youth's migration propensity in the older cohort may lie on the higher proportion of youth at ages to have college education. As revealed in the descriptive section, enrollment in college is much more likely to be associated with migration, whereas enrollment in high school is much less likely to migrate for both cohorts. Since these two cohorts have very different age distribution with the NLSY79 cohort having a larger proportion of youth above 20 years old and, thus, higher enrollment in college, than the NLSY97 cohort, combined with the fact that there were fewer local community colleges for the older cohort to go to than the recent cohort, the effect of enrollment on migration for the NLSY79 cohort is, therefore, more likely to be stronger and positive.

As to employment status, among the NLSY79 cohort, those who are not employed are more likely to migrate than those who are employed (odds ratio = 1.202), but among the NLSY97 cohort, the difference was no longer statistically significant. The examination of the effects of these three types of statuses on youth's migration propensity serves as a baseline for the changes in these statuses in the other models.

**Table 5. Odds Ratios by Individual Characteristics of Youth Migration (Model 1)**

| Independent Variables | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| | O.R. | (95% C.I.) | O.R. | (95% C.I.) |
| *Individual Characteristics* | | | | |
| Age | 1.027 *** | (1.015, 1.040) | 1.085 *** | (1.065, 1.105) |
| Gender | | | | |
| (Male) | | | | |
| Female | 0.959 | (.914, 1.005) | 1.089 ** | (1.028, 1.153) |
| Race/Ethnicity | | | | |
| (White) | | | | |
| Black | 0.701 *** | (.663, .742) | 0.754 *** | (.703, .810) |
| Hispanic | 0.696 *** | (.648, .747) | 0.662 *** | (.611, .719) |
| Marital Status | | | | |
| (Married) | | | | |
| Never-married | 1.358 *** | (1.271, 1.451) | 1.265 *** | (1.140, 1.405) |
| Divorced, widowed, separated | 1.440 *** | (1.291, 1.605) | 1.229 | (.937, 1.610) |
| Enrollment Status | | | | |
| (Enrolled) | | | | |
| Not enrolled | 0.849 *** | (.801, .899) | 1.047 | (.982, 1.115) |
| Education | | | | |
| (Less than high school) | | | | |
| High school graduate | 1.353 *** | (1.275, 1.435) | 1.462 *** | (1.355, 1.578) |
| Associate | 1.279 ** | (1.101, 1.487) | 1.273 | (.984, 1.648) |
| Bachelor or above | 1.553 *** | (1.395, 1.730) | 1.699 *** | (1.464, 1.972) |
| Employment Status | | | | |
| (Employed) | | | | |
| Not employed | 1.202 *** | (1.144, 1.264) | 1.051 | (.987, 1.119) |
| Duration | | | | |
| (0~2 years) | | | | |
| 3~5 years | 0.515 *** | (.486, .545) | 0.424 *** | (.396, .454) |
| 5+ years | 0.256 *** | (.241, .272) | 0.338 *** | (.311, .367) |
| Relation | | | | |
| (Lived with parental figures) | | | | |
| Lived w/out parental figures | 1.363 *** | (1.285, 1.446) | 1.640 *** | (1.531, 1.756) |
| Place of Origin | | | | |
| (Urban) | | | | |
| Rural | 1.180 *** | (1.116, 1.248) | 1.190 *** | (1.112, 1.274) |
| Prison | | | | |
| (Not in prison) | | | | |
| In prison | 3.307 *** | (2.727, 4.012) | 1.716 * | (1.111, 2.650) |
| R-Square | | 0.055 | | 0.048 |
| Max-rescaled R-Square | | 0.101 | | 0.090 |
| df | | 16 | | 16 |
| -2LL | | 49891.044 | | 32957.478 |
| N | | 68475 | | 46777 |

Note: O.R. means odds ratio. Categories in parentheses are reference groups.
* p<0.05, ** p<0.01, *** p<0.001

With respect to education, it is certainly an important indicator of migration propensity and the effects of having a high school and bachelor's degree are increasing across cohorts. A high school or bachelor's degree significantly improve youth's migration propensity for both cohorts. Particularly, people with a bachelor's degree have the highest odds of migration. In addition, the importance of having a bachelor's degree on youth's migration propensity has increased for the recent cohort compared to the older one, with the odds of migration being 1.699 for NLSY97 as opposed to 1.553 for NLSY79. Education, particularly with a bachelor's degree, has become increasingly important on youth migration. Established empirical observation and theoretical deduction on the increasing importance of education on migration are supported by the results. This result supports hypothesis 7 that the importance of education, especially having a bachelor's degree, on migration propensity has increased in the recent cohort compared to the older cohort. However, having an associate degree does not seem to have a significant effect on migration for both cohorts, only a high school and bachelor's degree, especially the latter, have significant effects on migration as suggested by the logistic results.

With regard to other control variables, including duration of the place, relation (whether the respondent is living with any parental figures), rural/urban origin, and whether the respondent is incarcerated, the effects of these variables are statistically significant for both cohorts and the relation of each variable to youth's migration propensity is consistent with previous research findings. Starting with duration of residence variable, it is suggested by the literature as one of the most important indicators

of people's migration behavior (e.g., Lee 2008; Toney 1976). Consistent with previous research, the longer the people stay in the place, the less likely they are to move. The same trend can be observed in both cohorts. For those who live without any parental figures, they are more likely to move than those living with parents or other parental figures. The positive effect of living without parental figures on youth's migration propensity is more influential among the recent cohort than the older one, odds ratio being 1.640 as opposed to 1.363. Place of origin of youth (rural/urban) is also a statistically significant indicator of youth's migration propensity with those from rural areas more likely to migrate than those from urban areas for both cohorts, and the effect is about the same across cohorts. In addition, those who live in prison are far more likely to move than those not. This is because most prisons are located in rural areas (Beale 2001), whereas most prisoners are from poor urban communities (Huling 2002), thus occurs the higher migration rates among the incarcerated population. The effect of being in prison on migration is lessened for the recent cohort (odds ratio = 1.716) compared to the older cohort (odds ratio = 3.307). The effects of these above four control variables on youth's migration propensity are consistent with prior research and show the same pattern in both cohorts.

Table 7, 8, and 9 added one change variable at a time, while at the same time the status variable was dropped from the model. Table 7 added the change in marital variable and dropped the variable on marital status. Table 8 added the change in enrollment and educational attainment variable and dropped the corresponding status variable. And Table

9 added the change in employment status variable and dropped the employment status variable.

Table 10 presents the results of the final model including all the three change variables that capture the likely life events in youth's transition to adulthood. Within cohorts, in general, the effects of changes in statuses on youth's migration propensity are more prominent than those of status variables. Those who have changes in their life stages are usually significantly more likely to migrate than those without having any changes. This result in Table 10 supports hypothesis 8 that change in status variables are more influential predictors of migration propensity than the status variables for both cohorts. The comparison of the effects between change in status variables and status variables will be elaborated in the following paragraphs. Across cohorts, the effects of change in status variables on youth's migration propensity are more moderate among the recent cohort (NLSY97) than those in the baby boom cohort (NLSY79), as reflected on the smaller odds ratios of the same factors in the recent cohort than those in the older one.

Shown in Table 10, results indicate that the changes in marital status, enrollment and educational status, and employment status strongly affect youth's migration propensity for both cohorts. The effects of most of these changes are not only statistically significant, but also notable in their magnitude. The effects of these changes on youth's migration propensity are much greater than those of the status variables if one compares the odds ratios of these change variables with those of corresponding status variables in the baseline model (Table 6).

