ABSTRACT

HEUER, RUTH E. Migration of Recent College Graduates. (Under the direction of Dr. Theodore N. Greenstein.)

This research examines the effects of education, employment, and background characteristics on the migration of a recent cohort of bachelor degree recipients. The National Postsecondary Student Aid Study (NPSAS:2000) data and the Baccalaureate and Beyond (B&B:2000/2001) data are used to address the following questions: Who migrates after graduating from college? Do they migrate to rural or urban areas? How far do they migrate? Are they citing employment or quality of life reasons for migrating?

Approximately one-half of the sample of recent college graduates were living more than 50 miles from where they lived when they completed high school. Those who migrated live, on average, about 450 miles from where they attended high school. In general, recent graduates tend to migrate to metropolitan areas, although certain characteristics (e.g., older graduates, those who are married, those who have children, and those who grew up in a rural area or small town) are associated with migration to nonmetropolitan areas. Similarly, most recent graduates cited employment reasons for migrating, although those in certain high demand fields, those currently enrolled, singles, males, and younger graduates were more likely than their counterparts to cite quality of life reasons.

MIGRATION OF RECENT COLLEGE GRADUATES

by

RUTH E. HEUER

A dissertation submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

SOCIOLOGY

Raleigh

2004

APPROVED BY:

Catherine Zimmer	Stephen Lilley
William Clifford	Theodore Greenstein Chair of Advisory Committee

BIOGRAPHY

Ruth Heuer was born in 1963 in Moorhead, Minnesota. She received her Bachelor of Arts degree from Luther College, Decorah, Iowa in 1984 with majors in computer science, mathematics, and German. After working eight years as a computer programmer/analyst and spending two years in the Philippines as a Peace Corps Volunteer, she decided a career change was in order and enrolled in the sociology program at North Carolina State University (NCSU), where she earned her Master of Science degree in 1997. While enrolled in the doctoral program at NCSU, she has been working in postsecondary education research at RTI International. She is married to William A. Allen III and they have a son, William.

ACKNOWLEDGMENTS

I am extremely grateful to Ted Greenstein, Bill Clifford, Steve Lilley, and Cathy Zimmer for serving on my committee and providing valuable feedback and encouragement. My committee chair, Ted Greenstein, has been an ongoing source of support. I appreciate his willingness to read and comment on draft after draft. Cathy Zimmer has been a friend and mentor throughout my graduate school experience. Her enthusiasm is contagious.

I wish to thank my employer, RTI International, for providing me with time to work on this project through RTI's Professional Development Award program.

Numerous people have proven to be invaluable along this long road. I am indebted to Ron Wimberley for sparking my interest in demography and rural sociology. I am grateful to my graduate school friends, particularly Leslie Hossfeld who kept me on course through my prelims and dissertation with her encouragement. Likewise I wish to express thanks to my colleagues in the professional world, especially Ellen Bradburn for lending her expertise with the B&B data and Stephanie Carwile Nevill for her statistical advice and allowing me to bounce ideas off her.

My parents, Gerald and Jeanette Heuer, I cannot thank enough for instilling in me a love of learning and for placing such a high value on education. My husband, Will Allen, deserves the greatest thanks, for his emotional support through this process and willingness to be "Mr. Mom" on weekends these last few years. I am forever grateful for his love and encouragement, and that of our son, William.

TABLE OF CONTENTS

LIST OF TABLES vi

LIST OF FIGURES vii

1. REVIEW OF THE LITERATURE 1

Introduction 1
Review of the Literature 3
Selectivity of Migration 3
Distance of Migration 13
Urban-Rural Migration Patterns 16
Reason for Moving 19
Theory 24
Hypotheses 29

2. DATA 36

Variables 39
Migration Variables 39
Education Variables 47
Employment Factors 51
Background Variables/Individual Characteristics 55

3. WHO MOVES: EFFECTS OF EDUCATION, EMPLOYMENT, AND BACKGROUND CHARACTERISTICS ON MIGRATION PROPENSITY 61

Bivariate Analyses 61
Multivariate Analyses 65
Summary of Results 70
Discussion 75

4. EFFECTS OF EDUCATION, EMPLOYMENT, REASON FOR MOVING, AND BACKGROUND CHARACTERISTICS ON MIGRATION TO RURAL, SMALL TOWN, LARGE TOWN OR METROPOLITAN DESTINATIONS 83

Bivariate Analyses 84
Multivariate Analyses 86
Summary of Results 101
Discussion 106

5. WHO MOVES LONG DISTANCES: EFFECTS OF EDUCATION, EMPLOYMENT, REASON FOR MOVE, AND BACKGROUND CHARACTERISTICS ON MIGRATION DISTANCE....112

Bivariate Analyses....113
Multivariate Analyses....118
Summary of Results....123
Discussion....128

6. WHO MOVES FOR WORK-RELATED REASONS VERSUS QUALITY OF LIFE REASONS: EFFECTS OF EDUCATION, EMPLOYMENT, AND BACKGROUND CHARACTERISTICS ON REASON FOR MIGRATION....132

Bivariate Analyses....135
Multivariate Analyses....137
Summary of Results....141
Discussion....145

7. CONCLUSIONS....150

Summary....150
Theory....159
Implications....161
Limitations and Extensions....163

REFERENCES....167

LIST OF TABLES

Table 2.1 Unweighted and Weighted Frequencies of Discrete/Dummy Variables 41

Table 2.2 Definition of Rural Area Commuting Codes (RUCA) 44

Table 2.3 Reasons for Moving 47

Table 3.1 Odds Ratio Estimates for Logistic Regression Models of "Who Moves?" 62

Table 4.1 Polytomous Logit Model for Effect of Education on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations 87

Table 4.2 Polytomous Logit Model for Effect of Employment on Migration to Rural/ Small Towns and Large Towns Relative to Metropolitan Destinations 88

Table 4.3 Polytomous Logit Model for Effect of Current Employment Conditions on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations 90

Table 4.4 Polytomous Logit Model for Effect of Reason for Moving on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations ...91

Table 4.5 Polytomous Logit Model for Effect of Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations 92

Table 4.6 Polytomous Logit Model for Effect of Education, Employment, Reason for Moving and Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations 93

Table 4.7 Polytomous Logit Model for Effect of Education, Employment, Reason for Moving and Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations for Employed Respondents 95

Table 5.1 OLS Regression Models Predicting Migration Distance 114

Table 5.2 OLS Regression Models Predicting Migration Distance for Employed 116

Table 6.1 Odds Ratio Estimates for Logistic Regression Models of Employment versus Quality of Life (QOL) Migration Reasons 133

Table 7.1 Summary of Significant Effects 151

LIST OF FIGURES

Figure 2.1 Sample Attrition.....40

CHAPTER 1

REVIEW OF THE LITERATURE

INTRODUCTION

Internal migration has become an increasingly important component of demographic change in the United States and other developed countries, as fertility and mortality levels remain low and regional differences in fertility and mortality have narrowed. Migration has the potential for drastically changing the population structure of a community, particularly in rural areas where a small number of inmigrants or outmigrants has a more dramatic impact than it would in more densely populated areas. Changes to the size and composition of a community affect the demand for jobs, transportation, health services, schools, entertainment, and political representation. For example, an influx of working-age adults generates additional tax revenue and creates a need for public schools, while the inmigration of elderly people generates a demand for health and retirement services. An understanding of migration behavior is, therefore, essential for community planning.

This research will take an in-depth look at the migration behaviors of recent college graduates, focusing on how far they moved in their first year out of college, their reasons for that move, and the predictors of who moves versus who stays, and who moves to rural areas versus urban areas. Young adults in their 20s are the most mobile segment of the population. This stage in life is associated with leaving home, entering college, and starting a career, which often require long distance moves. While the literature shows a general trend away from urbanization during the last three decades, it appears that these young, educated adults are attracted to cities and are settling there at a higher rate than the general population. Consistent with the human capital model, they are attracted by the wealth of employment

opportunities in urban areas relative to those in rural areas. It is likely they are also attracted by the "bright lights" – the abundance of social activities and tolerance of diversity equated with urban areas – and are repelled by the lack of relevant work opportunities (related to their education) as well as perceived lifestyle restrictions and closed-mindedness associated with rural areas.

This first chapter provides a review of the relevant literature, including the selectivity of migration, the distance of migration, the urban-rural migration phenomenon, and the reasons for migration (economic versus quality of life debate), with particular emphasis on the young adult population. This is followed by a review of migration theory and a discussion of my hypotheses.

In the second chapter I present the data used for this research: the Baccalaureate and Beyond: 2000/2001 data that tracked nearly 12,000 individuals who completed their bachelor degrees during the 1999-2000 academic year. Baccalaureate recipients in 2000 are expected to be somewhat less mobile than those who graduated at other times for two reasons: (1) the economic recession (fewer jobs and higher unemployment are typically associated with less migration) and (2) it is a large cohort due to the baby boom echo (greater supply of labor is typically associated with greater competition for jobs and thus less migration).

Chapters 3 through 6 detail the results of the analyses. In Chapter 3, I analyze the effects on migration to answer the question "who moves?" Chapter 4 looks at who moves to rural versus urban destinations. Chapter 5 provides an analysis of the distance moved. Chapter 6 focuses on the reasons for migrating. Conclusions and ideas for subsequent research are presented in Chapter 7.

REVIEW OF THE LITERATURE

Whereas the overall migration rate was 6.4 percent between March 1999 and March 2000, among young adults aged 20 to 24 it was 13.3 percent (Schachter, 2001b). Some of this mobility may be attributed to the increased autonomy of young adults. A relatively recent phenomenon, young adults tend to leave their parents' household and live independently prior to marriage, and are marrying at older ages than in the past (Gober, 1993; Kobrin, 1976). Likewise, certain life course milestones that would precipitate migration, such as starting college or a career, generally occur in these early adult years

Roughly one-fifth of college freshmen migrate out-of-state to attend a 4-year college (Barbett, 1998; Fenske et al., 1972; Gossman et al., 1968; Johns & Viehland, 1989; Petersen & Smith, 1978; Steahr & Schmid, 1972). Migration following college graduation is even higher. In a survey of recent college graduates in the South, Ballweg and Droz (1991) found that approximately 35 percent got their first full-time job in a state different from where they completed their college degree. Gutheil and Copa (1981) discovered that 31 percent of vocational-technical school graduates in southwestern Minnesota migrated after graduation. Perry (2001) reported that 28 percent of bachelor degree recipients moved out-of-state within a year after graduating and 33 percent lived in a different state four years after graduation. According to Sheetz and Gardner (1993), 18 percent of bachelor degree recipients in Michigan were employed out-of-state after graduating.

Selectivity of migration

Vourkas (1972) points out that migration is selective, that is, it does not transfer entire populations but favors certain categories of people. The literature strongly supports the ties between education, age, and migration, with young adults in their 20s and those with higher

levels of education having higher migration rates (Rosenzweig & Stark, 1997; Sandefur, 1985).

It is generally agreed that the presence of school-aged children is negatively associated with migration, due to stronger ties to their community and higher moving costs (Gordon, 1992; Sandefur, 1985; Sandefur & Scott, 1981). Blacks are less likely to migrate (Long & Hansen, 1977) and less likely to migrate long distances (Tarver & McLeod, 1976) than other races. Those who have migrated in the past are more likely to migrate again (Long, 1988; Plane & Rogerson, 1994), and the farther the initial move, the more likely a person is to move again (DaVanzo, 1983).

Most of the other factors associated with propensity to migrate, however, appear to have weak ties or there is conflicting evidence of their effects. For example, occupation and income are cited by some as not very good predictors (Long, 1988) while others contend that higher occupational attainment and higher income are associated with migration (Lansing & Mueller, 1967, Wilson, 1984). Some research shows married couples are more migratory than singles (Long, 1972; Owen & Green, 1992) while other research shows the opposite (Mulder & Wagner, 1993; Schachter, 2001b). Gender is generally considered to be a poor predictor of migration.

Despite the relatively high migration rates of young educated adults, their migration patterns have largely been ignored. The sparse literature pertaining to the migration of young adults has addressed: 1) rural-urban migration trends of sets of age cohorts (finding that young adults are the only group not part of the rural renaissance), and 2) migration of students going to college (looking at in-state versus out-of-state migration to both public and private schools), and following college graduation (typically focusing on whether these

young adults remain in-state or migrate out-of-state, with obvious implications for state-supported higher education policy). Ballweg and Li (1992) point out that few studies of the migration of college graduates based on individual characteristics have been undertaken, due, in large part, to the difficulty of tracking those graduates after their graduation.

Age. There is conflicting evidence of the effect of age on the migration of recent college graduates. Ballweg and Li (1992), in their study of migration behavior of recent graduates of 15 southern land grant universities, found that older graduates are more likely to migrate out-of-state than younger graduates. On the other hand, Tornatzky et al. (2001), using the NSF National Survey of Recent College Graduates data, reported that older graduates are less likely to migrate out-of-state. They suggest that these older graduates may have stronger ties to the area.

Education. The correlation between educational attainment and migration in the general public holds for the young adult population. Findings from a survey of 1990-91 associate, baccalaureate, and graduate degree recipients from Indiana colleges and universities indicate higher degree levels are associated with higher mobility (Indiana State Commission for Higher Education, 1995). Similarly, in a study of young rural workers following completion of their education, Détang-Dessendre and Molho (1999, 2000) found that the hazard for migration was higher for those with at least a bachelor's degree than for the less educated. Gutheil and Copa (1981), looking at recent vocational-technical school graduates, found that migrants had, on average, completed a longer vo-tech program than nonmigrants (60 weeks versus 56 weeks).

Long (1988) explains that college attendance often exposes one to a new area and to people from different areas. The college experience tends to expand horizons and emphasize

universal knowledge rather than localized skills. Furthermore, college education is an investment in human capital which should improve one's competitive advantage and provide opportunity for a variety of jobs over broad geographical areas. Lansing and Mueller (1967) explain that the labor market for highly trained, in contrast with less skilled, personnel is not local. Highly skilled workers must cross local labor market boundaries more often since their labor is sold in a market that is geographically larger. Others speculate that education expands awareness about the employment opportunities and amenities available at alternative localities (Bartel, 1979; DaVanzo & Morrison, 1981; Greenwood, 1973; Ritchey, 1976; Sandefur & Scott, 1981). Gober (1993) expanded on this, pointing out that getting a college education often involves moving to a new location and it exposes one to new ideas and people from other places. Another explanation is that the more highly educated may be more amenable to change/less risk-averse or have acquired skills that ease the psychological costs (e.g., severing and establishment of social ties) associated with moving (Bartel, 1979; Sandefur & Scott, 1981; Schwartz, 1976).

Gender. The relationship between gender and migration of young adults/college graduates is inconclusive. Black (1983) found that gender was not statistically significant in predicting migration. Gutheil and Copa (1981) found that half of the migrants in their sample of vo-tech school graduates were male and half were female but of the nonmigrants, more were female (57 percent) than male (43 percent). Ballweg and Li (1992) found that male college graduates were more likely to be employed in-state than were female graduates. Ten years after graduation, males were still more likely to be employed in-state than females (41 percent and 31 percent, respectively).

Race. Black (1983) found race was not a significant predictor of migration among young adults entering the labor force. Greenwood (1973), however, found that white college graduates had higher migration rates than nonwhite college graduates. Sanderson and Dugoni (2002), looking at recent doctoral recipients, found that between start of college and completion of PhD, and between PhD and first postdoctoral employment, whites and blacks were the most mobile (relative to Asians, Native Americans, and Hispanics). Hispanics were more likely to have stayed in same state from birth through their PhD but the authors indicate this could be due to disproportionate representation of Hispanic PhDs in states with large labor market for PhDs (i.e., CA, TX, FL, and NY).

Various researchers have found an interaction between race and socioeconomic indicators. Looking at Hispanic youth, Wilson-Figueroa et al. (1991) discovered that those who are poor have higher ratios of migration than non-poor Hispanic youth. Greenwood (1973) reported that nonwhite college grads are attracted to areas with high levels of nonwhite income but he found no similar correlation for white college graduates. Frey (1994) found that college-educated black migrants choose different state and metropolitan destinations than do blacks with less education. College educated blacks are drawn to areas with large and growing professional job bases with rising incomes and with a wide range of urban amenities. In contrast, poverty-level black migrants go where lower paying service or blue-collar jobs dominate, where cost of living is low, and where friends/family may be available to lend social and economic support. This leads Frey to conclude that black migration patterns are no longer distinct from those of whites; the patterns are tied more to socioeconomic status than to race.