**Table 6. Odds Ratios by Individual Characteristics and Change in Marital Status of Youth Migration (Model 2)**

| Independent Variables | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| | O.R. | (95% C.I.) | O.R. | (95% C.I.) |
| *Individual Characteristics* | | | | |
| Age | 1.024 *** | (1.011, 1.036) | 1.081 *** | (1.062, 1.101) |
| Gender | | | | |
| (Male) | | | | |
| Female | 0.936 ** | (.893, .982) | 1.072 * | (1.012, 1.136) |
| Race/Ethnicity | | | | |
| (White) | | | | |
| Black | 0.719 *** | (.680, .761) | 0.773 *** | (.719, .830) |
| Hispanic | 0.695 *** | (.647, .746) | 0.661 *** | (.609, .718) |
| Enrollment Status | | | | |
| (Enrolled) | | | | |
| Not enrolled | 0.812 *** | (.767, .860) | 1.028 | (.964, 1.095) |
| Education | | | | |
| (Less than high school) | | | | |
| High school graduate | 1.365 *** | (1.286, 1.448) | 1.466 *** | (1.359, 1.582) |
| Associate | 1.287 ** | (1.107, 1.497) | 1.261 | (.974, 1.634) |
| Bachelor or above | 1.591 *** | (1.428, 1.773) | 1.710 *** | (1.472, 1.985) |
| Employment Status | | | | |
| (Employed) | | | | |
| Not employed | 1.224 *** | (1.164, 1.288) | 1.055 | (.991, 1.123) |
| Duration | | | | |
| (0~2 years) | | | | |
| 3~5 years | 0.516 *** | (.487, .547) | 0.425 *** | (.397, .455) |
| 5+ years | 0.255 *** | (.240, .271) | 0.339 *** | (.312, .369) |
| Relation | | | | |
| (Lived with parental figures) | | | | |
| Lived w/out parental figures | 1.343 *** | (1.267, 1.424) | 1.608 *** | (1.501, 1.723) |
| Place of Origin | | | | |
| (Urban) | | | | |
| Rural | 1.169 *** | (1.105, 1.236) | 1.179 *** | (1.102, 1.262) |
| Prison | | | | |
| (Not in prison) | | | | |
| In prison | 3.323 *** | (2.738, 4.033) | 1.748 * | (1.131, 2.703) |
| *Change in Status Characteristics* | | | | |
| Marital Status | | | | |
| (Stayed married) | | | | |
| Stayed never married | 1.319 *** | (1.23, 1.415) | 1.228 *** | (1.102, 1.369) |
| Stayed separated, divorced, or widowed | 1.514 *** | (1.328, 1.726) | 1.258 | (.917, 1.724) |
| Got married | 2.564 *** | (2.335, 2.816) | 2.293 *** | (1.960, 2.683) |
| Got separated, divorced or widowed | 2.071 *** | (1.826, 2.350) | 1.673 *** | (1.244, 2.249) |
| R-Square | | 0.059 | | 0.050 |
| Max-rescaled R-Square | | 0.109 | | 0.094 |
| df | | 18 | | 18 |
| -2LL | | 49548.719 | | 32865.283 |
| N | | 68475 | | 46777 |

Variables in parentheses indicate reference categories.
* p<0.05, ** p<0.01, *** p<0.001

**Table 7. Odds Ratios by Individual Characteristics and Change in Enrollment and Educational Attainment of Youth Migration (Model 3)**

| Independent Variables | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| | O.R. | (95% C.I.) | O.R. | (95% C.I.) |
| *Individual Characteristics* | | | | |
| Age | 0.969 *** | (.958, .981) | 1.060 *** | (1.041, 1.079) |
| Gender | | | | |
| (Male) | | | | |
| Female | 0.924 ** | (.881, .970) | 1.077 * | (1.016, 1.141) |
| Race/Ethnicity | | | | |
| (White) | | | | |
| Black | 0.732 *** | (.691, .776) | 0.766 *** | (.713, .823) |
| Hispanic | 0.706 *** | (.657, .759) | 0.666 *** | (.613, .723) |
| Marital Status | | | | |
| (Married) | | | | |
| Never-married | 1.270 *** | (1.188, 1.357) | 1.222 *** | (1.100, 1.358) |
| Divorced, widowed, separated | 1.421 *** | (1.274, 1.586) | 1.246 | (.951, 1.634) |
| Employment Status | | | | |
| (Employed) | | | | |
| Not employed | 1.238 *** | (1.177, 1.302) | 1.049 | (.984, 1.117) |
| Duration | | | | |
| (0~2 years) | | | | |
| 3~5 years | 0.424 *** | (.399, .451) | 0.415 *** | (.388, .445) |
| 5+ years | 0.239 *** | (.224, .254) | 0.332 *** | (.306, .361) |
| Relation | | | | |
| (Live with parental figures) | | | | |
| Live w/out parental figures | 1.271 *** | (1.198, 1.348) | 1.613 *** | (1.506, 1.728) |
| Place of Origin | | | | |
| (Urban) | | | | |
| Rural | 1.195 *** | (1.129, 1.264) | 1.203 *** | (1.124, 1.288) |
| Prison | | | | |
| (Not in prison) | | | | |
| In prison | 2.923 *** | (2.405, 3.553) | 1.595 * | (1.034, 2.460) |
| *Change in Status Characteristics* | | | | |
| Enrollment Status | | | | |
| (Stayed not enrolled, HS) | | | | |
| Stayed not enrolled, <HS | 0.884 *** | (.824, .949) | 0.936 | (.847, 1.035) |
| Stayed not enrolled, Associate | 0.981 | (.811, 1.187) | 0.935 | (.717, 1.220) |
| Stayed not enrolled, BA or above | 1.208 ** | (1.077, 1.354) | 1.366 *** | (1.176, 1.586) |
| Stayed enrolled in HS | 0.134 *** | (.112, .159) | 0.283 *** | (.232, .344) |
| Stayed enrolled in college | 0.925 | (.853, 1.003) | 0.917 * | (.843, .997) |
| Got enrolled in HS | 0.962 | (.641, 1.442) | 0.808 | (.524, 1.247) |
| Got enrolled in college | 1.835 *** | (1.672, 2.014) | 0.700 *** | (.623, .787) |
| Dropped out of HS | 0.698 *** | (.570, .856) | 0.858 | (.687, 1.072) |
| Dropped out of college | 1.800 *** | (1.616, 2.005) | 1.365 *** | (1.197, 1.558) |
| Graduated w/ HS degree (not enrolled) | 0.821 ** | (.717, .939) | 0.819 ** | (.715, .938) |
| Graduated w/ Associate degree (not enrolled) | 1.837 *** | (1.428, 2.362) | 1.675 *** | (1.256, 2.233) |
| Graduated w/ BA or above degree (not enrolled) | 4.266 *** | (3.749, 4.854) | 2.822 *** | (2.442, 3.260) |
| R-Square | | 0.076 | | 0.055 |
| Max-rescaled R-Square | | 0.140 | | 0.104 |
| df | | 24 | | 24 |
| -2LL | | 48310.347 | | 32591.572 |
| N | | 68475 | | 46777 |

Variables in parentheses indicate reference categories.
* p<0.05, ** p<0.01, *** p<0.001

**Table 8. Odds Ratios by Individual Characteristics and Change in Employment Status of Youth Migration (Model 4)**

| Independent Variables | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| | O.R. | (95% C.I.) | O.R. | (95% C.I.) |
| *Individual Characteristics* | | | | |
| Age | 1.032 *** | (1.020, 1.044) | 1.087 *** | (1.068, 1.107) |
| Gender | | | | |
| (Male) | | | | |
| Female | 0.951 * | (.907, .998) | 1.076 * | (1.015, 1.140) |
| Race/Ethnicity | | | | |
| (White) | | | | |
| Black | 0.695 *** | (.656, .735) | 0.733 *** | (.683, .787) |
| Hispanic | 0.694 *** | (.647, .745) | 0.656 *** | (.604, .712) |
| Marital Status | | | | |
| (Married) | | | | |
| Never-married | 1.362 *** | (1.275, 1.456) | 1.275 *** | (1.149, 1.416) |
| Divorced, widowed, separated | 1.430 *** | (1.282, 1.595) | 1.215 | (.926, 1.593) |
| Enrollment Status | | | | |
| (Enrolled) | | | | |
| Not enrolled | 0.864 *** | (.816, .915) | 1.041 | (.977, 1.110) |
| Education | | | | |
| (Less than high school) | | | | |
| High school graduate | 1.365 *** | (1.286, 1.449) | 1.504 *** | (1.394, 1.624) |
| Associate | 1.335 *** | (1.148, 1.553) | 1.356 * | (1.047, 1.756) |
| Bachelor or above | 1.651 *** | (1.481, 1.841) | 1.787 *** | (1.538, 2.076) |
| Duration | | | | |
| (0~2 years) | | | | |
| 3~5 years | 0.513 *** | (.484, .543) | 0.426 *** | (.398, .456) |
| 5+ years | 0.257 *** | (.242, .274) | 0.339 *** | (.312, .369) |
| Relation | | | | |
| (Live with parental figures) | | | | |
| Live w/out parental figures | 1.371 *** | (1.292, 1.454) | 1.651 *** | (1.542, 1.769) |
| Place of Origin | | | | |
| (Urban) | | | | |
| Rural | 1.187 *** | (1.123, 1.255) | 1.197 *** | (1.119, 1.281) |
| Prison | | | | |
| (Not in prison) | | | | |
| In prison | 3.356 *** | (2.765, 4.073) | 1.628 * | (1.053, 2.518) |
| *Change in Status Characteristics* | | | | |
| Employment Status | | | | |
| (Stayed employed) | | | | |
| Stayed not employed | 1.231 *** | (1.156, 1.311) | 1.200 *** | (1.100, 1.308) |
| Employed to not employed | 1.954 *** | (1.818, 2.100) | 1.452 *** | (1.339, 1.574) |
| Not employed to employed | 1.685 *** | (1.577, 1.801) | 1.101 * | (1.013, 1.196) |
| R-Square | | 0.060 | | 0.049 |
| Max-rescaled R-Square | | 0.110 | | 0.093 |
| df | | 18 | | 18 |
| -2LL | | 49503.722 | | 32877.541 |
| N | | 68475 | | 46777 |

Variables in parentheses indicate reference categories.
* p<0.05, ** p<0.01, *** p<0.001

**Table 9. Odds Ratios by Individual and Change Characteristics of Youth Migration (Model 5)**

| Independent Variables | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| | O.R. | (95% C.I.) | O.R. | (95% C.I.) |
| *Individual Characteristics* | | | | |
| Age | 0.973 *** | (.961, .985) | 1.060 *** | (1.041, 1.079) |
| Gender | | | | |
| (Male) | | | | |
| Female | 0.892 *** | (.849, .937) | 1.047 | (.988, 1.110) |
| Race/Ethnicity | | | | |
| (White) | | | | |
| Black | 0.738 *** | (.697, .782) | 0.764 *** | (.711, .822) |
| Hispanic | 0.704 *** | (.655, .756) | 0.660 *** | (.608, .717) |
| Duration | | | | |
| (0~2 years) | | | | |
| 3~5 years | 0.428 *** | (.403, .455) | 0.418 *** | (.391, .448) |
| 5+ years | 0.240 *** | (.226, .255) | 0.335 *** | (.308, .364) |
| Relation | | | | |
| (Lived with parental figures) | | | | |
| Lived w/out parental figures | 1.268 *** | (1.196, 1.345) | 1.597 *** | (1.491, 1.712) |
| Place of Origin | | | | |
| (Urban) | | | | |
| Rural | 1.189 *** | (1.123, 1.259) | 1.200 *** | (1.12, 1.285) |
| Prison | | | | |
| (Not in prison) | | | | |
| In prison | 2.940 *** | (2.417, 3.577) | 1.548 * | (1.002, 2.392) |
| *Change in Status Characteristics* | | | | |
| Marital Status | | | | |
| (Stayed married) | | | | |
| Stayed never married | 1.255 *** | (1.169, 1.348) | 1.199 ** | (1.074, 1.337) |
| Stayed separated, divorced, or widowed | 1.487 *** | (1.303, 1.697) | 1.256 | (.915, 1.723) |
| Got married | 2.333 *** | (2.120, 2.567) | 2.172 *** | (1.854, 2.543) |
| Got separated, divorced or widowed | 1.995 *** | (1.756, 2.266) | 1.668 *** | (1.239, 2.245) |
| Enrollment Status | | | | |
| (Stayed not enrolled, HS) | | | | |
| Stayed not enrolled, <HS | 0.851 *** | (.793, .915) | 0.907 | (.820, 1.004) |
| Stayed not enrolled, Associate | 1.022 | (.844, 1.238) | 0.951 | (.728, 1.243) |
| Stayed not enrolled, BA or above | 1.310 *** | (1.168, 1.471) | 1.422 *** | (1.223, 1.652) |
| Stayed enrolled in HS | 0.142 *** | (.119, .169) | 0.284 *** | (.233, .347) |
| Stayed enrolled in college | 0.957 | (.882, 1.039) | 0.946 | (.869, 1.029) |
| Got enrolled in HS | 1.005 | (.670, 1.506) | 0.785 | (.508, 1.212) |
| Got enrolled in college | 1.828 *** | (1.663, 2.009) | 0.715 *** | (.635, .804) |
| Dropped out of HS | 0.668 *** | (.544, .820) | 0.836 | (.669, 1.045) |
| Dropped out of college | 1.803 *** | (1.617, 2.010) | 1.383 *** | (1.212, 1.578) |
| Graduated w/ HS degree (not enrolled) | 0.803 ** | (.701, .919) | 0.817 ** | (.714, .936) |
| Graduated w/ Associate degree (not enrolled) | 1.834 *** | (1.423, 2.362) | 1.713 *** | (1.283, 2.286) |
| Graduated w/ BA or above degree (not enrolled) | 4.325 *** | (3.796, 4.929) | 2.849 *** | (2.465, 3.293) |
| Employment Status | | | | |
| (Stayed employed) | | | | |
| Stayed not employed | 1.361 *** | (1.276, 1.452) | 1.193 *** | (1.093, 1.302) |
| Employed to not employed | 1.918 *** | (1.782, 2.065) | 1.421 *** | (1.309, 1.542) |
| Not employed to employed | 1.634 *** | (1.526, 1.749) | 1.104 * | (1.015, 1.200) |
| R-Square | | 0.084 | | 0.058 |
| Max-rescaled R-Square | | 0.155 | | 0.110 |
| df | | 28 | | 28 |
| -2LL | | 47702.694 | | 32436.984 |
| N | | 68475 | | 46777 |

Note: O.R. means odds ratio. Categories in parentheses are reference groups.
* p<0.05, ** p<0.01, *** p<0.001