Marital status. Evidence suggests that single young adults are more likely to migrate than married young adults. Ballweg and Li (1992) found that unmarried recent college graduates are more likely to work out-of-state. Gober (1993) explained that dual earner couples are less likely to migrate because they must balance the employment needs of two workers rather than just one. Among recent doctoral recipients, Sanderson and Dugoni (2002) reported never married individuals were more likely to migrate than those who are married or widowed/divorced/separated. Some report a gender and marriage interaction. Black (1983) found that marriage inhibits migration for men but increases migration for women; he explains that women often move to live with their husbands upon marrying. Détang-Dessendre and Molho (1999, 2000) discovered that marital status had little effect on migration of young adult males in France however being single significantly decreases the probability of migration for females (as women tend to stay at or near their parent's home until marriage).

Socioeconomic status. Various socioeconomic factors have been associated with the migration patterns of young adults. Tuckman (1970) reported that an increase in family income is associated with an increase in migration to attend college. Ballweg and Li (1992) found that, among recent college graduates, higher income and better benefits were associated with those who migrated out-of-state relative to nonmigrants. They reported that earnings were the most important factor for predicting migration of graduates. Similarly, Falaris (1988), looking at migration during the first two years after leaving full-time schooling, reported that wages significantly affect the migration decisions of young workers. Sanderson and Dugoni (2002) looked at the effect of parental educational attainment on migration for recent PhDs and found that the higher the educational attainment of parents, the

greater the mobility of the PhD recipient. Parental educational attainment was also associated with out-of-state migration to college. Among a cohort born in March 1946 and interviewed repeatedly between the ages of 17 and 26, those from "upper nonmanual families" (based on father's occupation and both parents' educational attainment) were 3.5 times more likely to move than their peers from "lower manual families" (Kiernan, 1979). Black (1983) offered an explanation for the correlation of socioeconomic factors and the tendency of young adults to migrate. He suggested that socioeconomic status may be related to greater awareness of other locations and the ability and willingness to learn about other places. Families with higher socioeconomic status may encourage greater independence and/or provide financial help to migrate and may decrease the psychological inhibitions to migrating.

Field of study/occupation. Some migration studies of young adults have considered field of study in college and occupation following graduation. Data from the NSF National Survey of Recent College Graduates show that out-of-state migration is higher for those majoring in engineering, physical sciences, and computer science (Tornatzky et al., 2001). Results from a survey of 1990-91 degree recipients from Indiana colleges and universities indicate that engineering and language arts majors are most likely to migrate out-of-state while trade/industrial arts, liberal arts, and education majors were least likely to migrate. At the bachelor's degree level, the highest outmigration occurred among engineering and trade/industrial arts majors while the lowest was law majors. A study of bachelor degree recipients from the University of Virginia six months following graduation found those in the school of engineering and applied sciences had higher outmigration rates while those in education had the lowest migration rates (Taylor, 1973). Likewise, Chase (1969) found

engineering graduates most likely to migrate out-of-state and education graduates least likely to migrate. The high migration rates for engineering and applied sciences is not unexpected given the high demand for these skills.

Among vocational-technical recent graduates, Gutheil and Copa (1981) reported electronics and drafting majors had the highest migration rates while farm business management graduates had the lowest migration rates.

Sanderson and Dugoni (2002) found that PhD recipients in certain fields were more likely to migrate than those in other fields. (Note, their data included PhDs in science fields only.) PhD recipients in the fields of engineering, computer science, biological science, and psychology were most likely to stay in the state where they earned their PhD for their first job. Chemistry, physics, and astronomy graduates were the most likely to move out-of-state for their first post-PhD job.

In looking at post-graduation occupation, Gutheil and Copa (1981) found an association between migration and job related to program of study. They found that 85 percent of migrants compared with 79 percent of nonmigrants were working in a job that was related to their program of study. They also found that five of the seven degree programs with higher than average migration rates were white collar (accounting, agribusiness, drafting, electronics, and sales; the two blue collar degree programs were machine tool and welding). Braswell and Gottesman (2001) found that recent graduates in credentialed or licensed fields such as pharmacy, nursing, and teaching were less likely to move out-of-state than those working in occupations that were not licensed.

Employment. Black (1983) found that young adults with higher paying jobs were less likely to move than those who were either unemployed or underemployed. Likewise, Molho

(1987) found that unemployed young adults are nearly eight percent more likely to move than those who are employed. He cautioned that causality is questionable as migration may be the cause rather than the result of a change in labor force status. In fact, in a later study, Détang-Dessendre and Molho (1999) found that unemployed men who gain employment are significantly more likely to migrate than those continuously employed or continuously unemployed. They discovered a powerful migration response from those finding employment. They also found the unemployed are more likely to undertake contracted (i.e., have a job offer in hand) rather than speculative migration, especially among the less educated.

Aptitude. There is some indication that intelligence (as measured by high school aptitude scores and college grade point averages) is correlated with migration. Black (1983) found higher verbal/math aptitude scores were associated with increased mobility. Kiernan (1979) found those who had higher ability scores (measured at age 11) and higher levels of ambition (measured at age 15) had higher rates of interregional migration in their early adult years. Whyte (1957) reported that the higher the grades one has in college, the more likely they are to move. Tornatzky et al. (2001) found that migration out of state following college graduation was more likely for those who have a high grade point average. Black explained that the ability to acquire and assess information is an important factor underlying the occurrence of migration.

Past migration. One of the more consistent findings in the migration literature is that those who have migrated in the past are more likely to migrate again compared to those who have not previously migrated. This holds true for young adults as well. Black (1983) found that those who had lived two years or less in their high school community prior to graduating

from high school were twice as likely to migrate than those who had lived in the same community their entire lives. Kiernan, looking at youth in England found a direct correlation between frequency of migration during childhood and frequency of subsequent migration between the ages of 17 and 26. Détang-Dessendre and Molho (1999, 2000) discovered that the likelihood of migration among rural youth who had recently completed their education was significantly higher for those educated more than 100 km (62 miles) from their home. Tornatzky et al. (1998, 2001) found that in-state college students were more likely to seek employment in their home state whereas those who went to college out-of-state were more likely to migrate out-of-state after graduating. Taylor (1973) reported similar findings for 1972 University of Virginia graduates. Braswell and Gottesman (2001) reported that only 38 percent of students who attended college out-of-state returned to their home state after graduating from college. Black suggests that living in other places may lower one's psychological inhibitions to make subsequent moves. Alternatively, he proposes, youth who have lived in a community for shorter periods of time have not accumulated the location-specific assets (i.e., friends, knowledge of where jobs are located, fondness for the community), hence they have in lower economic/psychological costs of moving compared to those with longer durations of residence.

Type of college/university. Another consistent finding is that those who attend private colleges or universities are more likely to migrate following graduation than those who attend public postsecondary institutions (Groat, 1964; Indiana State Commission for Higher Education,1995; Long, 1988; Perry, 2001). Groat reported that private school graduates are about twice as migratory as public school students. Some of this difference may be attributed to the fact that proportionately more students migrate out-of-state to attend private colleges

than public colleges (Fryman, 1988). Migration rates are highest for graduates from research institutions, according to the Indiana State Commission for Higher Education (1995).

Home community. Various characteristics of one's home community have been considered with regard to migration. Black (1983) found that rural origin was not significant but found that those in small cities had a greater likelihood of migrating while those in large metro areas were less likely to migrate. He suggests that may reflect the availability of job opportunities and amenities desired by young adults. Gutheil and Copa (1981) found those who migrated following graduation from vocational-technical school were less likely to have lived in a rural/farm area before starting postsecondary school than those who did not migrate. They also found that migrants (as compared to nonmigrants) tended to be less satisfied with their home community; migrants tended to portray their home community as too conservative, having few employment opportunities, lower paying jobs, too few leisure activities, and little or no opportunities for further education or training.

Distance of migration

Few migration studies have recorded the distance moved, yet distance is of considerable importance: it affects the disruption of family and community ties (psychological costs) and the cost of the move, and it affects the knowledge of employment opportunities (Hoffman & Ritchey, 1992; Kiernan, 1979; Schwartz, 1973). The financial and psychological costs of moving increase with the distance moved. Rosenzweig and Stark (1997) point out that frequent trips back to the place of origin may offset the psychological costs, however such trips raise the financial costs associated with moving. Furthermore, they assert that information costs increase with distance, that is, greater search costs are required to offset the increased uncertainty associated with a long distance move. The deterring

effects of distance may have diminished somewhat due to improved and more cost efficient transportation and communication.

There are a number of methodological reasons for this lack of migration distance data. Asking respondents to estimate the distance is highly unreliable. Calculating the distance moved requires collection of location of origin and location of destination, which is time consuming. Tarver and McLeod (1970, 1976) used an approximate distance where they collected states of origin and destination and calculated distance between the population center for each pair of states.

In his study of migration in England, Kiernan (1979) found that only 20 percent of moves were long distance migration, which he defined as more than 50 miles. Tarver and McLeod (1976) found that most interstate movers relocate between 100 and 199 miles. They also compared length of long distance moves over time and found that the average migration distance increased from 606 miles during 1925-1940 to 767 miles during 1960-1970, but the increases were getting smaller. They suggest a number of reasons for the increase in migration distance, including an increase in the number of cars per capita, an increase in the number of miles of surfaced highways, and the fact that it is increasingly easy to transport household goods. Hoffman and Ritchey (1992), building on the research done by Tarver and McLeod, found that migration distance continues to increase, with migrants moving an average of 786 miles during 1975-1980.

Some research has examined whether individual characteristics are associated with distance of migration. Hoffman and Ritchey (1992) reported that greater distances are associated with males, singles, the unemployed, older ages, and higher occupational status. Contrary to their predictions (based on cost/benefit theory), higher income was associated

with shorter migration distances, when controlling for occupation and education. Tarver and McLeod (1970, 1976) found that whites migrate greater distances than African-Americans, but the average distances of the two races are swiftly converging. Hoffman and Ritchey's (1992) research showed that foreign born individuals migrate marginally greater distances than natives.

Education is positively related to the distance of move, with the more educated migrating greater distances (Ritchey 1976; Rosenzweig & Stark 1997; Schwartz, 1973, 1976). Schwartz explains that potential migrants use a variety of sources of information, such as communication with friends, relatives, neighbors, coworkers, placement offices, and the media (newspapers, radio, etc.). The lower the sophistication of the information method (i.e., interpersonal communication), the faster the decline in amount of information gained about a place as the distance increases. Higher levels of education are associated with more sophisticated modes of information which, in turn, decrease the adverse effect of distance.

There is virtually no literature on how far young adults or recent college graduates migrate. Molho (1987), looking at migration of young men in Great Britain, found that married individuals and those in single person households were the most likely to migrate interregionally. Those who changed occupations (rather than simply changing jobs) were the most likely to move longer distances. Gibbs (1995) found that for both rural and urban youth, the greater the distance between home and college, the greater the barrier to return.

Urban-rural migration patterns[1]

Perhaps the most studied trend in the migration literature is that of urbanization, the migration of people from rural, agricultural areas, to urban, industrial centers. This was the trend in the United States from at least the time of the first census in 1790 through the 1950s. This was largely the result of the mechanization and industrialization associated with a developing country. Since the 1950s, however, first suburban and, more recently, rural areas have grown faster than urban areas. This rather unexpected phenomenon has been dubbed the nonmetropolitan turnaround or rural renaissance, and is generally portrayed as middle-class whites fleeing central cities, leaving an urban core with large proportions of disadvantaged minorities.

The net flow for all age groups except young adults is currently from urban to rural counties, with the highest rural inmigration occurring among young families and persons in their early career years, primarily to recreational and commuting counties (Johnson & Fuguitt, 2000). CPS migration data for 1995 through 1997 show that net movement into rural areas was highest in the early career period (ages 26 to 30) (Nord & Cromartie, 1999). Johnson and Fuguitt hypothesize that lifestyle factors may exert a stronger influence on this age group, as rural areas appeal to adults with children as good places for raising children. Commuting counties are particularly popular among young families as they offer access to the urban labor market in addition to the rural environment, whereas recreational counties are popular with retirees. Johnson and Fuguitt speculate that affluent older adults seek counties with recreational amenities, as they have the time to enjoy them.

[1] I use the terms nonmetropolitan and rural interchangeably, as is common in the literature. Similarly metropolitan and urban are used interchangeably.

The net flow of young adults (20 to 29 years of age) out of rural areas did not reverse as a result of the nonmetropolitan turnaround but showed a significant drop (Fuguitt & Heaton, 1995; Johnson & Fuguitt, 2000; McGranahan et al., 1986). It was this change in the migration behavior of the young, according to Heaton et al. (1981), that led to the turnaround. The rise of state colleges and universities in nonmetropolitan areas may have contributed to this drop in outmigration among young adults, as college counties realize their greatest net gain among those aged 20 to 24 (Beale, 1975; Johnson & Fuguitt, 2000).

Cromartie (2001a) reported that among 18 to 24 year olds, 6.6 percent moved from urban to rural areas and 8.2 percent moved from rural to urban areas, resulting in a net loss of 1.6 percent loss in population for this age group in rural areas. The rural outmigration is concentrated among young adults who are more educated; the rate for 20 to 24 year olds who had completed at least one year of college was 55 percent (Gibbs & Cromartie, 1994). This loss of educated youth in rural areas is often referred to as "brain drain." Gutheil and Copa (1981) reported that recent vocational-technical school graduates who migrated tended to move to larger towns or cities than their place of origin.

Gibbs (1998), looking at young adults from rural areas, found that approximately 75 percent of rural college students migrate out-of-county to attend college. Of those, about one-third return home while the other two-thirds remain out-of-county at age 25. Of the 25 percent of rural college students who stay in-county for college, nearly two-thirds remain there while the other one-third subsequently migrated (at age 25). He suggests that those who migrate to attend college experience more intervening opportunities and may have weaker ties to home.

Rieger (1972) cites prior research findings that young rural migrants tend to have higher educational attainment and greater intelligence, and come from families with higher socioeconomic status. His own research, looking at rural youth while in high school and 10 years later, found migrants had higher ability, higher academic aptitude and aspirations, more often planned for further education (while in high school) and higher occupational status (10 years later) than their nonmigratory counterparts. Contrary to prior research, however, he found that parental socioeconomic status of nonmigrants was higher than that of migrants. He cautions that parental socioeconomic status may be unreliable since it was based on the respondents' estimates of parental income and education and had high nonresponse. Gibbs (1998) found that rural graduates who migrated to urban areas after college are more likely to be employed and working in higher status and higher paying jobs than those who stayed in or returned to rural areas. He concludes that postcollege residence is a critical predictor of labor market success, with rural graduates largely overcoming the disadvantage of their rural origins.

In the past, education has been regarded as much better suited to the needs of urbanites than to those of rural people. Farming, mining, and routine manufacturing have been the traditional rural industries and, within these industries, the focus is production, rather than management and research. This severely limits the need for an educated workforce in rural areas (McGranahan & Ghelfi, 1998). Urban jobs generally have higher educational needs than rural jobs, leaving college graduates in rural areas often underemployed (McGranahan & Ghelfi, 1998; Swanson & McGranahan, 1989). Consequently, those leaving rural areas have tended to be more highly educated than those who stay, resulting in a "brain drain" (Kosinski, 1975). This rural outmigration of the

educated is attributed to the lure of better job opportunities and higher salaries available in urban areas (Rogers, 1997, Swanson & McGranahan, 1989).

This trend shows signs of reversal. Data from the early and mid 1990s point to a small net inflow of highly educated people into rural areas (McGranahan & Kassel, 1995; McGranahan & Ghelfi, 1998; Nord & Cromartie, 1999), with 1992 marking the end of the rural "brain drain" (Cromartie, 2001a). McGranahan and Ghelfi (1998) found indications of an increase in the number of production sector high-education jobs and a rise in the relative earnings of college graduates in rural areas.

Reasons for moving

Zelinsky (1974) predicted that modernization would induce new patterns of mobility in which personal preferences played an increasing role. Until recent times, people had to live in close proximity of their workplace. The advent of the national highway system allowed people to live greater distances from their workplace. Relatively recent advances in information technologies allow some people to live wherever they choose, using technology to communicate with coworkers and clients over long distances (Salant et al., 1996).

This increased freedom to live where one desires has fueled a debate over whether economic or quality of life factors are the primary motivation for migration. Various studies have looked at the reasons cited for moving. Lansing and Mueller (1967), using data from the 1963 Current Population Survey (CPS), found that 58 percent who moved to a different county did so for purely economic reasons, 14 percent cited both economic and noneconomic reasons, and 23 percent gave only noneconomic reasons. Long (1988), in an analysis of the 1979 through 1981 American Housing Surveys, reported about half cited employment reasons (i.e., job transfer, to take a new job, to look for work, or other employment reason)

while the other half gave a wide variety of noneconomic reasons (i.e., closer to relatives, change in climate, attend school). Recent CPS data indicate that about one-third of intercounty moves are housing related, one-third are work related, and the rest are family related and other reasons (Schachter, 2001a).