Beginning with changes in marital status, first for the NLSY79 cohort, results show that although staying single (never married) is positively associated with migration propensity of youth (odds ratio = 1.255), getting married or becoming separated, divorced, or widowed is even more effectively associated with migrate, with odds ratio of 2.333 for the former and 1.995 for the latter. The higher migration propensity for those getting married and becoming separated, divorced, or widowed continue for the recent cohort (NLSY97), but with slightly weakened effects on migration propensity. This result supports hypothesis 9 that those who become separated, divorced, or widowed are more likely to migrate compared to those who stay married for both cohorts, but the effect of becoming separated, divorced, or widowed on migration propensity is weakened in the recent cohort than in the older cohort. Furthermore, compared to those who stay married, those who stay separated, divorced, or widowed are no longer more likely to migrate in the recent cohort as in the older cohort. It may be due to the fact that such events as getting separated and divorced are more common and socially acceptable among the younger generation, and that people experiencing these changes have developed better coping strategies to stay where they are rather than to move to somewhere else, usually moving back to live with their parents or relatives. In addition, with the increasing labor force participation rates among women, it is not necessary or even more difficult to move back to live with their parents after divorce. However, the reason(s) for this reduced effect of becoming separated, divorced, or widowed on youth's migration propensity need to be further explored in the future research. The positive effects of being single (never married) and getting married, particular the latter, on youth's migration propensity

are found consistently in the recent cohort, but the strength of these effects are relatively smaller in the recent cohort than those in the older one.

Comparatively, among all the changes, changes in enrollment and educational attainment have the strongest effects on youth's migration propensity. First look at the NLSY79 cohort. Among all the changes in enrollment and educational attainment, graduating with a bachelor's or higher degree has the strongest effects on youth's migration propensity, with the odds ratio as high as 4.325, compared to staying not enrolled with high school education. Graduating with an associate degree has the second strongest effect on migration propensity, with the odds ratio being 1.834. Going to college is another strong indicator of youth migration, with those going to college having 1.828 times odds of migration as other high school graduates. Other college experience such as dropping out of college is also strongly related to youth's migration propensity, with the odds ratio of migration being 1.803. As to those without changes in enrollment or educational attainment, those not enrolled with a bachelor's or higher degree are the likeliest to migrate (odds ratio = 1.310). From the above analysis, it is clear that, for the NLSY79 cohort, anything related to college experiences has significantly strong effects on youth's migration propensity. These college experiences includes, in the order of the effect on migration propensity, graduating with a bachelor's degree, graduating with an associate's degree, going to college, dropping out of college, and not enrolled but with a bachelor's degree.

There are two notable changes in the recent cohort compared to the older one in the effects of changes in enrollment and educational attainment on youth's migration

propensity: the first is the decline in the magnitude of these effects, and the second is that for the recent cohort, to have a bachelor's degree is more effectively related to youth's migration propensity than to only have the college experiences such as going to college, or dropping out of college as it is the case for the older cohort. Though the effect is not as strong as it used to, graduating with a bachelor's or higher degree is still the most important event associated with youth's migration propensity, with odds ratio being the highest (odds ratio = 2.849). Graduating with an associate degree is the second most important change related to migration propensity for the recent cohort, which is the same for the older cohort, odds ratio being 1.713 in the recent cohort. Staying not enrolled, but with a bachelor's or higher degree, has become more important in the recent cohort, and the importance is just next to graduating with a college degree. The odds ratio of staying not enrolled and having a bachelor's degree on migration propensity has increased from 1.310 in the older cohort to 1.422 in the recent cohort.

One important change between the two cohorts is in the declining effect of going to college on migration propensity. In the recent cohort, those who go to college do not migrate more than other high school graduates. The odds ratio of going to college on migration propensity is only 0.715, significantly lower than that of staying not enrolled with a high school degree. This result does not support hypothesis 10 that assumes that those who go to college are more likely to migrate than other high school graduates for both cohorts, but the effect of going to college on migration propensity is weakened in the recent cohort than in the older cohort. The effect of going to college on migration propensity is, indeed, weakened across cohorts, but those who go to college are not more

likely to migrate than other high school graduates in the recent cohort. What matters more for the younger generation on the likelihood of migration is to have higher educational attainment, especially a bachelor's degree.

This changing importance of college experiences in the recent cohort such as going to college on youth's migration propensity is, at least partly, related to the great expansion of community colleges since mid 1970s and much more pervasive access to community colleges for the recent cohort (Leigh and Gill 2003, 2004; Walker 2008; Rouse 1995). In the meanwhile, the increasing importance of having a bachelor's degree on migration propensity in the recent cohort may be due to the increasing demand of highly educated and skilled employees in the New Economy (Alcaly 2003; Domina 2006).

With respect to changes in employment status, relatively smaller effects of changes in employment status on migration propensity are observed across cohorts. Starting with the older cohort, losing a job (from employed to not employed) and getting a job (from not employed to employed) are both positively associated with the odds of migration, with the former event having stronger effect on youth's migration propensity. Those who lost a job (from employed to not employed) have higher odds of migration (odds ratio = 1.918) than those who stay employed. For those without any change in employment status, those that are not employed are significantly more likely to migrate than those that are employed (odds ratio = 1.361) in the older cohort. In the recent cohort, not only the effects of changes in employment status on migration propensity are weakened compared to those in the older cohort, the effect of getting a job on migration

propensity is even smaller than staying not employed, even though those who get a job are still more likely to migrate than those who stay employed (odds ratio = 1.104).

**Summary**

The results show some important changes in youth migration experiences over the past decades in the United States. They support the six hypotheses on the comparison of youth migration patterns between the baby boom generation and the younger generation that was born in the early 1980s. Specifically, these comparisons are focused on differential or similar migration patterns by age, gender, and race/ethnicity. Supporting hypothesis 1 that youth in the recent cohort will have higher level of migration rates than youth in the older cohort and hypothesis 2 that youth in the recent cohort will delay migration compared to youth in the older cohort, the recent cohort shows a postponed but stronger migration momentum compared to the late baby boom cohort. The migration rates in the recent cohort are significantly lower in their late teen ages than the older cohort, but gradually they pick up the momentum, and after age 22, the youth in the recent cohort start having higher migration rates than the older cohort, and the gap in migration rates between the two cohorts increases with age.

Broken down by gender, the results also support the three hypotheses related to changing migration pattern by gender. Resembling the general migration pattern, women in the recent cohort also show a delayed but stronger migration momentum after age 22, which supports the hypotheses 3 and 4, for hypothesis 3 assumes that women in the recent cohort will have higher level of migration rates than women in the older cohort, and hypothesis 4 assumes that women in the recent cohort will delay migration compared

to those in the older cohort. As to the gender gap in migration rates, in the older cohort, women have similar or slightly lower migration rates than men (not statistically significant), but in the recent cohort, the trend reversed with women having higher migration rates at all ages except age 24. The results from logistic regression also support the descriptive results that young women in the recent cohort have significantly higher migration propensity than young men, whereas in the older cohort, the difference in migration propensity between young men and young women is not statistically significant. Therefore, the results support hypothesis 5 that gender gap in migration rates between young women and men will shrink in the recent cohort compared to the late baby boom cohort.

The hypothesis 6 related to the consistent migration patterns by race/ethnicity across cohorts is supported by the results that whites have much higher migration rates than the other minority groups, followed by blacks, and Hispanics have the lowest migration rates. This pattern exists in both cohorts. After controlling for other individual characteristics in logistic models, this pattern is robust in all the models. Therefore, the six hypotheses on the comparison of youth migration patterns across cohorts are supported by the results in this research.

One important finding in the research is the increasing importance of education on migration propensity, which supports hypothesis 7 that the importance of education, especially having a bachelor's degree, on migration propensity has increased in the recent cohort compared to the older cohort. This increasing importance of education on

migration propensity is in accordance with the increasing demand of more skilled and educated employees in the New Economy.

The second focus of the research is the relationships between the important life events in transition to adulthood and youth's migration propensity, and how the relationships have evolved across cohorts. From the life cycle change perspective, life course changes in marital status, enrollment and educational attainment, and employment status are significantly related to youth's migration propensity for both cohorts. The effects of these change variables on migration propensity are much stronger than the corresponding status variables for both cohorts, which supports hypothesis 8 that change in status variables are more influential predictors of migration propensity than the status variables for both cohorts. These life events that are influential on migration propensity include getting married, becoming separated, divorced, or widowed, graduating with a college degree, especially a bachelor's degree, dropping out of college, getting a job and losing a job.

Even though results support that changes in statuses are important indicators of migration propensity, changes in the effects of these variables are observed. One important finding is that the effect of becoming separated, divorced, or widowed on migration propensity is weakened in the recent cohort compared to the older cohort, which supports hypothesis 9. In addition, for the recent cohort, staying separated, divorced, or widowed is no longer statistically significantly related to higher migration propensity compared with staying married. The reasons for this weakened effect of becoming separated, divorced, or widowed on youth's migration propensity may be due

to the increasing divorce rates over time (McLanahan and Percheski 2008; Morgan et al. 2006). People, therefore, have gradually developed strategies to cope with such change in life other than moving back to the place with their parents or relatives.

The change variable in enrollment and educational attainment is the most important change variable for the likelihood of youth migration, and the effects of these changes on youth's migration propensity are statistically significant for both cohorts. Graduating with a college degree, especially a bachelor's degree, is the most important event on youth's migration propensity for both cohorts. One important change across cohorts is that going to college does not necessarily mean higher migration propensity compared to other high school graduates in the recent cohort as in the older cohort. Therefore, hypothesis 10 is not fully supported by the results, which assumes that those who go to college are more likely to migrate than other high school graduates for both cohorts, but the effect of going to college on migration propensity is weakened in the recent cohort than in the older cohort. Actually for the recent cohort, those who go to college have significantly lower migration propensity than other high school graduates (odds ratio = 0.715).

Generally speaking, for the older cohort, many college experiences are strongly associated with migration, which includes going to college, dropping out of college, graduating with an associate's or a bachelor's or higher degree, and holding these college degrees. However, for the recent cohort, the relative importance of these college experiences has overall reduced. Educational attainment, not college experiences,

becomes a more important indicator of migration propensity for the recent cohort than for the older cohort.

Changes in employment status have the mildest effects on migration among all the three change variables. Losing a job is related to higher migration propensity than getting a job for both cohorts. The decrease in the effect of losing a job on migration propensity in the recent cohort is such that the effect of losing a job on migration propensity is even smaller than that of staying not employed. This observation is important because this change in employment status does not have much effect on migration propensity, the effect of getting a job even lower than staying not employed on migration propensity. This is a notable finding, and the reasons for it need further research.

Overall, the analyses reveal that at least two themes stand out in this research. First, both changes and continuities exist in youth migration patterns across cohorts. Some important changes in youth migration patterns by age and gender are observed across cohorts. The broad stroke of migration patterns by race/ethnicity examined in this research shows a hierarchical consistency in the migration rates among whites, blacks, and Hispanics over time. Another theme revealed in this research is the importance of studying the effects of life events on migration propensity in the research of youth migration. The likely life events in youth's transition to adulthood help better understand youth's migration motivations and provide the necessary context of the individuals within which youth's migration decisions are made.

# CHAPTER V

# DISCUSSION AND CONCLUSION

## Major Findings of the Research

This dissertation has two foci proposed at the beginning of the first chapter. The first part of the research is to answer the following questions. Do youth born in different cohorts migrate differently? Specifically, do youth show different migration patterns in the late 1990s and early 2000s from those in the late 1970s and early 1980s? If yes, what are those patterns? Results show both changes and similarities in migration patterns across cohorts.

Youth migration patterns change from the older cohort (NLSY79) to the recent cohort (NLSY97) by age and gender. By comparing the age pattern of youth migration between age 16 and 25, I found that the recent generation had a delayed but stronger migration momentum compared to the late baby boom generation. Instead of having the migration peak at early ages of 18 and 21 as it is in the older cohort, the recent cohort reaches the migration peak at age 22. Furthermore, from age 22, the migration rates do not decline quickly as they do in the older cohort. Instead, the migration rates show a climbing trend after age 23, and migration rate at age 25 (the upper age limit in the research) reaches a new peak, which is only slightly lower than the first peak at age 22. Compared to the older cohort, the recent cohort has lower migration rates in late teen ages and early 20s, but starting at age 22, the recent cohort begins to have higher migration rates than the older cohort, and the migration rates reach a new level that had not been seen in the older cohort.

The reasons for this delayed but stronger migration momentum in the recent cohort could be multidimensional. At the macro level, the economic situations that these two cohorts experienced were quite different. In the late 1970s and early 1980s, the time that the migration experiences of the older cohort was sampled for this research, the U.S. economy was still in a recession due to the oil-price shock in 1973 and the energy crisis in 1979 (Greenwood 1981). The unemployment rates were above 6 percent on average during the time (U.S. Bureau of the Census 2007e). Comparatively, in the late 1990s and early 2000, the time in which the recent cohort had its migration experience examined, the U.S. economy witnessed a robust economic growth largely driven by information technology sector occurring in the latter half of 1990s (Alcaly 2003). Accompanying the strong economy was a tight labor market with an average unemployment rate dropping to 4.9 percent (Tolbert et al. 2006). Empirical evidence indicates a positive relationship between migration rates and economic conditions. People tend to migrate more during periods of economic boom and less during recessionary periods (Greenwood 1981; Milne 1993). Therefore, the significantly higher migration level among the members of the recent cohort from age 22 to 25 may be partly due to the more favorable economic situation.

Other than the more favorable economic situations for the recent cohort, the changing cohort norms and behaviors could also contribute to the delayed but stronger migration momentum occurring in the recent cohort. Coinciding with this delayed but stronger migration momentum in the recent cohort was an emergence of delayed marriage, delayed and diminished childbearing, increasing divorce rates, and increasing

educational attainment and labor force participation, especially for women (Downs 2003; McLanahan and Percheski 2008; Morgan et al. 2006; Mosisa and Hipple 2006; Schoen and Standish 2001). Most of these changes may have positive influences on youth migration propensities. Together, they may produce profound and compound effects on the timing and strength of migration momentum. For example, prolonged formal education among the recent cohort keep individuals at school, which may reduce their migration propensity, especially considering the more pervasive access to community colleges for the recent cohort compared to the older cohort. According to the results of this research, graduating with a college degree is the most powerful indicator of youth migration. The peak of migration rates at age 22 in the recent cohort coincides with the timing of college graduation. Delayed marriage coincides with the delay of migration momentum. Also more people become separated or divorced due to increased divorce rates, which increases the incidence of migration, since the results, in accordance with prior literature, show that people who become separated, divorced, or widowed are more likely to migrate than those who stay married.

Besides the changing age pattern of migration, another notable change is in women's increasing migration rates and gender difference in migration patterns across cohorts. The change in women's migration pattern is similar to that in general migration. That is, women in the recent cohort are having a postponed but stronger migration momentum. In other word, the change in general migration pattern is largely attributed by that in women's migration pattern.