Long (1988) also looked at the relationship between age and reasons for moving, expecting that stages in the life-cycle would help explain the reasons for moving. He found the proportion citing job transfers as the main reason increased with age, peaking at 35 to 40 years of age and then dropping. The proportion of migrants who moved to take a new job was highest for those under 30 years of age and gradually drops as age increases. The percent of migrants who cited climate as the main reason was much greater for those over age 50 than for those under 50. Likewise, moves to be near relatives were greater for older respondents, growing increasingly important after age 45.

Williams and Jobes (1990) found that households with higher socioeconomic status generally mentioned both economic and quality of life factors in their reasons for migrating, while lower socioeconomic status families cited only quality of life factors. They suggest that migration that is motivated by noneconomic factors involves some rejection of conventional values, at least for all but the very affluent. Those with higher educational attainment, income, and occupational status are more likely to choose a destination based on economic considerations while lower socioeconomic movers favor destinations where they have family ties (Maynard et al., 1997; Ritchey, 1976; Schachter, 2001a). Maynard et al. conclude that personal characteristics affect what the potential migrant values, which in turn influences his or her choice of destinations.

Lichter and DeJong (1990) find 48.5 percent of movers to metro areas gave economic reasons as the primary motive, compared to 41 percent of movers to nonmetro areas. Likewise, Salant et al., (1997) find that those who moved to nonmetro Washington state counties were slightly more likely to provide a quality of life response while those who moved to urban counties were slightly more likely to report an economic response as their primary reason for moving. Williams and Sofranko (1981) studied migrants who moved from urban to rural areas between 1970 and 1977. Seventy-six percent cited reasons other than employment. Considering only those of labor force age, 44 percent cited environmental or lifestyle factors and 35 percent listed employment reasons.

Murdock et al. (1984) suggest that economic factors may provide the best explanations for migration patterns in some areas in some time periods and for some age groups, while at other times or for other groups ecological or amenity or familial ties will provide the best explanations for migration patterns. Economic factors, including high wages and diverse occupational opportunities typically associated with urban employment, are important to young adults (Morgan & Robb, 1981; Mueser et al., 1988). Furthermore, some of the detractors of city life, such as high crime rates, are less of a concern for young adults who tend to be less risk-averse than older adults.

The literature discusses the reasons for young adult migration but very few articles back up the discussion with data. One exception is Rieger et al. (1973) who looked at the migration of rural youth following high school graduation. They found that roughly one half (36 percent of males and 63 percent of females) cited lack of occupational training and career opportunities as the main reason for migrating. Approximately one-fifth (25 percent of males and 18 percent of females) expressed the desire to further their education as the primary

reason. Military service was cited by six percent of males. Other reasons include various lifestyle factors, with 17 percent of males and 6 percent of females providing "want more to do," "meet more people," "see more of country" reasons and others providing reasons such as marriage/courtship options, getting away from family, and being on their own for a while. In a later interview with the same cohort, 34 percent said they left their home community to find work, 31 percent said they left to further their education, and a small handful said they left to enter the military or for family/marriage. The responses in this later interview did not point to community features or adventure. Using more recent data, Long (1988) reported that employment was the reason cited most frequently (46 percent) for migration of young adults less than 25 years of age who moved out-of-state, followed by schooling (15 percent), military (7 percent), and proximity to relatives (4 percent). The remainder (27 percent) fell into the miscellaneous category.

Recent CPS data indicate that among 20 to 24 year olds nearly one-third migrate for employment-related reasons, about one-quarter migrate for family reasons, another quarter migrate for housing reasons, 14 percent migrate to attend college, and the remaining four percent for other reasons. These percentages for employment and family reasons are nearly identical to that of the general population. However for those with a bachelor's degree, the reasons for moving are quite different. Forty-two percent cite employment as the main reason for migrating and only 22 percent cite family reasons. In fact, these data show employment-related reasons have a positive monotonic relationship with education (Schachter, 2001a).

The literature suggests that the motives for young adult migration are overwhelmingly economic. Black (1983), looking at recent rural high school graduates,

found that migration is negatively and significantly related to the job opportunities at place of origin (i.e., areas with high job opportunity tend to retain their youth). One would expect the importance of the labor market in migration decisions to increase as young people invest more time and money in their education. This is especially pertinent to the urban-rural aspect of migration, since rural areas tend to be less diversified industrially and occupationally than urban areas (Ballweg & Droz, 1991; Gibbs, 1995; Gibbs, 2000). The research of Beaulieu et al. (2001) shows that most rapidly growing segments of the rural southern economy pay far less than those in urban areas. Their projections for 1996-2005 job expansion in the rural South indicate that most jobs will require no more than a high school education and on the job training. Thus, rural youth who attend college "educate themselves away from their home communities" (Dahlstrom, 1996) and are often forced to choose between taking a job unrelated to their degree or moving to an area with relevant employment opportunities. Cromartie (2001b) predicts technological advances (Internet and rural restructuring trends), especially in manufacturing, will result in a decrease in net rural outmigration of college educated, reversing the brain drain trend.

Even before being faced with the decision of where to work, young adults are faced with the decision of where to go to college. Again, this is particularly germane to the urban-rural issue. Postsecondary institutions are located disproportionately in urban areas, biasing college-related migration in the direction from rural to urban areas more often than the reverse. The highly uneven distribution of postsecondary schools across nonmetro counties and the lack of postsecondary institutions in most rural counties force rural college-bound students to migrate or commute long distances to school (Gibbs & Cromartie, 1994). This

affects subsequent migration, as those who migrate to college are much more likely to migrate subsequently.

Personal factors, however, may override economic factors for some potential migrants. Gibbs (1995, 1998) suggested the pull of family or community ties persuades some rural college graduates to accept lower returns on their education, effectively decreasing the economic value of their college degrees. Various lifestyle factors have been named as reasons for migration, particularly with regard to the urban-rural debate. Dahlstrom (1996) posited that the rural lifestyle is associated with patriarchal gender relations and suggests that is, in part, to blame for the exodus of females out of rural areas in Norway. Rudkin et al. (1994) explained that agricultural occupations and systems of land inheritance have tended to favor males, leaving young rural females with few options in the local area. The urban "leisure life" attracts women to urban destinations (Dahlstrom, 1996). Long and Glick (1976) hypothesize that cities serve as "staging areas" where young people meet and marry. Gibbs and Cromartie (1994) mention spatial distribution of "social activities" affecting urban-rural migration outcomes. Jamieson (2000) suggests the "parochial narrowmindedness" found in rural areas may push educated youth out of rural areas.

THEORY

Demography is notorious for its lack of theory guiding empirical research, and migration is no exception. The migration theories that have been put forth have largely come out of the economics discipline. The theory that fits most closely with this research is the human investment theory.

Sjaastad's (1962) human investment theory views the decision to migrate as an investment decision involving the individual's expected costs and returns over time. He breaks costs into monetary (e.g., the increase in expenditures for food, lodging, transportation over what one would spend if one did not move) and non-monetary (e.g., the "psychological costs" of leaving familiar surroundings, family, and friends). Returns also include both monetary (e.g., increased earnings) and nonmonetary (e.g., the "psychological benefits" due to the locational preferences such as climate and proximity to family or friends) benefits.

According to human investment theory, migration may be conceptualized as an investment in human productivity, with associated costs and returns, that will eventually return a higher income and standard of living to the migrant. Migration decisions are made by rational actors who anticipate the expected net benefits and costs of moving to each potential destination and choose to move if there is at least one destination for which expected value of all future monetary benefits exceeds the monetary costs of moving. This assumes that migrants are motivated by rational economic considerations, that they have knowledge of the opportunities elsewhere and the costs of moving, and they give careful consideration to the possibility of moving (DaVanzo, 1981; Findley, 1977; Sjaastad, 1962; Speare, 1974).

Age selectivity is consistent with human capital models, where the young have a relatively long time to reap the returns associated with migration (Becker, 1964; Findley, 1977; Greenwood, 1975b; Lichter & DeJong, 1990). High rates of migration in early adulthood reflect the process of job search and experimentation in the early working years. Young adults tend to be less encumbered with family and community responsibilities, have little or no job seniority, and are more willing to move in search of greener pastures. Middle-

aged workers tend to be more established in the labor force and experience less unemployment, thus are less inclined to move. Older workers are the most established in the labor force and are least likely to migrate for economic reasons because of the relatively small window of time for reaping the rewards (Ritchey, 1976; Landale & Guest, 1985).

Todaro's (1980) formulation of the cost-benefit model, while directed toward rural-urban migration in developing countries, is equally applicable to migration in developed countries. He proposes an equation where the expected return from migrating is the difference between the expected income from migration (the probability of being employed at the destination at time t multiplied by the expected income at the destination at time t) and the expected income from not migrating (the expected income at the origin at time t), summed over the time horizon, minus the costs of moving. The fundamental premise is that migrants consider the labor market opportunities of various potential destinations and choose the one that maximizes their expected gains from migration. Another important point is that the decision to migrate is a "permanent income" calculation, meaning that the benefits have to be considered over the remaining years in the labor force and the payoff period is inversely related to age. There may be a low probability of finding a job initially after moving but the migrant expects that probability to increase over time as he networks in the new community. Thus it may still be rational to migrate, despite the expected initial income being lower than the expected income at origin.

The traditional emphasis on the earnings side of the cost benefit calculation stems from the assumption that wage differentials are the primary motivation for migration (Massey, 1990). Greenwood (1975a), however, suggests that employment rates are a greater

determinant of migration than income. As Sjaastad (1962) points out, with migration often comes a period of unemployment or underemployment.

Economic models have, for the most part, conveniently ignored noneconomic costs and benefits, as they are difficult to operationalize. The economic costs associated with migration include "direct costs" such as the expenses for transportation, moving belongings, and lodging and meals during the move and while looking for work; "opportunity costs" including the foregone earnings while moving, searching for employment, and training for a new position; and loss in value of location such as the value of a loss of clientele in the case of a professional rebuilding his or her practice in a new location. Noneconomic costs associated with migration, generally termed "psychological costs," include leaving friends, family, and familiar surroundings and forging new ties at the destination, a possible change in lifestyle, and concern over uncertain prospects. Distance is commonly used as a proxy for the cost of moving because many moving costs (economic and psychological) tend to be greater the longer the distance moved. Economic benefits include higher earnings and fringe benefits over the migrant's remaining time in the labor force and, in some cases, increased nonwage income such as welfare payments or agricultural subsidies. Psychological benefits may include amenities such as a preferred climate or proximity to recreational facilities (DaVanzo, 1981; Rothenberg, 1977; Sjaastad, 1962; Todaro, 1980). The difficulty, however, is that the noneconomic factors are valued differently by different people. For example, leaving family may be viewed as a significant cost to one potential migrant but not to another.

A criticism of the human investment theory is that most people have only a vague idea of the costs and benefits of migration and do not perform a mathematical calculation to

determine whether the benefits outweigh the costs before deciding to move. However, Greenwood (1973) suggests that since educated people have more information about income differentials and employment opportunities, this model is particularly well-suited to them.

Bowman and Myers (1967) considered the applicability of the human investment approach to college migration decisions, hypothesizing that a high school graduate deciding about his future weighs going to work immediately against spending several years in college, during which his earnings are low or zero. Tuckman (1970) used the human capital approach to explain college student migration, hypothesizing that students migrate to increase the expected benefits resulting from their education. He proposed that students will migrate when their expected returns exceed costs. He predicted that states with lower priced colleges will have lower out-migration than states with higher-priced colleges, and that states with greater diversity of college opportunities should have lower out-migration. His findings support his first prediction and he was unable to test the second.

Findley (1977) viewed migration as a means by which the educated maximize returns on their knowledge and skills. He also points out that education instills an awareness of and desire for amenities, thus stimulating migration. Lyson (1986) used a macrolevel approach to explain migration at this initial point of career decisions. He suggested that greater numbers of job opportunities and a wider range of job choices in the immediate area will increase the likelihood that the young person stays in his home community. If the opportunities for occupational choices are limited, the young person is forced to decide to stay and take a job that does not match his aspirations or to migrate to pursue career goals. This is particularly an issue for rural youth.

HYPOTHESES

As this review of the literature indicates, there is much about the migration behaviors of young adults that is unknown. This research addresses this deficiency. Furthermore the data have unique features that make it particularly interesting for migration research. First of all, it follows a cohort of recent bachelor's degree recipients in the one to two years after completing college. As Ballweg and Li (1992) indicated, there is little data on the migration of college graduates due to the difficulty of tracking those graduates after their graduation. The other unique feature of the data is the existence of migration distance, which is rarely collected and occasionally imprecisely imputed.

The first research question is who, among these recent college graduates, moves? Earlier research has shown that age and education are the two greatest factors in migration, but with those variables held more or less constant, what other factors will emerge as predictors of migration?

Hypothesis 1A: Education-related factors affect migration.

Educational attainment is identical for all respondents; thus, according to Schwartz's findings, they should have comparable information networks about distant places. While education-related factors are expected to have less impact on migration since level of attainment is the same for all, nonetheless, I predict that some education-related factors will be associated with migration. These education-related factors include whether the respondent considered him-/herself to be primarily a student or primarily an employee while enrolled, his/her major, grade point average, whether he/she graduated with honors, and whether he/she attended a public or private postsecondary institution. I expect to find those

who were high achievers in school (i.e., those who were primarily students, had higher grade point averages, and graduated with honors) are in higher demand by prospective employers and are, therefore, more likely to migrate. Those who were primarily employees while enrolled are more likely tied to the area by an existing job and hence, less likely to migrate. I expect certain high-demand majors, such as computer science, engineering, and business majors, are more likely to migrate than others. These expectations are based on economic theory, which posits that demand for labor stimulates migration. As suggested by the literature, I expect those who migrated to attend college will be more likely to migrate than those who did not because their prior success in moving minimizes the psychological costs of subsequent moves. I predict those who attended private postsecondary institutions will be more likely to migrate than those who attended public schools. The reasons for this predicted relationship are likely due to spurious factors such as higher parental socioeconomic status (which may have afforded vacations or moves while growing up, hence providing more information about distant places), migration to attend college (since those attending private schools are more likely to have migrated to attend school), and possibly greater demand among employers for private school graduates.

> Hypothesis 1B: There is a correlation between current employment conditions and migration.

Factors that are likely to be related to migration are employment status (employed, unemployed, graduate student), whether current job is related to major, and whether the respondent considers the job to be the start of their career. I expect those who are working full-time, whose jobs are related to their major, and whose jobs are career positions are more likely to have migrated. This is related to Lyson's (1986) argument that migration is

sometimes required to pursue career goals. In areas with limited employment opportunities, it is often necessary, particularly for the well-educated, to migrate in order to find jobs matching one's skills and interests. Unemployment is expected to be negatively related to migration as the unemployed would seem to be less in demand by employers and may have returned to their parents' house to live until locating work.

Hypothesis 1C: Individual characteristics affect migration.

Individual characteristics include parental socioeconomic status, immigrant status (whether the respondent or respondent's parents immigrated to the U.S.), rural/urban origins, age, gender, race, marital status, and having dependents. I expect to find that those with higher parental socioeconomic status and first generation Americans will be more likely to migrate because they are more likely to have traveled or moved growing up, thus obtaining greater knowledge of places and reducing (or making them better equipped to deal with) psychological costs. I expect those with rural origins are more likely to migrate due to the lack of employment opportunities in their home community. I expect gender to have no effect on migration since cultural norms allow women the freedom to live away from their parents and demand for their labor is similar to that of men. I expect race to have very little effect on migration, as I think racial differences in migration propensities have more to do with socioeconomic status than race and the level of education is the same for all sample members. I expect married people are more likely to move than singles because they are likely to be looking for a labor market that can provide suitable employment for their dual careers. I expect those without children are more likely to move than those with children due to the increased costs (financial and psychological) associated with moving more people and uprooting children.

The next research question asks who moves to rural versus urban areas. Overwhelmingly I expect to find these recent college graduates settling in urban areas to maximize the return on their investment in their education. I expect the same hypotheses about education-related factors, employment factors, and background factors to hold for urban migration.

Hypothesis 2A: Recent college graduates migrate to urban areas.

The human investment theory says that people migrate to maximize the return on their investment in their education. Because businesses tend to be located in urban areas, recent college graduates are expected to migrate to urban areas.

Hypothesis 2B: Education-related factors affect migration to rural/urban areas. (See hypothesis 1A for discussion of expected effects.)

Hypothesis 2C: There is a correlation between current employment conditions and migration to rural/urban areas. (See hypothesis 1B for discussion of expected effects.)

Hypothesis 2D: Reason for move is different for migrants to rural versus urban areas.

It is clear from the migration literature that the rural renaissance was fueled in part by a preference for rural living; people move to rural areas primarily for quality of life (including family) reasons. It is expected that recent college graduates will overwhelmingly cite job-related reasons for moving; however quality of life reasons are expected to be associated with those moving to rural areas.

Hypothesis 2E: Individual characteristics affect migration to rural/urban destinations.