Gender difference in migration rates has been reversed across cohorts, with women having higher migration rates than men in the recent cohort. Compared to young men, young women had similar or slightly lower migration rates in the older cohort, whereas in the recent cohort, young women had higher migration rates at almost all ages except age 24. The difference in the overall migration rate between young women and young men is also found to be statistically significant (two-tailed test). Young women's higher migration propensity than young men is further supported by the logistic results after controlling for many other individual characteristics.

The more rapidly increasing educational attainment of women compared to men may partly explain the changing migration pattern by gender. Statistics show that higher proportion of women than men are college graduate in 2006, 32.70 percent versus 27.10 percent (U.S. Bureau of the Census 2007h). In addition, the results show that graduating with a college degree is the most important indicator of youth's migration propensity. Therefore, women's higher educational level attributes to their increasing migration propensity. Furthermore, people's growing educational investments have also stimulated their participation in the labor force with the former positively influencing the latter (Van der Lippe 2001). The inducement of "college premium" in the metropolitan areas attract more college graduates, especially those from rural areas, to migrate to metropolitan areas to take advantage of the higher returns to their education and skills (Card and Lemieux 2001; Light and Strayer 2004). Besides the increasing educational attainment and labor force participation, other factors such as changing gender roles and changing behaviors in family formation could also play a role in this changing migration patterns

between men and women. More research is needed to explain the changing migration patterns by gender.

The general migration pattern by race/ethnicity stays consistent across cohorts. Whites have considerably higher migration rates than blacks and Hispanics for both of the cohorts. This pattern is also consistent with previous findings in the literature (Lee 2008; Saenz and Morales 2006; Tolnay et al. 2000; Wilson 2005;).

The results of this research support the life cycle change perspective on migration. Life cycle change perspective argues that an individual's life cycle not only directly affects the likelihood of migration, but also provides a context within which the motives to migrate are adjusted and acted upon (Detang-Dessendre et al. 2002; Long 1992; Pandit 1997; Sandefur 1985). The variation in an individual's migration propensity is closely related to the life cycle stages that are usually defined by specific life events. Life cycle change perspective argues that the major events work over and above age so that people tend to migrate more at certain points in the life cycle than others (Detang-Dessendre et al. 2002; Sandefur 1985). The transition to young adulthood is a special life cycle stage in which young people acquire many social roles simultaneously by experiencing important life cycle changes such as going to college, graduating with a college degree, getting a full-time job, getting married and having children. If supported empirically, the events likely occurring in youth's transition to young adulthood such as involvement in full-time education, labor force activity, and marital status would be significantly associated with higher likelihood of migration.

The present study supports life cycle change perspective, showing strong effects of these life events in youth's transition to young adulthood on their likelihood of migration. The direction (positive or negative) of the influences of these events on youth's migration propensity is mostly consistent in these two cohorts. However, the magnitude of the effects of these events on youth's migration propensity has been weakened in the recent cohort compared to that in the older cohort. The events that are significantly associated with higher migration propensity for both cohorts include graduating with a college degree (associate or bachelor), dropping out of college, getting married, becoming separated, divorced, or widowed, or getting or losing a job. Particularly, graduating with a bachelor's or higher degree is most strongly associated with youth's migration propensity, with considerable higher odds of migration than all the other events, which is consistent for both cohorts. These results strongly support the arguments from the life cycle change perspective on migration that life events are strongly related to the likelihood of youth migration.

Some changes in the relative importance of several events on youth's migration propensity across cohorts are observed. First and foremost is the decrease in the magnitude of the effects of these life events on youth's migration propensity. The effects of these life events on youth's migration propensity are no longer as strong as they used to, reflected in the decreased size of the odds ratios of the same factors in the recent cohort compared to that in the older cohort.

Like other life events, becoming separated, divorced, or widowed has decreased effect on youth's migration propensity in the recent cohort compared to that in the older

cohort. In addition, people who stay separated, divorced, or widowed no longer have higher migration propensity than those who stay married in the recent cohort. The possible explanations for the declining effect of becoming and staying separated, divorced, or widowed on youth's migration propensity may lie in the increasing divorce rates over the past decades and the increasing labor force participation among married women (McLanahan and Percheski 2008; Morgan et al. 2006; Mosisa and Hipple 2006; Shanahan 2000; Sweeney 2002). The increasing divorce rates, as previously mentioned, may have changed people's perception of marriage and gender roles, which may help people develop better strategies to cope with separation or divorce without having to move back with their families. The involvement in the local labor market of married women makes it harder or unnecessary for them and their dependents to move to another place after the marriage is dissolved. Further research is needed to support this result in other contexts and with other samples and explore the mechanisms behind it.

More changes across cohorts occur in the effects of the changes in enrollment and educational attainment on youth's migration propensity. Like changes in marital status, the effects of the events such as going to college, dropping out of college, and graduating with a college degree on youth's migration propensity have also greatly declined in the recent cohort compared to those in the older cohort. One most notable change is the changing importance of going to college on youth's migration propensity. Compared to other high school graduates, those who go to college are much more likely to migrate among the late baby boom cohort (odds ratio = 1.828). However, among the recent cohort, those who go to college are significantly less likely to migrate than other high school

graduates (odds ratio = 0.715). This drastic decline in the effects of going to college on youth's migration propensity may be attributed to the great expansion of community colleges over the past decades (Leigh and Gill 2003, 2004; Rouse 1995; Walker 2008). Youth today do not have to migrate to go to college as they used to because of the availability of the local community colleges. Actually going to college today is associated with less migration propensity than other choices after high school, such as full-time employment.

As to the changes in employment status, losing a job is associated with the highest migration propensity for both cohorts. The effect of getting a job on migration propensity has declined to the extent that the effect is even smaller than that of staying not employed on migration propensity in the recent cohort. The drop in the effect of getting a job on youth's migration propensity and the continuous greater effect of losing a job on migration propensity need more explanations in the future research

Besides the life cycle change perspective, neoclassical economic theory also helps to understand youth's migration patterns and it is supported empirically by the results of this research. Economic theory argues that youth in their transition to adulthood are more motivated by occupational aspiration (Detang-Dessendre et al. 2002; Sandefur 1985). According to the microlevel of the theory, also known as human capital theory of migration, rational actors migrate with the attempt to maximize the anticipated returns on their investments in education and training (Sjaastad 1962). Consistent with previous research, results of this research show that in general higher educated people are more likely to migrate than those less educated (Bowles 1970; Domina 2006; Mills and

Hazarika 2001). This relationship is even more strengthened in the recent cohort than in the older cohort. With the increasing economic returns to higher education since the 1990s, the effect of having a bachelor's degree on the likelihood of migration increases over time. Moreover, people with less than high school education are even less likely to migrate across cohorts. Furthermore, the theory is also supported by the higher migration propensity of youth from rural areas than urban areas for both cohorts since the economic return is greater in urban area than rural areas, which is also consistent with previous research (Borjas et al. 1990; Domina 2006; Johnson and Fuguitt 2000; Mills and Hazarika 2001).

**Limitations of the Research**

While this analysis improves our understanding of recent changes in youth migration patterns and motivations, it suffers from a number of limitations that future research should address. For example, this analysis has focused on life events in youth's transition to young adulthood that are measured by three change-in-status variables; little attention is paid to community context of both places of origin and destination. The specific push and pull factors in the place of origin compared to those of destination could establish a larger social and economic context within which youth's migration behaviors are initiated.