Dual career couples are expected to migrate to urban areas to suitably employ both husband and wife. (See hypothesis 1C for discussion of expected effects.)

Hypothesis 2F: Rural areas of origin, and job unrelated to major are associated with rural residence.

Having a job unrelated to one's major is expected to be associated with rural residence because rural areas do not have the diversity of employment opportunities that urban areas do. Prior rural residence is expected to be associated with current rural residence because people tend to be resistant to change and are expected to settle in the same type of community as the one they grew up in.

My third research question addresses migration distance: who migrates long distances and are the characteristics of long distance migrants different from those of short distance migrants? Recent college graduates are expected to be unencumbered, willing to take risks, and quite possibly excited about the prospect of getting away from home, thus I expect those who do migrate will migrate long distances. I expect the same education, employment, and background factors to predict long versus short distance migration.

> Hypothesis 3A: Education-related factors affect migration distance. (See hypothesis 1A for discussion of expected effects.)

> Hypothesis 3B: Those who migrate long distances to attend college are more likely to migrate long distances after college graduation.

Those who migrated long distance to attend college have likely learned to deal with the psychological costs associated with long distance moves and, thus, are less hindered by psychological costs in subsequent moves.

> Hypothesis 3C: There is a correlation between current employment conditions and migration distance. (See hypothesis 1B for discussion of expected effects.)

> Hypothesis 3D: Contracted movers (i.e., those who have a job offer) migrate greater distances than speculative movers (i.e., those without job prospects at the destination).

Those who indicate their reason for moving was to start a job there are expected to have moved greater distances than those who say they moved because of better job

opportunities. This expectation is rooted in the economic costs associated with moving. Those who are moving to start a job are assured of income after moving and thus can afford to move greater distances (and in many cases the employer pays the moving costs). Those who are moving with the hope of finding a job would be less likely to invest in the cost of moving long distances since there is no assurance of finding a job.

Hypothesis 3E: Individual characteristics affect migration distance. (See hypothesis 1C for discussion of expected effects.)

My final research question is concerned with why recent college graduates move.

Hypothesis 4A: Recent college graduates migrate for job-related reasons.

This is consistent with the human capital theory that says these young adults want to maximize the return on their investment in their education. The quality of life reasons for moving are expected to be less important to migrants at this stage in life.

Hypothesis 4B: Education-related factors are associated with reasons for migrating.

Those who were more serious students (primarily a student, high grade point average, graduated with honors) are expected to migrate for job-related reasons. Those who were less serious about their studies are expected to migrate for quality of life reasons.

Hypothesis 4C: There is a correlation between current employment conditions and reason for migrating.

Those who are working full-time, whose jobs are related to their major, and are a career position are expected to have moved for job-related reasons rather than for quality of life reasons.

Hypothesis 4D: Reason for migrating is associated with individual characteristics.

I expect to find that those with higher parental socioeconomic status will be more likely to cite employment reasons for migrating because their parents have likely instilled in

them the importance of having a good job. I am torn on my prediction for first generation Americans. Due to their investment in their education, I would think job-related reasons would prevail, but family reasons may also be cited due to strong family ties among immigrants. I expect those with rural origins who migrate to cities will cite job-related reasons, but they may also cite quality of life reasons (such as a desire for urban living/getting away from small town living, which are not explicitly collected in the data). I expect no difference in reasons given by gender or race. I do, however, expect married people (without children) to cite employment reasons because they were likely searching for a labor market that can provide suitable employment for careers of both spouses.

In summary, very little is known about the migration of young adults, particularly recent college graduates. Their migration patterns are important in that they are the most mobile segment of the population and hence their migration out of or into a community can seriously impact the local demographics and, in turn, the tax base and the demand for local services. This research will look at who moves following graduation from a 4-year postsecondary school, who moves to rural versus urban destinations, who moves the longest distances, and who moves for work-related versus quality of life reasons.

In the next chapter, I describe the data source, and in particular, the migration, education, employment, and background variables used in this research.

CHAPTER 2

DATA

This research will use the Baccalaureate and Beyond (B&B) Longitudinal Study 2000/2001 and the 2000 National Postsecondary Student Aid Study (NPSAS) restricted data. These data were collected by Research Triangle Institute for the National Center for Education Statistics, U.S. Department of Education.

NPSAS interviews students enrolled at postsecondary institutions to provide information on trends in financial aid and on the ways in which families pay for postsecondary education. The target population for NPSAS:2000 consisted of all students enrolled in Title IV[2] postsecondary institutions in the United States or Puerto Rico between July 1, 1999 and June 30, 2000. The study used a two-stage sampling design. For the first stage, the institution sampling frame was constructed from the 1998-99 Integrated Postsecondary Education Data System Institutional Characteristics (IPEDS-IC) file. Ineligible institutions (e.g., those located outside the U.S. and Puerto Rico; military academies) were removed and the remaining 6,420 eligible institutions were partitioned into 22 strata based on institutional control, highest level of offering, and the percentage of baccalaureate degrees awarded in education. A stratified sample of 1,083 institutions was selected with probabilities proportional to size. The second stage involved sampling students from these institutions. Student enrollment lists, provided by the sample institutions, were sampled using stratified systematic sampling. These sampling procedures resulted in a selection of 70,232 students, including approximately 16,620 potential baccalaureate

[2] Title IV institutions are those who signed participation agreements with the U.S. Department of Education making them eligible for federal student aid programs.

recipients. Eleven schools and 5,761 students were found to be ineligible during data collection, resulting in 1,072 eligible institutions and 64,471 eligible students. A total of 44,491 students from 999 postsecondary institutions were interviewed. The interviews were primarily completed by telephone interviewers (using computer-assisted telephone interviews [CATI]), with field interviews (CAPI) or abbreviated interviews (hardcopy or CATI) for those who did not complete the CATI interview.

Approximately 10,400 of the NPSAS respondents were confirmed recipients of a bachelor's degree between July 1, 1999 and June 30, 2000. An additional 3,520 NPSAS nonrespondents were classified as potential baccalaureate recipients based on information provided by the institutions. Approximately 1,300 of these potential bachelor's degree recipients were subsampled using a stratified pps design. All of the confirmed baccalaureate recipients plus the 1,300 subsampled potential baccalaureate recipients were sampled for the B&B study, resulting in a sample of approximately 11,700. The B&B study followed this cohort interviewing 10,028 recent bachelor degree recipients between July and November 2001. All B&B interviews were completed by telephone (CATI).

The focus of the B&B study is time to degree completion, as well as subsequent education and employment. Migration of recent bachelor degree recipients is of interest to the U.S. Department of Education, hence a small number of migration items were included in the B&B interview. Despite the longitudinal nature of this study, the migration-specific items were collected retrospectively in the B&B:2000/2001 interview. Due to the relatively short recall timeframe, the data are believed to be reasonably accurate.

Because this study is about young adults just entering the labor market, I limited the analysis to those who started college immediately after graduating from high school. The

derived variable DELAYENR, the number of years between the year of high school graduation and the first year enrolled in postsecondary education, is zero for approximately three-quarters of the respondents (n=7,766), indicating no delay between high school graduation and enrollment in postsecondary education. No delay between high school graduation and college enrollment is highly desirable for this research as it severely limits the possibility of job-related migration prior to starting college. (The rest delayed college anywhere from one to 47 years, with an average delay of 5.7 years.) A total of 2,262 cases were dropped, resulting in 7,766 remaining cases.

In addition, I dropped from the analyses those who were over age 23 as of December 31, 1999 (roughly their age at college graduation). The main reason for selecting this age cut-off point is that the majority of respondents 23 years of age and younger were continuously enrolled from the time they started college until they graduated; after age 23 the percentage who took at least one term off from their studies to work or pursue other interests jumped. In addition, students who are 24 years old and older are considered to be financially independent by federal financial aid standards. For these older graduates, migration behavior may well be related to those intervening activities rather than to post-college labor market decisions. This resulted in an additional 1,914 cases removed, yielding 5,852 cases.

Because regression requires data for all variables included in the analysis, I removed from the analysis those B&B respondents who were NPSAS nonrespondents or who completed the abbreviated NPSAS interview as several critical variables proposed for analyses come from the NPSAS data and are missing for these cases. Likewise B&B respondents who completed an abbreviated interview are missing data for several key variables are were dropped. Imputation was considered but was not feasible for these

variables. A total of 677 cases (553 and 124 respectively) were deleted due to case-level nonresponse, resulting in 5,175 cases.

Missing data for other variables were imputed where possible (and noted in the discussion of those variables below); where imputation was not feasible, cases with item-level missing data were deleted. This yields a total of 4,492 sample members for subsequent analysis. A summary of the sample attrition, along with the sample sizes for each of the analyses, is presented in Figure 2.1.

VARIABLES

The B&B analysis weight was created for use in cross-sectional analyses of B&B respondents. Weighting is not recommended for modeling analyses (Lohr, 1999). The unweighted and weighted frequencies of all variables used in this research are reported in Table 2.1. The unweighted frequencies only are discussed in the text of this chapter, except when they are sufficiently different and warrant discussion.

Migration variables

The migration items first asked for the sample member's zip code while in high school. This was followed by a question that asked "Do you live more than 50 miles from there now (that is, your residence when you last attended high school)?" The sample member's current zip code was collected, and, for those who said they live more than 50 miles from where they last attended high school, their reasons for moving (up to three) were collected. These zip codes were used to calculate the distance from last high school residence to current residence. Each of these zip codes was also used to create a variable

N=10,028 Total number of bachelor degree recipients interviewed in the B&B:2000/2001 study

Selected for traditional students, i.e., those who started college right after completing high school (removed 2,262 cases)

N=7,766

Selected for age less than 24 (removed 1,914 cases)

N=5,852

Selected for NPSAS:2000 complete interview and B&B:2000/2001 complete interview (removed 677 cases)

N=5,175

Deleted missing data on any variable included in the analyses that could not be reasonably imputed (removed 683 cases)

N=4,492 Sample used for analysis of "who moves?" (Chapter 3)

Selected for migration of more than 50 miles between place lived in high school and current residence (removed 2,319)

N=2,173 Sample used for migration to rural versus urban areas and migration reason analyses (Chapters 4 and 6)

Selected for those who were employed submodel (removed 287)

N=1,886 Sample used for submodel (employed respondents only) migration to rural versus urban areas and migration reason analyses (Chapters 4 and 6)

Removed those who provided identical zip codes for place of origin and destination (removed 34)

N=2,139 Sample used for migration distance analysis (Chapter 5)

Selected for those who were employed submodel (removed 280)

N=1,859 Sample used for submodel (employed respondents only) migration distance (Chapter 5)

Figure 2.1— Sample Attrition

Table 2.1 Unweighted and Weighted Frequencies of Discrete/Dummy Variables

Variable description	Unweighted frequency	Weighted frequency
Relocated more than 50 miles	51.6	50.7
Did not relocate	48.4	49.3
Large town residence (current)	8.9	7.7
Small town residence (current)	5.3	4.6
Rural area residence (current)	3.8	3.2
Metropolitan residence (current)	81.9	84.5
Reason for moving: work/school	64.9	66.5
Reason for moving: quality of life	35.1	33.5
Primarily a student while enrolled	97.9	97.5
Primarily an employee while enrolled	2.1	2.5
Computer science major	2.7	2.1
Engineering major	5.0	5.6
Business major	9.7	18.0
All other (low demand) majors	82.6	74.2
Graduated with honors	41.0	38.4
Did not graduate with honors	59.0	61.6
Educational aspirations: master's degree	58.1	57.9
Educational aspirations: advanced degree	26.6	26.2
Educational aspirations: no additional/don't know	15.2	15.9
Private institution (bachelor's degree school)	37.0	35.1
Public institution (bachelor's degree school)	63.0	64.9
Enrolled in undergrad/graduate school (currently)	24.2	22.6
Not enrolled in undergrad/graduate school (currently)	75.8	77.4
Currently employed	88.1	88.2
Not currently employed	11.9	11.8
Job is closely related to college major	55.7	52.8
Job is somewhat related to college major	21.9	24.2
Job is not related to college major	22.3	23.0
Job is start of career	71.4	71.4
Job is not start of career	28.6	28.6
Occupation: business/management	19.4	24.1
Occupation: engineering	4.1	4.7
Occupation: computer science	5.4	6.7
Occupation: medical professional	8.1	5.9
All other (low demand) occupations	63.0	58.6

Table 2.1 Unweighted and Weighted Frequencies of Discrete/Dummy Variables (continued)

Variable description	Unweighted frequency	Weighted frequency
Reasons for moving include contract work	31.3	32.4
Reasons for moving do not include contract work	68.7	67.6
Reasons for moving include speculative work	18.4	19.2
Reasons for moving do not include speculative work	81.6	80.8
Reasons for moving include quality of life	45.1	43.4
Reasons for moving do not include quality of life	54.9	56.6
Male	36.1	41.4
Female	63.9	58.6
Age: 18	0.1	0.1
Age: 19	0.2	0.3
Age: 20	1.6	1.7
Age: 21	40.0	40.0
Age: 22	38.3	37.0
Age: 23	19.9	20.9
Black	6.2	6.5
Asian	3.6	4.6
Native Alaskan/Native Hawaiian	1.0	1.1
Other	3.7	4.2
White	85.5	83.7
Married	21.4	19.2
Formerly married	0.5	0.5
Single never married	78.0	80.4
No children	94.5	94.9
Has children	5.5	5.1
Parental educational attainment: less than bachelor's degree	40.3	37.9
Parental educational attainment: more than bachelor's degree	32.1	33.5
Parental educational attainment: has a bachelor's degree	27.6	28.6
No risk to college completion	68.6	68.4
Had risk to college completion	31.4	31.6
Large town residence (high school)	11.4	10.7
Small town residence (high school)	8.8	7.4
Rural area residence (high school)	7.6	6.4
Metropolitan residence (high school)	72.3	75.4
Immigrant	2.0	3.0
Parent was immigrant	10.8	12.6
Other citizens	87.2	84.3

Source: U.S. Department of Education, National Center for Education Statistics, 2000-2001 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01).

indicating the urbanity or rurality of the place. The actual zip codes are not available on the restricted use data file to protect the confidentiality of respondents.

The B&B study defined migration as a move of more than 50 miles. While inconsistent with the U.S. Census Bureau's definition of migration (i.e., an intercounty move), in my opinion this definition that uses a specific distance rather than a boundary is valid and overcomes the foremost shortcoming of the Census definition. As Rosenzweig and Stark (1997) point out, interjurisdictional moves (between counties or states) are problematic in some instances because the migrant, while crossing the relevant boundary, may remain in the same labor market and thus the move is more like a residential move than migration. In suggesting a minimum distance that constitutes migration, Clark (1986) and Shryock and Siegel (1971) define minimum migration distance as too far to continue to commute to the same job. Numerous studies reviewed for this project used distance rather than a political boundary to define migration.[3]

The dependent variable for the first analysis, that is, to answer the research question "who moves?" is the variable for whether they live more than 50 miles from where they last attended high school. This piece of data was missing for 22 cases, however it was imputed for 10 of these cases based on the calculated distance between their current zip code and the zip code where they lived in high school. The remaining 12 cases with missing relocation information were deleted. Responses were split evenly, with 2,173 (48 percent) having moved more than 50 miles and the remaining 2,319 (52 percent) not having moved.

[3] Black (1983) used 100 miles; Gutheil and Copa (1981) used 51 miles, Détang-Dessendre and Molho (1999, 2000) used 100km (62 miles).

The dependent variable for the second analysis, that is, to answer the research question "who moves to rural areas versus metropolitan areas?" is the derived variable indicating the rurality or urbanity of their current residence. This variable was created using information from the Economic Research Service and Rural Health Research Center at the University of Washington to map a Rural Area Commuting Code (RUCA) to each U.S. census tract and zip code. RUCA classifies U.S. census tracts as metropolitan, large town, small town, or rural, based on measures of urbanization, population density, and daily commuting from the 1990 census. This coding scheme provides a subcounty settlement system rather than the traditional county-based categorization. This more precise geographic delineation corrects a flaw in the county-based system, namely the substantial under and over bounding of urban areas (i.e., quite rural areas are grouped with large urban areas because they are in the same county). Refer to Table 2.2 for the values of this variable (Morrill et al., 1999; U.S. Department of Agriculture, 2002).

Table 2.2 Definition of Rural Area Commuting Codes (RUCA)

RUCA code	Definition
1	Metropolitan-area core: primary flow within an urbanized area
2	Metropolitan-area high commuting: primary flow 30 percent or more to a urbanized area
3	Metropolitan-area low commuting: primary flow 5 to 30 percent to a urbanized area
4	Large town core: primary flow within a place of 10,000 to 49,999
5	Large town high commuting: primary flow 30% or more to a place of 10,000 to 49,999
6	Large town low commuting: primary flow 5% to 30% to a place of 10,000 to 49,999
7	Small town core: primary flow within a place of 2,500 to 9,999
8	Small town high commuting: primary flow 30 percent or more to a place of 2,500 to 9,999
9	Small town low commuting: primary flow 5% to 30% to a place of 2,500 to 9,999
10	Rural areas: primary flow to a tract without a place of 2,500 or more

Source: WWAMI Rural Health Research Center.