Another limitation of the research is that this analysis does not take advantage of the full wealth of information available from each individual data sources. Since I have focused on historical change, which requires the construction of identical variables across cohorts, I could only use the information that is available for both cohorts. For example,

NLSY79 provides enough information for duration of current residence since birth, but NLSY97 does not have comparable information. Thus, the creation of duration of residence is only counted from age 14. Even though, there is not complete information for everyone in the NLSY97 cohort. The duration of residence for some cases may be underestimated due to the lack of information.

More importantly in methodology, I have examined the youth migration experiences without distinguishing the first migration experience and the following ones as if they are all the same. DaVanzo and Morrison (1981) argue that repeat migration is different from people's primary migration in many aspects. They further distinguish repeat migration into onward and return migration. Onward migration refers to moving to a new place other than any prior residence and return migration refers to moving to a prior residence. The characteristics of the migrants and the motivations for migration could be quite different in these two migration types. This study, therefore, can be considered as the first step of understanding the general migration patterns of youth. More refined research on differential migration experiences is needed in the future.

In addition, I have employed person-years to track the time-varying variables for each interview instead of using individuals to be the units of analysis in this research, but I have not addressed the issue of autocorrelations among person-years within individuals. As discussed in the method chapter, future research can incorporate hierarchical generalized linear model (HGLM) as a way to address the issue of autocorrelations among person-years within individuals.

**Implications of the Research**

Despite the limitations mentioned above, the results presented here clearly show some important changes in youth migration patterns across cohorts. New youth migration trends are emerging which reflect and are also shaped by other social and economic changes. A delay of youth's migration momentum might reflect their delay of marriage and prolonged education at school. This is because getting married is associated with higher likelihood of migration and enrollment at school is usually not compatible with marriage formation. Moreover, the increasing growth of community colleges reduces the likelihood of migration of college students. After having a bachelor's degree at about age 22, they start picking up the momentum until age 25 as the upper age limit in this research. At what age will this momentum come to an end is not known in this research because the youth in the recent cohort are not old enough. Current results show that youth today migrate more than before in their mid-20s, but not in their late teens. This change is also closely related to the increasing economic returns to higher education. Migration is usually employed as a means of achieving better economic returns to their education. Compared to the late baby boom generation, youth with a bachelor's degree are more likely to migrate than before. In addition, youth with less than high school education are less likely to migrate than before, which, in part, explains the changing migration momentum of youth over time.

The changing migration pattern by gender with women more likely to migrate than men is also intertwined with other social and economic changes. Delayed marriage and childbearing and increasing equality of gender roles allow women to achieve higher

education than before. Indeed, higher proportion of women today have bachelor's degree than that of men (Snyder et al. 2007). As previously explained, higher educated people are more likely to migrate, particularly for those with bachelor's degree. Women's higher migration propensity in the recent cohort can be partly explained by the life events that occur in their transition to young adulthood. Compared to the baseline model in Table 6, gender difference in migration propensity in the final model (Table 10) is no longer statistically significant, which means by adding the life events into the model, the gender difference in migration propensity disappears. In other words, life events, such as changes in marital status, enrollment and education, and employment status, help to explain the gender difference in migration propensity. Only after adding all the changes in these three statuses, the gender differences disappear, which means all these changes help explain the gender difference in migration propensity.

Moreover, the increasing labor force participation of women, especially married women, has several implications to their migration propensity. Single women are found to be more likely to migrate to metropolitan areas with more job opportunities (White et al. 2005). For married women, especially with higher education, when both of the couple has to work, they are probably more likely to migrate to the areas that can accommodate the needs of both of the couple. This decision may be made when they get married. In addition, the increasing labor force participation of married women might also reduce the likelihood of migration after the marriage is dissolved.

The similar migration patterns by other characteristics across cohorts also inspire reflections. As to the relatively unchanging migration pattern by race/ethnicity, does it

mean that the significant differences among whites, blacks, and Hispanics that attribute to differential migration patterns by race/ethnicity unchanged over time? People from rural areas are still more likely to migrate from their original place. Rural areas with loss of young people, especially the educated ones, need to devise strategies to attract young people to stay or to move in. Since events such as graduating with a degree or getting married are associated with considerably high migration propensity, places intending to attract young people could put priority on people experiencing such events in life and accommodate their needs. Furthermore, special attention should be paid to accommodate the needs of those new comers who have been in the place less than two years, because they are the ones that are much more likely to migrate than others.

**Future Research**

This research serves as a starting point of a systematic historical comparison of youth migration experiences. More work needs to be done to further explore the mechanisms of the changes in migration patterns by age and gender found in this research. Moreover, migration can be a repeated experience for many people. A next step of the research should separate migration into primary and repeat migration, within the latter, onward migration (to a new place) and return migration (to a prior place) could be further segregated. Such research will provide a more nuanced picture of migration patterns and expand our understanding of complete migration experiences. In addition, the context of both places of origin and destination could be included in the model to understand the push and pull factors in a larger scale. Methodologically, hierarchical generalized linear

model can be introduced to solve the problem of autocorrelation of the person-years within individuals.

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# Appendix  Hierarchical Generalized Linear Model

**Table 11. Odds Ratios by Individual and Change Characteristics of Youth Migration (HGLM Model)**

| Independent Variables | NLSY79 | | NLSY97 | |
|---|---|---|---|---|
| | O.R. | (95% C.I.) | O.R. | (95% C.I.) |
| Intercept | | | | |
| Gender | | | | |
| (Male) | | | | |
| Female | 0.888 *** | (.845, .934) | 1.060 | (.997, 1.127) |
| Race/Ethnicity | | | | |
| (White) | | | | |
| Black | 0.727 *** | (.684, .772) | 0.754 *** | (.697, .815) |
| Hispanic | 0.688 *** | (.637, .743) | 0.646 *** | (.591, .706) |
| Slopes | | | | |
| Age | 0.967 *** | (.955, .979) | 1.044 *** | (1.025, 1.064) |
| Duration | | | | |
| (0~2 years) | | | | |
| 3~5 years | 0.476 *** | (.447, .507) | 0.500 *** | (.469, .533) |
| 5+ years | 0.282 *** | (.266, .300) | 0.457 *** | (.423, .494) |
| Relation | | | | |
| (Lived with parental figures) | | | | |
| Lived w/out parental figures | 1.279 *** | (1.204, 1.359) | 1.551 *** | (1.446, 1.663) |
| Place of Origin | | | | |
| (Urban) | | | | |
| Rural | 1.192 *** | (1.127, 1.262) | 1.205 *** | (1.126, 1.289) |
| Prison | | | | |
| (Not in prison) | | | | |
| In prison | 2.938 *** | (2.392, 3.609) | 1.544 | (.984, 2.423) |
| Marital Status | | | | |
| (Stayed married) | | | | |
| Stayed never married | 1.242 *** | (1.150, 1.341) | 1.160 ** | (1.037, 1.298) |
| Stayed separated, divorced, or widowed | 1.495 *** | (1.300, 1.719) | 1.219 | (.883, 1.682) |
| Got married | 2.324 *** | (2.112, 2.557) | 2.118 *** | (1.818, 2.469) |
| Got separated, divorced or widowed | 1.986 *** | (1.748, 2.256) | 1.622 *** | (1.221, 2.153) |
| Enrollment Status | | | | |
| (Stayed not enrolled, HS) | | | | |
| Stayed not enrolled, <HS | 0.841 *** | (.778, .910) | 0.903 | (.810, 1.007) |
| Stayed not enrolled, Associate | 1.032 | (.849, 1.253) | 0.966 | (.743, 1.257) |
| Stayed not enrolled, BA or above | 1.370 *** | (1.212, 1.547) | 1.518 *** | (1.299, 1.774) |
| Stayed enrolled in HS | 0.148 *** | (.125, .176) | 0.300 *** | (.250, .360) |
| Stayed enrolled in college | 0.965 | (.888, 1.049) | 0.941 | (.864, 1.024) |
| Got enrolled in HS | 0.999 | (.680, 1.466) | 0.798 | (.533, 1.196) |
| Got enrolled in college | 1.809 *** | (1.651, 1.982) | 0.729 *** | (.650, .817) |
| Dropped out of HS | 0.677 *** | (.557, .822) | 0.878 | (.713, 1.082) |
| Dropped out of college | 1.808 *** | (1.627, 2.009) | 1.368 *** | (1.206, 1.551) |
| Graduated w/ HS degree (not enrolled) | 0.804 ** | (.709, .912) | 0.848 ** | (.749, .961) |
| Graduated w/ Associate degree (not enrolled) | 1.859 *** | (1.479, 2.338) | 1.676 *** | (1.271, 2.209) |
| Graduated w/ BA or above degree (not enrolled) | 4.419 *** | (3.889, 5.022) | 2.804 *** | (2.434, 3.230) |
| Employment Status | | | | |
| (Stayed employed) | | | | |
| Stayed not employed | 1.376 *** | (1.289, 1.469) | 1.196 *** | (1.097, 1.304) |
| Employed to not employed | 1.915 *** | (1.781, 2.059) | 1.406 *** | (1.300, 1.520) |
| Not employed to employed | 1.638 *** | (1.532, 1.751) | 1.100 * | (1.016, 1.192) |
| Random Effect | | 0.181 | | 0.337 |
| Number of Individuals | | 10343 | | 8345 |
| Number of Person-Years | | 68475 | | 46777 |