RUCAs are not available for U.S. territories and were missing for a number of zip codes on the file. Of the 139 cases where RUCA was unavailable for current residence, five will be imputed to high school RUCA since the distance from high school zip to current

residence was calculated to be less than 5 miles. In addition, 34 cases did not know their zip code, refused to provide it, or terminated the interview prior to reaching this question. These 168 cases with missing data for current RUCA were removed. Of those who migrated, 84 percent settled in a metropolitan-area, nine percent settled in a large town, four percent settled in a small town, and two percent settled in a rural area.

The dependent variable for the third analysis, that is, to answer the research question of how far these young migrants are moving, is the calculated distance in miles between high school residence and current residence. The distance was calculated (post data collection, during data cleaning and derived variable preparation) from the latitude and longitude of the midpoint of the respective zip code areas using spherical geometry. Whereas other studies have used midpoints of states or other very rough approximations of distance moved, this method provides a much more accurate estimate of distance. The major reliability concern is accurate recollection of high school zip code; however this measurement of distance is believed to be more reliable than asking respondents how far they moved. The distance variable was missing for 319 cases (no latitude/longitude was available for the zip code, the place of residence was outside the U.S., the sample member refused to provide the zip code or did not know the zip code; these cases were also missing on one or both RUCA variables) and removed from subsequent analyses. The distance was 0 for 1,341 cases (the high school zip code and current zip code were an exact match). Among those who moved, the distance ranged from 2 to 4,752 miles, with a mean of 457 miles and a standard deviation of 608 miles.

The dependent variable for the final analysis (and independent variable in the second and third analyses) is reason for moving. The respondents who said they lived more than 50

miles from the place they lived in high school were asked "Why did you decide to move away from where you last attended high school to where you are now?" The response options (which were not read to the respondent) were 1=got job here, 2=better job opportunities, 3=attending school beyond bachelor's, 4=be close to family/friends, 5=get away from family/friends, 6=other family reasons, 7=change climates, 8=prefer location, 9=better quality of life, and 10=other. For those responses that could not be coded into the first 9 categories, the "other" option required that the interviewer type in the exact reason provided by the respondent. During the data cleaning process, these verbatim responses were evaluated and upcoded into existing categories, where possible. The question collected up to three reasons. The reasons may be aggregated for comparison with other studies, with reasons one and two comprising work-related reasons, four through six being family reasons, and reasons seven through nine being quality of life reasons. A summary of reasons cited is presented in Table 2.3.

Work-related reasons were cited most often, with 46 percent of movers providing at least one work-related reason. Contracted moves (had a job arranged) were cited much more frequently than speculative moves (better work opportunities). Family reasons were cited by 19 percent of respondents. Other family reasons (marriage, in many cases, I suspect, given the age of the respondents) were cited with approximately the same frequency as "to be close to family/friends." Quality of life reasons were cited by 21 percent of respondents; "prefer location" was the most common of these reasons. Schooling was cited by 24 percent of respondents. The first reason cited, because it is expected to be the main reason for moving, collapsed into work/school-related reasons (65 percent) and quality of life reasons (35 percent), was used as the dependent variable in the fourth analysis.

Table 2.3 Reasons for Moving (n=2,173 movers)

Reason for moving	First reason cited	Total, reasons 1, 2, and 3*
Employment		
Contracted move	610	681
Speculative move	300	399
School	500	526
Family		
Close to family/friends	118	185
Get away from family/friends	42	66
Other family reasons (incl. marriage)	134	178
Quality of life		
Change climates	54	84
Prefer location	228	330
Better quality of life	41	113
Other	146	187

*Some respondents reported more than one reason within the general categories, hence the numbers in this column when summed and divided by the total number of movers, are greater than the numbers reported in the text. For example, 61 cases provided two or more quality of life reasons.

Source: U.S. Department of Education, National Center for Education Statistics, 2000-2001 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01).

Education variables

A number of education-related variables are expected to affect migration of recent bachelor degree recipients. Those who performed well in college, who have higher degree aspirations, and who majored in particular fields are expected to be in high demand by employers and therefore have a higher propensity to migrate. Most of the education data was collected during the NPSAS interview that took place during the respondent's senior year of college or shortly after graduation.

One variable that has been found (in other studies) to have an effect on numerous outcomes is whether the respondent indicated that he/she was primarily a student or primarily an employee while enrolled. Those who considered themselves to be primarily employees may, in fact, already be rooted to the area with a permanent job and thus less likely to

migrate after graduating. Data is missing on this variable for 79 respondents. These cases were removed from subsequent analyses. Those who did not work while enrolled (n=934) were not asked this question. A dummy variable was created by collapsing those who did not work while enrolled with those who were primarily students (98 percent); those who were primarily employees are the reference category.

The literature indicates that certain high demand fields are associated with migration. The National Association of Colleges and Employers (NACE) identifies the bachelor's degrees in highest demand by employers are accounting, business administration/ management, electrical engineering, mechanical engineering, economics/finance (including banking), computer science, information sciences and systems, marketing/marketing management, management information systems, and computer engineering (National Association of Colleges and Employers, 2003). The NPSAS interview collected major string (verbatim) which the interviewers then coded into a standard categorization. This classification system has roughly 99 specific categories that are further collapsed into 12 broad categories (humanities, social/behavioral sciences, life sciences, physical sciences, math, computer/information science, engineering, education, business/management, health, vocational/technical, other technical/professional). A careful mapping of the NACE high demand majors to the specific and general major categories supports the use of general categories, with business/management, computer/information science, and engineering representing these high demand majors. Major was missing for 7 respondents and was removed. Ten percent of respondents were classified as business/management majors, three percent were computer/information science majors, and five percent were engineering majors. The weighted frequencies painted a somewhat different picture with 18 percent

majoring in business. There appears to be two reasons for this weighting of business majors. First, business majors were purposefully undersampled for the NPSAS study (in an effort to obtain sufficient numbers of education majors/teachers for the B&B study), hence they were weighted more heavily. Second, males (14.8 percent) were more likely to be business majors than were females (9.3 percent); see discussion later in this chapter regarding the heavier weighting of males. A dummy variable was created for each of the high demand major categories, with the remaining 9 majors collapsed into the reference category.

College performance is expected to be positively associated with migration, as high achievers would be in greater demand by prospective employers. Measures of college performance available in these data include grade point average and graduation with honors. Grade point average (GPA) was collected by asking "What was your cumulative GPA at [school name] through the end of your last term?" If the respondent did not know, a follow-up question was asked to reduce nonresponse, "Would you say that your GPA was mostly A's, A's and B's, mostly B's?" with response categories of 1 = mostly A's (3.75 and above), 2 = A's and B's (3.25-3.74), 3 = mostly B's (2.75-3.24), 4 = B's and C's (2.25-2.74), 5 = mostly C's (1.75-2.24), 6 = C's and D's (1.25-1.74), 7 = mostly D's or below (below 1.24). GPA was missing on both variables for 54 cases; these cases were deleted from subsequent analyses. A total of 4,305 respondents reported their GPA to the initial question, with a mean of 3.3. The remaining 187 respondents provided categorical responses to GPA that was recoded to the midpoint of their range for analysis.

The B&B interview collected whether the respondent graduated with honors by asking "When you graduated from [school name], did you receive any type of academic honors?" Data were missing (don't know or refused) for 18 cases. Because people who did

graduate with honors would know that and would not refuse to answer, I imputed those cases to no. Approximately 41 percent of respondents reported graduating with honors. A dummy variable for honors was created with the reference category being no academic honors.

Educational aspirations are expected to be positively related to migration, as those with higher education goals would appeal to prospective employers. The NPSAS interview asked respondents "What is the highest level of education you ever expect to complete?" Data for this question was missing for 139 cases; however it was imputed for 78 cases who answered the previous question that asked about the highest degree expected from the school currently attending. Two percent of respondents didn't know how much education they expected to complete, 13 percent indicated they had no plans beyond their bachelor's degree, less than one percent said they intended to get a postbaccalaureate certificate, 58 percent responded with master's degree, and 27 percent indicated a doctorate or professional degree. Three dummy variables were created, one for master's degree, one for doctorate or professional degree, and one for don't know. No additional plans and postbaccalaureate certificate were combined to form the reference category.

According to past research, those who have migrated in the past are more likely to migrate again. Thus migration to attend college is expected to be a strong predictor of post-college migration. The distance between the permanent (home) address reported in the NPSAS interview and the school was calculated using the same procedure described earlier. This distance is missing for 84 cases and those cases were deleted from analyses. Distance to undergraduate school ranged from 0 to 3,857 miles. Among those who attended school more than 50 miles from home (n=2,466), the average distance was 322 miles with a standard deviation of 461 miles.

The sector of the school conferring the bachelor's degree is likely to be related to migration, with graduates of private not-for-profit institutions having a greater tendency to migrate than those from public colleges and universities. Again, this speculation is based on perceived demand, i.e., students from private institutions may be in greater demand by employers and therefore more likely to migrate when starting their career. Sixty-three percent graduated from public 4-year institutions and 37 percent graduated from private not-for-profit 4-year schools. A dummy variable, private school, was created with public schools as the reference category.

Employment factors

I predicted various employment factors will be associated with migration of recent bachelor degree recipients. Those who were working at the time of the B&B interview (approximately one year after college graduation), in jobs related to their major that they view as career jobs, demonstrate that they have been in demand by employers and are therefore expected to have been more likely to migrate. Certain high demand occupations are likewise expected to be related to migration propensity.

The initial question in the employment section of the B&B interview asks of everyone, "Now I'd like to ask you some questions about your employment. In your primary job, do you… 1 = work full-time, 2 = work part-time, 3=waiting to report to work/temporary layoff, 4 = not working, 6 = homemaker, 7 = disabled?" Employment status was missing for 20 cases; those cases were deleted. Three-quarters of respondents indicated they worked full-time, 13 percent said they worked part-time and 12 percent reported they were not working. Fifty-nine percent of those working part-time and 47 percent of those who were not working were enrolled in school (i.e., undergraduate, graduate, professional degree or

certificate program). A dummy variable was created to indicate whether the respondent is currently working (88 percent), with not working as the reference category. A second dummy variable was created to indicate whether the respondent is currently enrolled in an undergraduate, graduate, or professional degree or certificate program (24 percent), with not enrolled as the reference category. Enrollment data are missing for 12 cases. Those who did not know whether they were enrolled (n=9) were imputed to not enrolled as their uncertainty likely stems from taking classes but not actually being enrolled in a program.

Those who were currently employed were asked "Would you say your job as a/an [occupation string] is closely related, somewhat related, or not related to your undergraduate major?" Those with jobs unrelated to their major may have been less in demand by employers or had strong ties to a home community with few job opportunities related to their major, thus are expected to have had lower migration rates. Those with jobs related to their major, on the other hand, are expected to have been more likely to migrate. Data are missing for 26 cases; they were removed from subsequent analyses. An additional 535 cases did not get this and other questions about their job because they are not currently employed. These cases were retained, however a submodel analysis was performed for employed respondents. Fifty-six percent of employed respondents said their job was closely related to their major, while the rest were evenly split between somewhat related and not related. Two dummy variables were created, one for closely related and one for somewhat related, with not related as the reference category.

Those who were currently employed were asked "Would you consider your current job to be the start of your career in this occupation or industry?" Those in a career position are more likely to have been in demand and migrated than those who are just paying the bills

or working while deciding on their future education or career plans. In addition to the respondents who did not get this question because they were not employed, data are missing for ten cases; these ten cases were removed. Seventy-one percent of employed respondents indicated their current job was the start of their career. One percent of employed respondents indicated they did not know whether their current job was the start of a career. Rather than removing these cases (missing data), I propose imputing them to "no, not the start of a career" as it seems to indicate they were unsure of their intended career and would therefore be qualitatively similar to those who were not in a career position. To determine whether this imputation is legitimate, I created a temporary dummy variable for imputed data (reference category being not imputed) and ran a preliminary regression model to ascertain whether the imputed data were different. The dummy variable was not significant, thus the imputed cases are not different and the imputation is legitimate. A dummy variable for career job was created, with the reference category being not a career job (including don't know cases).

Occupations that are in high demand are predicted to be associated with higher migration rates. The Bureau of Labor Statistics (BLS) reports on fastest growing occupations as their indicator of demand. The fastest growing occupations for those with a bachelor's degree are computer engineers, computer systems analysts, database administrators, physician's assistants, and residential counselors. In general, computer-related and health care occupations are expected to experience the fastest growth (Bureau of Labor Statistics, 2000).

The B&B interview asked those who were currently employed "What is your job title?" and "What do you do?" The respondents' verbatim responses were entered and immediately coded by the interviewer (with help from a coding/dictionary program that

matched words from the verbatim strings with potential occupations) into the appropriate occupational code. These 40 specific occupational codes were later collapsed into 11 general occupation codes (educators, business and management, engineering/software engineer/ architecture, computer science, medical professionals, editors/writers/performers, human/ protective service professionals, research/scientists/technical, administrative/clerical/legal, mechanics/laborers, service industries).

The mapping of BLS fastest growing occupations into either the specific or general occupation categories was less than precise, due to the highly specific nature of the BLS occupations compared to the broader, inclusive nature of the occupational categories used by B&B. The general "computer science" and "medical professionals" categories seem to reflect high demand occupations; however none of the other categories appear to map well with the fast growing occupations identified by the BLS. The NACE high demand majors suggest engineering/software engineer/architecture and business/management might also be high demand occupations. Apart from the unemployed respondents, data are missing for 48 cases. Five percent of employed respondents reported holding jobs in the computer science field, eight percent in medical professions, four percent in engineering/software engineer/ architecture, and 19 percent reported jobs in business/management. As with majors, the weighted frequencies for business majors were higher, with 24 percent in business/ management occupations. The strong correlation between business major and subsequent work in the business management field suggests the same reasons mentioned earlier for business majors (undersampling and gender distribution) account for this difference. A dummy variable was created for each of these high demand professions, with the remaining occupations collapsed into a single low demand occupation reference category.

Reason for moving, discussed earlier in this chapter, is an independent variable in analyses of distance moved and movement to metropolitan or rural areas. Work-related reasons for moving are of interest because the move could be contracted (i.e., moving to start a job) or speculative (i.e., moving for better job opportunities). It is expected that contracted moves are associated with longer distance moves and moves to metropolitan areas. Up to three reasons were cited and all reasons cited were used in creating dummy variables. One dummy variable was created for contract work (31 percent of movers), with the reference category being not contract work. Another dummy was created for speculative work (18 percent of movers), with the reference category being not speculative work. A third dummy variable was created for quality of life reason (45 percent of movers), with the reference category being not quality of life reason.

Background variables/individual characteristics

Several standard background variables, such as gender, race, and marital status have been inconclusive in past analyses of migration factors. The relationship of age and migration is well know, however given the limited range of ages included in the proposed analyses no significant effect is expected. Other background characteristics, such as having children, parental socioeconomic status, rurality of place of residence in high school, and risk index for college completion are expected to be associated with migration.

Gender was asked only if the gender of the respondent was not obvious from other cues. Roughly 36 percent of the recent graduates were male and 64 percent were female. The weighted frequencies were 41 percent male and 59 percent female. This brings the distribution into line with the known distribution of college graduates which are 57 percent female (U.S. Department of Education, Digest of Education Statistics, 2001). This difference

is due not to oversampling, rather to the higher response rate among female sample members. A dummy variable, male, was created with female as the reference category.

The NPSAS interview asked "What is your date of birth?" which, for confidentiality and data analysis purposes, was recoded on the NPSAS and B&B data files as age as of December 31, 1999. (This date roughly corresponds to age at college graduation; the sample consists of those who received a bachelor's degree between July 1, 1999 and June 30, 2000.) Ages greater than 23 were dropped from analysis as they were unlike the "traditional" student who starts college immediately following high school graduation and completes his/her studies in the usual four to five academic years (see discussion earlier in chapter). Less than one percent were 18 or 19 years old; two percent were 20 years old; 40 percent were 21 years old; 38 percent were 22 years old; and 20 percent were 23 years old. Dummy variables were created for each age, with 23 years of age as the reference category.

Race was asked in the NPSAS interview with the standard question "What is your race?" and up to three responses were coded. Respondents reporting more than one race (one percent) were asked, "For historical purposes, could you please identify which single race best describes you?" The response categories for both questions were 1 = White, 2 = Black or African American, 3 = Asian, 4 = American Indian or Alaska Native, 5 = Native Hawaiian or other Pacific Islander, 6 = other, specify. The race variable proposed for this research was derived using the first race for those who provided only one race, the single best race for those who provided multiple races, and other available data sources (NPSAS student data provided by the institution, the SAT questionnaire, and stochastic imputation) for those who did not report their race in the CATI interview. Eighty-six percent identified themselves as White, six percent Black, four percent Asian, less than one percent each American

Indian/Alaska Native and Native Hawaiian/other Pacific Islander, and four percent "other." Four dummy variables were created, one for Black, one for Asian, one for native (combining American Indian/Alaska Native and Native Hawaiian/other Pacific Islander because of their small numbers), and one for other. White will serve as the reference category.

The B&B instrument collected marital status by asking "Are you currently… 1 = single, never married; 2 = married; 3 = separated; 4 = divorced; 5 = widowed?" Eleven cases had missing data for this item and were removed from subsequent analyses. Seventy-eight percent of respondents indicated they were single, never married; 21 percent were married; and less than one percent were divorced, separated, or widowed. Two dummy variables were created, one for married and one for formerly married, with single as the reference category.

Presence of children is expected to be a hindrance to migration. The B&B instrument asked how many children the respondent or his/her spouse support financially. The number of children is missing for nine respondents; these cases were deleted. Ninety-four percent had no children, five percent had one child, and one percent had two or more children. Because the presence of children, rather than the number of children, is thought to be a hindrance to migration and because so few had children, those with one or more children were collapsed for analysis purposes. The dummy variable indicates absence of children, with having children as the reference category.

Parental socioeconomic status, as a proxy for one's past opportunities, is expected to be positively related to migration; those raised in households with higher income and educational levels would have been more likely to have moved or traveled while growing up and hence less apprehensive of doing so on their own. No single parental socioeconomic status derived variable is available in the data; however separate parental educational

attainment and income variables exist. The parental education variable captures the educational attainment of the parent who completed the highest level of schooling. Parental educational attainment is missing for 11 cases; these cases were removed. In one percent of respondents' families, neither parent completed high school; in 17 percent a high school degree was the highest educational attainment; 10 percent completed vocational/technical training or less than 2 years of college; 12 percent completed 2 years of college or an associate's degree, 28 percent completed a bachelor's degree, 22 percent completed a master's degree, five percent completed a professional degree (e.g., MD, LLB, JD), and five percent completed a PhD or equivalent. Two dummy variables were created for parental educational attainment, one for less than a bachelor's degree (40 percent) and one for an advanced degree (32 percent). The reference category is bachelor's degree.

Parental income was collected from a number of sources (Central Processing Files: 2000 from the Free Application for Federal Student Aid (FAFSA) form, NPSAS interview, SAT, and imputation) and a derived variable of income percentiles for parents of dependent students was created. However, this variable was missing for a large number of cases that were classified as financially independent (n=494). Imputation based on parental educational attainment was considered for these cases but the r^2 for these two variables was 0.10, suggesting this is not particularly good for imputation. Addition of race to the equation did not improve the r^2 value. Furthermore, initial bivariate and multivariate analyses indicate that parental income was not a statistically significant predictor of migration. Thus the parental income variable was not included in these analyses.

The NPSAS data file includes an index of risk that is derived from seven characteristics known to adversely affect college persistence and attainment. Characteristics

include: delayed enrollment, no high school diploma (including GED recipients), part-time enrollment, financial independence, having dependents other than spouse, single parent status, and working full-time while enrolled. While the B&B respondents have obviously overcome these risks to complete their bachelor's degree, it seems plausible these same risks might hamper their ability to land a good job and migrate. Thus, a high risk index is expected to be negatively associated with migration. (The opposite argument could be made that individuals who have completed their bachelor's degree despite these risks may be particularly persistent in securing a good job and willing to migrate to do so.) For those included in this study, the risk index ranges from 0 to 5, with 69 percent having no risk factors, 23 percent having one risk factor, six percent having two risk factors, two percent with three risk factors, and less than one percent with four or five risk factors. For analysis purposes a dummy was created indicating no risk to college completion; those with one or more risks were collapsed into the reference category.

The B&B data include a derived variable indicating the rurality or urbanity of the respondent's residence while in high school (based on zip code). Refer to the discussion earlier in this chapter for further information about RUCA codes. Those originating in rural areas are expected to have higher rates of migration for two reasons: they are more likely to move to urban areas to attend college and less likely to find suitable work in their rural home area after graduation. Because this item was missing data for quite a few cases (n=296), the NPSAS and B&B data were examined for other variables that might facilitate imputation. This exercise yielded one potential variable: high school class size; however it did not correlate well with the high school RUCA variable so these cases were dropped from the data. (Most of these cases were also missing on the distance from high school residence to

current residence and would have been removed anyway.) While attending high school, 72 percent lived in a metropolitan-area, 11 percent lived in a large town, nine percent lived in a small town, and eight percent lived in a rural area. Three dummy variables, indicating large town, small town, and rural area were created, with metropolitan-area as the reference category.

The predicted effect of immigrant status is that immigrants are more likely to migrate due to past willingness to migrate. (Alternatively one could argue that immigrants, once settled in an immigrant community, are less inclined to move.) Immigrant status was derived from three NPSAS variables: respondent's citizenship status, whether the student was foreign born, and whether the parent(s) were foreign born. Immigrant status is missing for 6 cases. Two percent qualify as immigrants (foreign respondents with visas, resident aliens or eligible non-citizens) and twelve percent are children of immigrants (foreign born respondents with foreign born parent(s), respondent is a citizen; and U.S. born respondent with at least one foreign born parent, respondent is a citizen). Both of these were coded as dummy variables, with all other citizens (87 percent) being the reference category.

In the four chapters that follow, I present the results of this research. In Chapter 3, I look at the characteristics of movers versus nonmovers. Chapter 4 deals with their migration to rural or metropolitan destinations. In Chapter 5, I focus on the characteristics that distinguish those who migrate longer distance from those who migrate shorter distances. Chapter 6 looks at the characteristics of those citing work-related versus quality of life reasons. Conclusions are presented in Chapter 7.

CHAPTER 3

WHO MOVES: EFFECTS OF EDUCATION, EMPLOYMENT, AND BACKGROUND CHARACTERISTICS ON MIGRATION PROPENSITY

This chapter answers the question "who moves?" The dependent variable is dichotomous; either the sample member moved or did not move. Logistic regression, a form of multivariate analysis specifically designed for use with discrete dependent measures, is used to test the hypotheses set forth in Chapter 1.

First, bivariate results are presented for each of the independent variables. Next multivariate results are presented in stages to test my hypotheses. The education model tests hypothesis 1A, education-related factors affect migration. The employment model tests whether there is a correlation between current employment conditions and migration (hypothesis 1B). The background model tests hypothesis 1C, individual characteristics affect migration. The full model then tests whether these relationships hold when controlling for other factors. The results of the bivariate and multivariate analyses are summarized in Table 3.1. The chapter concludes with a discussion of the results.

BIVARIATE ANALYSES

Each of the independent variables included in this first analysis was regressed onto the dependent variable to determine whether they initially support my hypotheses. In this section the focus is on the significance and direction of those effects. I interpret the magnitude of the effects in subsequent sections. The sample size is 4,492. For the variables that apply only to currently employed respondents (job related to major, job is start of career, and occupation) the sample size is 3,957.

Table 3.1—Odds Ratio Estimates for Logistic Regression Models of "Who Moves?"

Predictor variables	Bivariate models	Education model	Employment model I	Employment model II	Background model	Full model I	Full model II
Sample size		4,492	4,492	3,957	4,492	4,492	3,957
Education							
Primarily a student while enrolled	1.481	1.326				1.389	1.373
Major (baseline: low demand majors)							
Computer science major	1.322	1.504*				1.658*	1.368
Engineering major	1.775*	1.817*				1.861*	1.797*
Business major	0.931	1.018				1.044	0.955
GPA	1.328*	1.282*				1.164	1.142
Graduated with honors	1.127*	0.952				0.953	0.987
Advanced degree plans (baseline: none)							
Master's degree aspirations	1.092	1.044				1.060	1.046
Advanced degree aspirations	1.477*	1.383*				1.439*	1.432*
Unsure about degree plans	0.956	0.895				0.901	1.021
Distance home to school (log)	1.109*	1.104*				1.104*	1.103*
Attended a private not-for-profit school	1.248*	1.198*				1.258*	1.251*
Employment							
Currently enrolled	1.320*		1.287*			1.233*	1.234*
Currently employed	0.787*		0.840			0.884	
Job related to major (baseline: unrelated)							
Job is closely related to major	1.079			1.133			1.113
Job is somewhat related to major	1.086			1.111			1.132
Job is start of career	0.931			0.872			0.902
Occupation (baseline: low demand occ)							
Business/management	0.959			0.968			1.091
Engineering	1.665*			1.670*			1.103
Computer science	1.186			1.198			1.231
Medical professional	0.868			0.864			0.885

Table 3.1—Odds Ratio Estimates for Logistic Regression Models of "Who Moves?" (continued)

Predictor variables	Bivariate models	Education model	Employment model I	Employment model II	Background model	Full model I	Full model II
Background characteristics							
Male	1.146*				1.154*	1.058	1.044
Age (baseline: 23 years old)							
Age 18	2.197				2.998	2.574	2.585
Age 19	0.916				0.935	0.790	0.790
Age 20	0.733				0.712	0.567	0.601
Age 21	1.066				1.046	0.860	0.805
Age 22	1.021				1.000	0.926	0.885
Race (baseline: white)							
Black	0.792				1.059	0.974	0.997
Asian	0.850				1.368	1.312	1.505
Native Hawaiian/Native Alaskan	1.037				1.349	1.299	1.252
Other race	0.775				1.165	1.185	1.152
Marital status (baseline: single)							
Married	1.218*				1.277*	1.332*	1.228*
Formerly married	1.562				1.803	1.883	1.969
Have no children	1.528*				1.720*	1.671*	1.754*
Parental education (baseline: BA degree)							
Less than bachelor's degree	0.772*				0.761*	0.791*	0.796*
More than bachelor's degree	1.279*				1.321*	1.234*	1.258*
Risk to college completion	1.125				1.092	1.025	1.062
High school residence (baseline: metro)							
Large town	1.728*				1.754*	1.871*	2.003*
Small town	1.549*				1.596*	1.694*	1.781*
Rural area	2.036*				2.224*	2.284*	2.238*
Immigrant status (baseline: not immigrant)							
Immigrant – noncitizen	0.481*				0.512*	0.459*	0.361*
Immigrant – citizen	0.687*				0.718*	0.706*	0.703*
-2 Log L		6087.250	6203.169	5459.399	6038.979	5898.866	5187.887
Model χ^2	—	125.540*	19.217*	17.239*	172.541*	290.116*	258.737*
Degrees of freedom	—	11	2	7	21	34	40

*p<.05

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

As discussed in the previous chapter, education variables indicating whether the respondent had high achievement in college, higher degree aspirations, and majored in a high demand field are expected to be related to migration. The effects of the respondent's GPA, whether the respondent graduated with honors, the distance from the respondent's permanent home to college, and whether the respondent attended a private rather than public postsecondary institution are statistically significant and in the hypothesized direction. The effect of being primarily a student (rather than primarily an employee) is not statistically significant. The bivariate analysis of high demand fields (computer science, engineering, and business) show differences that appear to be significant and in the hypothesized direction for respondents who were engineering majors but not for those who were computer science or business majors relative to those in low demand majors. The effect of having advanced degree aspirations appears to be significant and in the expected direction while the effects of having master's degree aspirations and being unsure about future degrees are not statistically significant relative to having no further degree aspirations.

Employment variables, such as whether the respondent is currently employed, working in a job related to the respondent's major, working in a career job, and working in a high demand occupation, are expected to be positively related to migration. Bivariate analysis indicates that being currently employed is related to migration but in the opposite direction than was hypothesized. The effect of whether the respondent was enrolled in an undergraduate or graduate program is statistically significant and in the expected direction. Neither the effect of whether the respondent's job is related to major nor the effect of whether the respondent's job is the start of a career is statistically significant. While the effect of the group of occupation dummy variables is statistically significant, only the effect

of those working in engineering jobs appears to be significantly different from those in the reference category (low demand occupations) and in the expected direction.

Certain background characteristics were expected to be related to migration. The effects of whether the respondent has children, educational attainment of the respondent's parents, and rurality/urbanity of the respondent's high school residence are statistically significant and in the expected direction. The effect of gender is also statistically significant, although no relationship was expected. The effect of the group of marital status dummy variables is statistically significant, however only married respondents are significantly different from the reference category, single (never married) respondents. The effect of the respondent's immigrant status is statistically significant but in the opposite direction than was hypothesized. The effects of the respondent's age, race, and risk to college completion are not statistically significant.

MULTIVARIATE ANALYSES

The education model considers the effects of all the education factors on migration. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 125.5$ and 11 degrees of freedom.

The employment models look at the effects of the employment factors on migration. The first employment model, containing only current employment status and current enrollment status is statistically significant at the $p<0.05$ level, with model $\chi^2 = 19.2$ and 2 degrees of freedom. A second employment model was created for those respondents who were employed (n=3,957). These factors are not included in the first employment model because these data are missing for those who are not employed, which removes all

unemployed respondents from the larger model. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 17.2$ and 7 degrees of freedom.

The background model looks at the effects of respondents' background characteristics, such as gender, age, race, and marital status, on migration. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 172.5$ and 21 degrees of freedom.

The full model includes the education variables, the employment variables with the exception of those that were only asked of currently employed respondents, and the background variables. The model, with model $\chi^2 = 290.1$ and 34 degrees of freedom, is statistically significant at the $p<0.05$ level. A second full model, this one including the job-related variables, was estimated for just the employed respondents. This model, with model $\chi^2 = 258.7$ and 40 degrees of freedom, is statistically significant at the $p<0.05$ level. The results reported below, with the exception of the job-related variables, are based on the first full model with all respondents, although the magnitude of effects is nearly identical for variables in both full models.

Of the education variables, the effects of having been primarily a student, grade point average, and graduated with honors are not statistically significant. This means that respondents who were primarily students are not different from those who were primarily employees, respondents who had higher grade point averages are not different from those who had lower grade point averages, and respondents who graduated with honors are not different from those who did not graduate with honors, in terms of relocating. Respondents' GPA is associated with migration in the education model (a one point increase in GPA increases the odds of relocating by 1.3 times) but loses significance when other variables are

introduced. No single variable appears to be the cause of this; rather the effect of GPA is supplanted by the additional variables in later models.

A number of education variables are statistically significant and in the direction hypothesized. The set of dummy variables for major was evaluated using the incremental chi-square test. To do this, I created a nested model without the dummy variables, subtracted the -2 log likelihood and degrees of freedom, respectively, for the two models, and consulted the chi-square distribution to determine whether the resulting chi-square and degrees of freedom are statistically significant at the $p<0.05$ level. It is statistically significant; thus major has an effect on migration. Respondents with engineering majors are nearly twice (1.9 times) as likely as respondents with low demand majors to migrate and respondents with computer science majors are 1.7 times more likely to migrate compared to respondents with low demand majors. The coefficient for business majors is not statistically significant, meaning respondents with business majors are no different from respondents with low demand majors in terms of migration. The incremental chi-square test was used to evaluate degree aspirations for that set of dummy variables and is statistically significant, meaning that respondents' educational aspirations have an effect on post-college migration. The odds of relocating for respondents planning to obtain a doctorate or professional degree are 1.4 times higher than those not planning additional education. The coefficients for those aspiring to get a master's degree and those who did not know whether they would get additional education are not statistically significant, which means respondents with master's degree aspirations and those unsure of their degree aspirations are not different, in terms of migration, from those not planning additional education. The effect of distance from the respondent's home to college is statistically significant; the odds of relocating increase by 1.1

times for each one percent increase in distance between the permanent (home) address reported in the NPSAS interview and the postsecondary institution. The odds of migrating for those who attended private colleges or universities are 1.3 times higher than for those who attended public colleges or universities.

The effect of current employment status is not statistically significant, meaning employed respondents are not different from unemployed respondents in terms of migration. The effect of current enrollment status, however, is statistically significant. Respondents who are currently enrolled are 1.2 times more likely to have migrated than those who are not currently enrolled.

For the subset of employed respondents, those who considered their job to be the start of their career are no different, in terms of migration, than those who did not consider their job to be the start of their career. The incremental chi-square test was used to test the statistical significance of the two dummy variables of how closely the respondent's job is related to their major and the four occupation dummy variables. The effect of how closely the respondent's job is related to major is not statistically significant; hence respondents whose jobs are closely related to their major and respondents whose jobs are somewhat related to their major are not different from respondents whose jobs are unrelated to their major in terms of post-college migration. The effect of respondents' occupation is statistically significant in the employment model; respondents who are employed as engineers are 1.7 times more likely to relocate than are respondents employed in low demand occupations. The effect of the set of occupation dummies is not significant in the full model, when controlling for education and background factors. It appears that respondents' major,

which is, not surprisingly, correlated with their occupation, is the reason for this loss of significance for the effect of occupation in the full model.