Note: O.R. means odds ratio. Categories in parentheses are reference groups.
* p<0.05, ** p<0.01, *** p<0.001

In order to deal with the problem of autocorrelation of the person-years within individuals, hierarchical generalized linear model (HGLM) can be used to refine the logistic regression model in the research. Table A shows the results of this model, with all of the three change in status variables included. Compared with Table 10 in Chapter four, the odds ratios presented here are similar to those in Table 10. However, methodologically, it is more appealing to use hierarchical generalized linear model.

To legitimize the use of hierarchical generalized linear model, it is necessary to calculate intraclass correlation. The formula to calculate the intraclass correlation for hierarchical generalized linear model with binary outcome variable (migrate or not) is (Snijders and Bosker 2003):

$$\rho = \frac{\tau_0^2}{\tau_0^2 + \pi^2 / 3} \tag{A.1}$$

$\rho$ is the intraclass correlation coefficient. $\tau_0^2$ is the estimated variances for the random effect from the unconditional model. $\pi^2 / 3$ = 3.29, which is a constant. The unconditional model does not include any variable, which looks as follows:

Level-1 Model

$$\log[p/(1-p)] = \mathrm{B}_0$$

Level-2 Model

$$\mathrm{B}_0 = G_{00} + U_0$$

For the NLSY79 cohort, the intraclass correlation coefficient is more than 20 percent.

$$\rho = \frac{\tau_0^2}{\tau_0^2 + \pi^2/3} = \frac{0.9309}{0.9309 + 3.29} = \frac{0.9309}{4.2209} = 0.2205 = 22.05\%$$

For the NLSY97 cohort, the intraclass correlation coefficient is slightly smaller than that in the NLSY79 cohort, but is also more than 20 percent.

$$\rho = \frac{\tau_0^2}{\tau_0^2 + \pi^2/3} = \frac{0.84484}{0.84484 + 3.29} = \frac{0.84484}{4.13484} = 0.2043 = 20.43\%$$

The high intraclass correlations for both cohorts suggest the use of hierarchical generalized linear model. The full model is as follows:

Level-1 Model

$$\begin{aligned}
&\log[p/(1-p)] = \mathrm{B}_0 + \mathrm{B}_1 \times (Age) + \mathrm{B}_2 \times (Dur35) + \mathrm{B}_3 \times (Dur5) + \mathrm{B}_4 \times (\mathrm{Re}lation) + \\
&\mathrm{B}_5 \times (Rural) + \mathrm{B}_6 \times (\mathrm{Pr}ison) + \mathrm{B}_7 \times (Single) + \mathrm{B}_8 \times (Divorced) + \mathrm{B}_9 \times (Getmarid) + \\
&\mathrm{B}_{10} \times (Getdivo) + \mathrm{B}_{11} \times (UnenLHS) + \mathrm{B}_{12} \times (UnenAsso) + \mathrm{B}_{13} \times (UnenBA) + \mathrm{B}_{14} \times (EnHS) + \\
&\mathrm{B}_{15} \times (EnCol) + \mathrm{B}_{16} \times (GetenHS) + \mathrm{B}_{17} \times (GetenCol) + \mathrm{B}_{18} \times (DropHS) + \mathrm{B}_{19} \times (DropCol) + \\
&\mathrm{B}_{20} \times (GradHS) + \mathrm{B}_{21} \times (GradAsso) + \mathrm{B}_{22} \times (GradBA) + \mathrm{B}_{23} \times (Enempl) + \mathrm{B}_{24} \times (Losejob) + \\
&\mathrm{B}_{25} \times (Getjob)
\end{aligned}$$

Level-2 Model

$$B_0 = G_{00} + G_{01} \times (Female) + G_{02} \times (Black) + G_{03} \times (Hispanic) + U_0$$
$$B_1 = G_{01}$$
$$B_2 = G_{02}$$
$$B_3 = G_{03}$$
$$B_4 = G_{04}$$
$$B_5 = G_{05}$$
$$B_6 = G_{06}$$
$$B_7 = G_{07}$$
$$B_8 = G_{08}$$
$$B_9 = G_{09}$$
$$B_{10} = G_{10}$$
$$B_{11} = G_{11}$$
$$B_{12} = G_{12}$$
$$B_{13} = G_{13}$$
$$B_{14} = G_{14}$$
$$B_{15} = G_{15}$$
$$B_{16} = G_{16}$$
$$B_{17} = G_{17}$$
$$B_{18} = G_{18}$$
$$B_{19} = G_{19}$$
$$B_{20} = G_{20}$$
$$B_{21} = G_{21}$$
$$B_{22} = G_{22}$$
$$B_{23} = G_{23}$$
$$B_{24} = G_{24}$$
$$B_{25} = G_{25}$$

Even thoughit is more preferable to use hierarchical generalized linear model, the results of logistic regression model in the dissertation are similar to the results from HGLM model above. Therefore, the major findings are robust that are supported by both models. The conclusions hold true in the dissertation.

# CURRICULUM VITAE

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## Education

2004 - present Ph.D. Candidate in Sociology, Department of Sociology, Social Work and Anthropology, Utah State University.
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2001 – 2004 M.A. in Economics of Population, Resources and Environment, Institute of Population Research (IPR), Fudan University, China

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1997 - 2001 B.A. in Economics (graduate with honors), School of Economics & Management, Nanchang University, China

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2008 Participant, 2nd Stanford Workshop in Formal Demography, Stanford University.

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2005 Participant, GIS and Population Science Workshop, University of California, Santa Barbara.

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2005 Recipient, Clogg's Scholarship for Inter-University Consortium For Political and Social Research, University of Michigan.

2002 Recipient, First-Degree Graduate Scholarship, Fudan University

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