Among the background variables, the effects of respondents' gender, age, race, and risk to college completion are not statistically significant, meaning that male respondents are not different from female respondents, younger respondents are not different from the 23 year old respondents, Blacks, Asians, Native Alaskans/Hawaiians, and other races are not different from Whites, and respondents not at risk for completing a bachelor's degree are not different from those at risk, in terms of migration. The effect of the gender variable was significant in the background model (males were 1.2 times more likely to migrate than females) but is no longer significant in the full model. Further analysis indicates the addition of the major variable in the full model is primarily responsible for this loss of significance (male respondents are overrepresented in the computer science and engineering majors and underrepresented in the low demand majors).

The effects of marital status, absence of children, parental educational attainment, and rurality of high school residence are statistically significant and in the direction hypothesized. The effect of immigrant status is also statistically significant but in the opposite direction from that which was hypothesized. Married respondents are 1.3 times more likely to migrate than are single respondents. The coefficient for formerly married respondents is not statistically significant, meaning that they are not different from single respondents in terms of migration. The odds of migrating for respondents without children are 1.7 times higher than for those with children. Respondents whose parents had completed more than a bachelor's degree are 1.2 times more likely to migrate than those whose parents had a bachelor's degree; while those whose parents had less than a bachelor's degree are 0.8 times

less likely to migrate than those whose parents had a bachelor's degree. Respondents who lived in a rural area while in high school are more than twice (2.3 times) as likely to move as those who lived in a metropolitan area; respondents who lived in a small town are 1.7 times more likely to move compared to those who lived in a metropolitan area; those who lived in a large town are nearly twice (1.9 times) as likely to move as those who lived in a metropolitan area in high school. Respondents who are immigrants are half as likely to migrate and those who are children of immigrants are 0.7 times less likely to migrate compared to all other citizens.

SUMMARY OF RESULTS

The results reported in the previous sections support hypothesis 1A: education-related factors affect migration; the education model is statistically significant at the $p<0.05$ level and several of the education factors are statistically significant in the bivariate and multivariate models.

I predicted that high achievers (respondents who were primarily students, had higher grade point averages, graduated with honors, and had higher degree aspirations) and those with high demand majors (engineering, computer science, business) would tend to migrate because they would be in higher demand by prospective employers. The high achiever argument met with mixed results. The effect of higher degree aspirations is statistically significant in all models. Respondents aspiring to a doctorate or professional degree are significantly different from those not planning to further their education; those aspiring to a master's degree are not, however, significantly different from those with additional education aspirations. The effects of having been primarily a student (as opposed to an employee who

was attending school), graduating with honors, and grade point average are not significant in the full model. The high demand major conjecture is supported by the data, as the effect of major is significant in all models, although only respondents with computer science and engineering majors (not business majors) are significantly different from those with low demand majors.

Consistent with the literature linking past migration with subsequent migration, I expected those who had migrated to attend school would be likely to migrate again because this earlier successful move is believed to lower the psychological barriers for later moves. This hypothesis was supported by the data; the effect of distance to school was statistically significant in all models. This finding, that the odds of relocating increase by 1.1 times for each one percent increase in distance between home and school, supports DaVanzo's (1983) finding that the farther the initial move, the more likely a person is to move again.

I predicted those attending private colleges and universities would be more likely to migrate than those attending public schools because for many students attending a private school requires migration and parental financial assistance. The effect of private school attendance is statistically significant in all models, supporting this hypothesis.

The results reported earlier in this chapter also support hypothesis 1B: there is a correlation between current employment conditions and migration. Both employment models are statistically significant at the $p<0.05$ level and two of the five individual variables are statistically significant in the employment and full models.

I predicted that employed respondents, whose jobs are related to their majors, whose jobs are career positions, and those in high demand occupations would be more likely to have migrated. My rationale for this is that migration is often required to pursue career goals,

particularly for the well-educated (Lyson, 1986). The effects of the respondent's current employment status, how closely the respondent's job is related to their major, and whether the respondent's job is the start of a career are not statistically significant in the employment and full models. The effect of the respondent's current employment status is significant in the bivariate model but it is in the opposite direction from that which was hypothesized: employed respondents are 0.8 times less likely to have moved than are those who are not employed.

The effect of the respondent's current enrollment status is significant in all models, with currently enrolled respondents being more likely to have moved than those not enrolled. No enrollment effect was predicted, however in retrospect it seems likely that graduate school enrollment would likely have required migration to attend.

The effect of respondent's occupation is significant in the employment but not in the full model. It was thought that high demand for certain occupations was a mechanism for migration, however given that these four fields were identified as high demand occupations for college graduates and only one of them, engineering, is associated with higher rates of migration in any of the models, other explanations must be considered.

My final hypothesis concerning predictors of migration, 1C: individual characteristics affect migration, is supported by the data. The background model is statistically significant at the $p<0.05$ level and several of the proposed predictors are statistically significant in the full model.

I predicted that gender would have no effect on migration since women right out of college today are in the workforce in similar numbers as men and typically not dependent on their families. The effect of respondents' gender is, in fact, statistically significant in the

bivariate and background models, with males slightly more likely to migrate than females; however this relationship is not significant in the full model, when education and employment variables are included.

While age is typically a strong predictor of migration, I did not predict an effect of age for this research because the range of ages included in the data (ages 18 through 23) is so small, and all respondents are at the same stage in life (recent college graduates). Indeed, age is not a statistically significant predictor of migration propensity in any of the models.

While other studies (admittedly 20 to 25 years old) have shown Blacks to be less migratory than Whites, I expected race to have very little effect on migration because it seems to me that differences in migration propensities have more to do with socioeconomic status than race. As predicted, race had no effect on migration propensity in any of the models.

Contrary to the general literature on migration, I hypothesized that married respondents would be more migratory than singles because they would be looking for a labor market to support both careers, which would likely require a move. Indeed, marital status is a statistically significant predictor of migration in the hypothesized direction; married respondents are more migratory than singles in all of the models. I did not predict a relationship for formerly married respondents, who, as it turns out, are no different from singles in terms of migration.

I expected that those without children would be more likely to move than those with children. Respondents who do not have children are, in fact, significantly more likely to relocate than those who do have children in all models. This finding agrees with the literature and is intuitive: those with children tend to have stronger ties to their community

(psychological barriers) as well as higher moving costs (financial barriers), both of which impede migration.

I predicted that those with higher parental socioeconomic status and immigrants would be more likely to migrate because they were more likely to have traveled or moved growing up and hence more willing to do so on their own after college. Parental educational attainment was used as a proxy for parental socioeconomic status. As expected, respondents whose parents have less than a bachelor's degree are significantly less likely to migrate (in all models) than are those whose parents have a bachelor's degree. Likewise, respondents whose parents have more than a bachelor's degree are significantly more likely to migrate than those whose parents have a bachelor's degree. The immigrant dummy variables are statistically significant in all models but in the opposite direction from what I hypothesized. Contrary to my prediction, however, immigrants are less likely to migrate than are all other citizens.[4]

I expected those at risk for college completion would be less likely to migrate because the factors that adversely affect persistence and attainment (e.g., part-time enrollment, working full-time while enrolled, financial independence, single parent status, having dependents other than spouse) might also hinder one's ability to migrate upon completion of the degree. There is, however, no difference between respondents with risk factors and those without risk factors, in any of the models, indicating that these risk factors do not, in fact, deter migration.

[4] Note that for immigrants to be included in this model they had to have supplied a valid U.S. zip code for place lived in high school, meaning that those who immigrated to attend college were dropped from analyses.

I hypothesized that those originating in rural areas would be expected to have higher rates of migration for two reasons: they would be more likely to move to larger towns and metropolitan areas to attend college and less likely to find suitable work in their home communities after graduation. The effects of all three dummy variables for the rurality or urbanity of the respondent's residence while in high school are significant at the $p<0.0001$ level in all models; respondents from rural areas, small and large towns are significantly more likely to relocate (2.3 times, 1.7 times and 1.9 times, respectively) than are those from metropolitan areas.

DISCUSSION

The mixed results of the effects of the education factors on propensity to migrate are worth looking at more closely. Why was the trio of variables that served as a proxy for high achievement in college (primarily a student, grade point average, and graduated with honors) not related to migration but major is? Still operating under the premise that demand by prospective employers is the link between education and migration, it would seem that high achievement is not important to prospective employers but major is. Perhaps there is something more at work here. Those who performed well in college may expect to be in higher demand by prospective employers and can, therefore, choose whether they want to live close to where they grew up or migrate. Maybe personality factors, such as aversion to risk, are better indicators of migration propensity.

Major, on the other hand, represents a particular skill set that would seem to be very important to prospective employers. The fact that the supply of engineering and computer science majors cannot keep up with the demand increases the salaries in these fields. The

location of the highest bidder may well drive the migration patterns of this group. Why, then, were business majors no different from low demand majors, in terms of migration propensity? It is possible that the demand for business majors at the bachelor's degree level is not as high as the literature suggests. A more plausible explanation is that a business major can be applied to many businesses but a computer science or engineering major tends to be more specialized requiring a geographically wider job search to find a suitable position.

Higher degree aspirations and whether the respondent is currently enrolled are correlated, so it is no surprise that both those planning to get a doctoral degree and those currently enrolled are more likely to migrate than those with no further degree plans and those not currently enrolled. The explanation would seem to be that those who know at the time they are graduating from college that they plan to get a doctorate are very likely enrolling immediately in graduate school. Since relatively few schools offer advanced degree programs, and the type of degree program and areas of interest may further limit one's choices, enrolling in an advanced degree program generally requires migration.

The two remaining education variables, distance from permanent home to college, and attending a private institution, both seem to me to be related to the well known migration principle that prior migration is associated with higher propensity to migrate again. Those who migrated greater distances to attend college are more willing to migrate again after graduation, presumably because they successfully negotiated the psychological barriers once, making them less formidable in the future. The personality argument may come into play; certain types of people are more willing to take on a move and, in fact, may thrive on this type of change, compelling them to migrate over and over.

There are several possible explanations for the association between private school attendance and migration propensity. First, private schools are fewer in number and, unlike public universities, not intended to draw primarily from the local area; hence for most students it requires a move from home to attend these schools. Second, private schools tend to be quite costly, which typically requires significant parental financial backing. Past studies have found that higher socioeconomic status, which affords more opportunities to travel while growing up, is associated with migration and this research finds parental educational attainment is associated with migration. Acquiring information about places, whether from earlier visits or networking, is thought to be associated with migration. Third, private schools tend to be more selective in terms of admitting students with higher achievement in high school and higher college admission scores. I expected high achievement to be related to subsequent migration, although as discussed earlier this relationship diminished with the introduction of additional variables to the model. Repeat migration is, for me, the most compelling argument for the association between private school attendance and subsequent migration, but since we have no data on prior migration other than distance to school, this is merely speculation.

It is curious that many of the education factors are related to migration propensity but current employment factors are not. Why, then, are employment factors not related to migration, particularly since the reason for move data presented in the previous chapter indicates that nearly half of those who moved cited a work-related reason (either contracted work or better work opportunities) for doing so? In light of the fact that the currently employed variable (i.e., employed or not) loses significance when the currently enrolled variable is added to the model, one explanation is that the unemployed may actually be in

school and migrated to attend graduate school. It is also possible not enough time has elapsed between college graduation and this interview for the process of migration and job search to have been successfully completed (particularly given the economic recession in the U.S. during this time period). Another plausible explanation is that better knowledge of job prospects close to one's home and contacts for networking in one's home community offset the benefits of a better job market in an unfamiliar community where one has few or no contacts for networking. This same argument could be made for finding a job related to one's major and one that is the start of a career: networking within one's home community is just as effective in finding a job to match one's education and skills as is migrating to an area perceived to have better job opportunities.

The lack of effect of gender, race, and age on migration comes as no surprise. I had no reason to believe that, in this day and age, young college-educated males would be more (or less) migratory than young college-educated females. Similarly, any potential racial differences in migration propensity that might exist in the general population are not apparent here, even in the bivariate analysis, suggesting that age and education (which are roughly the same for all respondents) mitigate any differences in migration propensity by race.

The lack of effect of risk to college completion (i.e., whether the respondent has one or more risks factors identified as being an impediment to completing their college degree) on migration propensity suggests that since these respondents were able to overcome these risks and graduate, these same risks do not pose enough of an obstacle to deter migration.

Every other background variable included in this study has an effect on migration propensity. Married respondents are more likely to migrate than are single (never married) respondents. I assert this is due to the need for married respondents to secure suitable

employment (i.e., in their field) for both spouses. In order to meet the employment needs of both spouses, it is likely to require a move, frequently to a more urban area that would presumably offer a greater quantity and variety of businesses. There may be other reasons married respondents are more likely to migrate. Perhaps migrating with a spouse lessens the psychological obstacles to moving because they know they will not be alone in their new surroundings. Because two people (rather than one) are potentially migrating, they essentially double their network of contacts and places they may have lived or visited in the past, presumably increasing the quantity and quality of their knowledge of possible destinations. Schwartz (1973, 1976) and Black (1983) have stressed the importance of acquiring and assessing information about places in migration decision-making.

There is no difference in the effect of being previously married rather than single (never married) on whether respondents migrated. Based on the arguments I made for the effects of married respondents on migration decisions it would seem that previously married respondents are similar to single, never married respondents in that they need only find a labor market to support one person, they do not have the psychological support of moving with a spouse, and they do not have the benefit of an expanded network of contacts and places lived/visited that I have argued that a spouse provides.

Respondents with no children are more likely to migrate than are those with children. This agrees with the literature that suggests that the presence of children increases the economic and psychological barriers to migrating. I would think a major deterrent to uprooting from one's home community would be the loss of familial support in raising one's children; proximity to parents, siblings (i.e., the children's grandparents, aunts, uncles) and others is valuable in terms of having access to trusted child care providers, among other

benefits. If one's children are already school-aged (unlikely given the age of respondents in this sample), migration would require uprooting children from school and their friends, which presents additional psychological obstacles, especially with regard to the quality of schools at the destination.

The effect of parental educational attainment, the proxy for respondent's socioeconomic status, on migration is statistically significant for both those whose parents have less than a bachelor's degree and those whose parents have more than a bachelor's degree, relative to those whose parents have a bachelor's degree. The mechanism at work here, it would seem, is that of exposure to different places. The higher one's socioeconomic status is, presumably, the more likely one is to have traveled growing up because one's parents have the interest in seeing what is beyond their home community and the resources to act on it. Having traveled in one's youth would, in turn, increase the amount of information one has collected about other places and perhaps lower the psychological obstacles (e.g., fear of different places) as well. It is unfortunate that income was not included in this research as it would be most interesting to see whether a similar relationship holds for that indicator of socioeconomic class.

Those who lived in a rural area, small town, or large town while in high school were much more likely to migrate than were those from a metropolitan area. Because there are typically postsecondary schools and a wide variety of employment opportunities in metropolitan areas, those who originated in metropolitan areas have little need to migrate more than 50 miles (the definition of migration for this study) either to attend school or to get a job after graduating from college. Those from rural areas and even small and large towns tend to have fewer local options for both college and subsequent work and thus have a

greater need to migrate in order to fulfill their educational and career aspirations. White collar jobs are less plentiful in rural areas and small towns and the salaries tend to be lower. Thus, it seems that location or perceived location of jobs that make use of one's college education and pay well is the reason for this effect. What is a bit surprising is that the likelihood of relocation for those from large towns is higher than for those from small towns, relative to urbanites. This migration of rural, small and large town respondents might also reflect a desire to leave one's small community for a taste of the excitement and/or anonymity of a larger community. These themes will be explored in subsequent chapters looking at the effects on whether respondents are moving to rural areas/small towns, large towns, or metropolitan areas (Chapter 4) and their reasons for moving (Chapter 6).

Immigrants and children of immigrants are less likely to migrate than their nonimmigrant counterparts. A possible explanation for this finding is that immigrants often settle in an immigrant community and may be less inclined to uproot from family and friends who speak their native language and observe their native customs. For this group of respondents it may be that the psychological barriers to moving, that is, uprooting from the place they or their parents settled in this country, are too great. Alternatively, their home community, often an ethnic enclave of sorts, may provide better job networking opportunities in their tight-knit communities such that migration is not necessary to locate a job. Since reasons for deciding to not migrate were not collected, one can merely speculate on why immigrants are significantly less likely to migrate following college graduation than are nonimmigrants.

In summary, I have identified a couple of common themes underlying these results. Location of jobs (or graduate schools) to utilize one's college education and the location of

well-paying jobs are major forces driving migration decisions. In addition, knowledge about places and the ability to overcome psychological barriers, either through repeat migration, having traveled, or through expanded networking, contribute to migration decisions.

At the beginning of this chapter I posed the question "who migrates after completing a bachelor's degree?" My results show that movers tend to be computer science or engineering majors, those planning to get a doctorate or professional degree, who attended a private college, migrated to attend postsecondary school, are currently enrolled, married, have no children, went to high school in a nonmetropolitan area, whose parents have higher levels of educational attainment, and who were born in the U.S. of U.S.-born parents.

CHAPTER 4

EFFECTS OF EDUCATION, EMPLOYMENT, REASON FOR MOVING, AND BACKGROUND CHARACTERISTICS ON MIGRATION TO RURAL, SMALL TOWN, LARGE TOWN OR METROPOLITAN DESTINATIONS

This chapter addresses the question "who moves to rural areas, small towns, and large towns rather than to metropolitan areas?" Of the 2,173 respondents who indicated they migrated from the place they lived when they last attended high school, approximately 84 percent settled in a metropolitan area, nine percent in a large town, four percent in a small town, and two percent in a rural area. But does the choice of a rural or urban destination vary by education-related factors such as GPA, major, or future education plans? Are employment-related factors, such as whether one's job is the start of a career or whether one's occupation is related to one's major, associated with the rurality of destination? Are reasons for moving related to one's choice of a rural or urban destination? Does destination choice vary by individual characteristics such as gender, age, race, or marital status? I answer these questions in this chapter.

The dependent variable, Rural Area Commuting Code (RUCA) of current residence, has ten levels of urbanity/rurality (see Chapter 2 for details). The Rural Health Research Center at the University of Washington, who together with the Economic Research Service devised the RUCA categorization, advises that in almost all cases the RUCA codes should be aggregated for use (WWAMI Rural Health Research Center, 2002). Following their guidelines, I collapsed these codes into four categories, metropolitan (codes 1, 2, 3), large town (codes 4, 5, 6), small town (codes 7, 8, 9), and rural (code 10), to facilitate analysis using polytomous logistic regression. Insufficient sample size to distribute cases of each independent variable into each of the categories of the dependent variable required further

collapsing of the small town and rural categories into a single category. Additional collapsing of independent variable categories, namely age 18 and age 19 into a single category, formerly married into the reference category (single), and the two immigrant variables into a single immigrant variable, was necessary to meet the requirements of the model.

I begin this chapter by reporting the bivariate results for each of the independent variables. Then, the multivariate results are presented in stages to test my hypotheses regarding the association of education-related factors, employment conditions, reasons for moving, and individual characteristics with urban or rural migration destination. Finally, I summarize the results.

BIVARIATE ANALYSES

Each of the independent variables was regressed onto the dependent variable to determine whether they initially support my hypotheses. In this section I focus on the significance of those effects. The direction and magnitude of the effects will be interpreted in subsequent sections. The sample size is 2,173. For the variables that apply only to currently employed respondents (whether the respondent's job is related to their major, whether the respondent's job is start of a career, and respondent's occupation) the sample size is 1,886.

Education variables demonstrating high achievement in college and high demand by prospective employers are expected to be related to migration to rural or urban areas. Whether the respondent is primarily a student (rather than primarily an employee) and distance from the respondent's home to college have a significant effect on rurality of

destination choice. The effects of the respondent's major, GPA, whether the respondent graduated with honors, and whether the respondent attended a private rather than public postsecondary institution are not statistically significant with regard to rurality of destination. The bivariate analysis of respondents' degree aspirations appears to have a significant effect on urban/rural destination for those planning to get a master's or doctoral/professional degree, but not for those unsure about their degree aspirations.

Bivariate analysis indicates that respondents' current enrollment in an undergraduate or graduate program has an effect on rural/urban choice of destination. Respondents' current employment status, however, is not related to migration to urban or rural areas. Among employed respondents who moved (n=1,886), the effect of the group of occupation dummy variables is statistically significant but it appears that only respondents working in the field of business/management are significantly different from the reference category (low demand majors). Neither whether the respondent's job is related to their major nor whether the job is the start of a career is related to migration to rural or urban areas.

Of the reasons for moving, the effect of speculative work (i.e., the respondent moved because the employment opportunities at the destination appeared to be promising) is statistically significant. Contract work and quality of life reasons for moving cited by the respondent are not related to migration to rural or urban areas.

Certain background characteristics were expected to be related to migration to rural or urban areas. Respondents' marital status, whether they have children, whether they have risk factors to college completion, and their immigrant status have an effect on rural/urban destination. Respondents' gender and race do not have an effect on migration to rural/urban areas. The bivariate analysis of age indicates that the effect is statistically significant for 21

year old respondents relative to 23 year old respondents but the other ages are not different from the reference category in terms of migration to rural or urban areas. Of the parental educational attainment dummy variables, the effect of respondents' parents having more than a bachelor's degree is statistically significant relative to the reference category (bachelor's degree) but respondents' parents having less than a bachelor's degree is not different from those whose parents have a bachelor's degree, in terms of migration to rural or urban areas. The effect of the set of dummy variables for rurality of high school residence is statistically significant and all three (large town, small town, rural) appear to have an effect on rural/urban destination.

MULTIVARIATE ANALYSES

The education model, which considers the effects of the education factors on migration to rural or urban destinations, is summarized in Table 4.1. To test for statistical significance of this model, I calculated the chi-square by subtracting the -2 Log Likelihood of the education model from that of the intercept only model. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 66.9$ and 22 degrees of freedom.

The employment models look at the effects of the employment factors on migration. The first employment model, summarized in Table 4.2, contains only respondents' current employment status and current enrollment status. It is statistically significant at the $p<0.05$ level, with model $\chi^2 = 16.0$ and 4 degrees of freedom. A second employment model was created for those respondents who were employed (n=1,886). These factors are not included in the first employment model because data are missing for those who were not employed, which removes all unemployed respondents from the larger model. This model, summarized

Table 4.1—Polytomous Logit Model for Effect of Education on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations

Predictor variables		Y1 Rural/small town	Y2 Large town
Primarily a student while enrolled		0.7516	-1.3075*
		(2.1204)	(0.2705)
Major (baseline: low demand majors)			
Computer science major		-0.7066	-0.8910
		(0.4933)	(0.4102)
Engineering major		-1.8249*	0.0810
		(0.1612)	(1.0843)
Business major		-0.4723	-0.5660
		(0.6236)	(0.5678)
GPA		-0.1523	0.2023
		(0.8587)	(1.2242)
Graduated with honors		0.0548	-0.0851
		(1.0563)	(0.9184)
Advanced degree plans (baseline: none)			
Master's degree aspirations		-0.5142†	-0.2515
		(0.5980)	(0.7776)
Advanced degree aspirations		-1.0395*	-0.3459
		(0.3536)	(0.7076)
Unsure about degree plans		-0.4120	0.2337
		(0.6623)	(1.2633)
Distance home to school (log)		-0.0012	-0.0948*
		(0.9988)	(0.9096)
Attended a private not-for-profit school		-0.2419	-0.2609
		(0.7851)	(0.7704)
Intercepts		-2.0028	-0.8564
		(0.1350)	(0.4247)
Sample size	2173		
-2 Log Likelihood	2296.83		
Degrees of freedom	22		

*p<.05

† individual parameter is statistically significant (p<.05) but set of parameters is not statistically significant (p<.05)

Note: Odds scale coefficients are in parentheses below the log-odds scale coefficients.

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

Table 4.2—Polytomous Logit Model for Effect of Employment on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations

Predictor variables		Y1 Rural/small town	Y2 Large town
Currently enrolled		-0.8203*	0.2191
		(0.4403)	(1.2450)
Currently employed		-0.0425	0.0704
		(0.9584)	(1.0729)
Intercepts		-2.3179*	-2.3595*
		(0.0985)	(0.0945)
Sample size	2173		
-2 Log Likelihood	2347.70		
Degrees of freedom	4		

*p<.05

Note: Odds scale coefficients are in parentheses below the log-odds scale coefficients.

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

in Table 4.3, is statistically significant at the $p<0.05$ level, with model $\chi^2 = 336.1$ and 14 degrees of freedom.

The reason for moving model, which considers the relationship between the migration reasons cited and the choice of a rural or urban destination, is summarized in Table 4.4. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 12.9$ and 6 degrees of freedom.

The background model looks at the effects of the individual characteristics, such as gender, age, race, and marital status, on migration to a rural or urban destination. This model, summarized in Table 4.5 is statistically significant at the $p<0.05$ level, with model $\chi^2 = 158.26$ and 36 degrees of freedom.

The full model includes the education variables, the employment variables with the exception of those that were only asked of currently employed respondents, and the background variables. The model, with model $\chi^2 = 225.7$ and 68 degrees of freedom, is statistically significant at the $p<0.05$ level (see Table 4.6). A second full model, this one including the job-related variables, was estimated for just the employed respondents. This model, summarized in Table 4.7, is statistically significant at the $p<0.05$ level, with model $\chi^2 = 516.4$ and 78 degrees of freedom. Note that age 20 was collapsed with ages 18 and 19 in this model because the distribution across the dependent variable categories was insufficient. The results reported below, with the exception of the job-related variables, are based on the first full model with all respondents, although the magnitude of effects is similar for variables in both full models.

Table 4.3—Polytomous Logit Model for Effect of Current Employment Conditions on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations

Predictor variables		Y1 Rural/small town	Y2 Large town
Job related to major (baseline unrelated)			
Job is closely related to major		0.2006	0.2961
		(1.2221)	(1.3446)
Job is somewhat related to major		-0.4779	0.1789
		(0.6201)	(1.1959)
Job is start of career		-0.3414	0.1769
		(0.7108)	(1.1935)
Occupation			
Business/management		-0.1524	-0.5949†
		(0.8586)	(0.5516)
Engineering		-1.4842†	-0.2573
		(0.2267)	(0.7731)
Computer		-1.5006†	-0.0808
		(0.2230)	(0.9224)
Medical professional		-0.8722	-0.1030
		(0.4180)	(0.9021)
Intercepts		-2.1231*	-2.4576*
		(0.1197)	(0.0856)
Sample size	1886		
-2 Log Likelihood	2027.54		
Degrees of freedom	14		

*p<.05
† individual parameter is statistically significant (p<.05) but set of parameters is not statistically significant (p<.05)
Note: Odds scale coefficients are in parentheses below the log-odds scale coefficients.
Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

Table 4.4—Polytomous Logit Model for Effect of Reason for Moving on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations

Predictor variables		Y1 Rural/small town	Y2 Large town
Contract work		0.3442	-0.0101
		(1.4109)	(0.9900)
Speculative work		-0.0682	-0.5393†
		(0.9341)	(0.5832)
Quality of life		0.4198	-0.0368
		(1.5217)	(0.9639)
Intercepts		-2.8271*	-2.1307*
		(0.0592)	(0.1188)
Sample size	2173		
-2 Log Likelihood	2350.80		
Degrees of freedom	6		

*p<.05

† individual parameter is statistically significant (p<.05) but set of parameters is not statistically significant (p<.05)

Note: Odds scale coefficients are in parentheses below the log-odds scale coefficients.

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

Table 4.5—Polytomous Logit Model for Effect of Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations

Predictor variables		Y1 Rural/small town	Y2 Large town
Male		0.0809	0.1768
		(1.0843)	(1.1934)
Age (baseline: 23 years old)			
Age 18-19		1.3977	0.6661
		(4.0459)	(1.9466)
Age 20		-0.2281	-0.2556
		(0.7960)	(0.7745)
Age 21		0.1648	-0.7312*
		(1.1792)	(0.4813)
Age 22		0.1835	-0.1265
		(1.2014)	(0.8812)
Race (baseline: white)			
Black		-1.1538	-0.2716
		(0.3154)	(0.7622)
Asian		0.0024	0.1842
		(1.0024)	(1.2023)
Native Hawaiian/Native Alaskan		0.0350	1.4330
		(1.0356)	(4.1913)
Other race		0.0126	-1.0069
		(1.0127)	(0.3653)
Married		0.3650	0.7971*
		(1.4405)	(2.2191)
Have no children		-0.9019*	-0.0270
		(0.4058)	(0.9734)
Parental education (baseline: BA degree)			
Less than bachelor's degree		-0.1988	0.0305
		(0.8197)	(1.0310)
More than bachelor's degree		-0.5202	-0.2622
		(0.5944)	(0.7694)
Risk to college completion		-0.3342	-0.1847
		(0.7159)	(0.8314)
High school residence (baseline: metropolitan)			
Large town		0.0756	0.3219
		(1.0785)	(1.3797)
Small town		0.6104*	0.7457*
		(1.8412)	(2.1079)
Rural		0.9924*	1.0417*
		(2.6977)	(2.8340)
Immigrant		-0.5339	-0.5541
		(0.5863)	(0.5746)
Intercepts		-1.6156*	-2.2498*
		(0.1988)	(0.1054)
Sample size	2173		
-2 Log Likelihood	2205.42		
Degrees of freedom	36		

*p<.05

Note: Odds scale coefficients are in parentheses below the log-odds scale coefficients.

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

Table 4.6—Polytomous Logit Model for Effect of Education, Employment, Reason for Moving and Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations

Predictor variables	Y1 Rural/small town	Y2 Large town
Education		
Primarily a student while enrolled	0.9233	-0.9529*
	(2.5176)	(0.3856)
Major (baseline: low demand majors)		
Computer science major	-0.8215	-0.9287
	(0.4398)	(0.3951)
Engineering major	-1.8435*	-0.0139
	(0.1583)	(0.9862)
Business major	-0.5352	-0.4899
	(0.5856)	(0.6127)
GPA	-0.2529	0.1590
	(0.7765)	(1.1723)
Graduated with honors	0.1234	-0.0867
	(1.1313)	(0.9170)
Advanced degree plans (baseline: none)		
Master's degree aspirations	-0.3372	-0.1794
	(0.7138)	(0.8358)
Advanced degree aspirations	-0.5736	-0.1683
	(0.5635)	(0.8451)
Unsure about degree plans	-0.1474	0.5427
	(0.8629)	(1.7206)
Distance home to school (log)	0.0244	-0.0629*
	(1.0247)	(0.9390)
Attended a private not-for-profit school	-0.3061	-0.0777
	(0.7363)	(0.9252)
Employment		
Currently enrolled	-0.5919*	0.2170
	(0.5533)	(1.2423)
Currently employed	0.0462	-0.0876
	(1.0473)	(0.9161)
Reason for moving		
Contract work	0.1978	0.0533
	(1.2187)	(1.0547)
Speculative work	-0.3285	-0.5486†
	(0.7200)	(0.5777)
Quality of life	0.1978	-0.1129
	(1.2187)	(0.8932)
Background characteristics		
Male	0.2872	0.2295
	(1.3327)	(1.2580)

Table 4.6—Polytomous Logit Model for Effect of Education, Employment, Reason for Moving and Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations (continued)

Predictor variables		Y1 Rural/small town	Y2 Large town
Age (baseline: 23 years old)			
Age 18-19		1.6344	0.4593
		(5.1264)	(1.5830)
Age 20		-0.0478	-0.2376
		(0.9533)	(0.7885)
Age 21		0.3755	-0.7560*
		(1.4557)	(0.4695)
Age 22		0.2194	-0.1090
		(1.2453)	(0.8967)
Race (baseline: white)			
Black		-1.1286	-0.2831
		(0.3235)	(0.7534)
Asian		0.0844	0.1501
		(1.0881)	(1.1620)
Native Hawaiian/Native Alaskan		0.2395	1.2854
		(1.2706)	(3.6161)
Other race		0.0546	-0.9654
		(1.0561)	(0.3808)
Married		0.3527	0.7822*
		(1.4229)	(2.1863)
Have no children		-0.8888*	0.0007
		(0.4111)	(1.0007)
Parental education (baseline: BA degree)			
Less than bachelor's degree		-0.2318	-0.0012
		(0.7931)	(0.9988)
More than bachelor's degree		-0.4566	-0.2764
		(0.6334)	(0.7586)
Risk to college completion		-0.3795	-0.0767
		(0.6842)	(0.9262)
High school residence (baseline: metropolitan)			
Large town		0.0980	0.3270
		(1.1030)	(1.3868)
Small town		0.6178*	0.7452*
		(1.8548)	(2.1069)
Rural		1.0705*	1.0553*
		(2.9168)	(2.8728)
Immigrant		-0.5155	-0.5475
		(0.5972)	(0.5784)
Intercepts		-1.4737	-1.3186
		(0.2291)	(0.2675)
Sample size	2173		
-2 Log Likelihood	2137.95		
Degrees of freedom	68		

*p<.05

† individual parameter is statistically significant (p<.05) but set of parameters is not statistically significant (p<.05)

Note: Odds scale coefficients are in parentheses below the log-odds scale coefficients.

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

Table 4.7—Polytomous Logit Model for Effect of Education, Employment, Reason for Moving, and Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations for Employed Respondents

Predictor variables	Y1 Rural/small town	Y2 Large town
Education		
Primarily a student while enrolled	0.9589	-0.8532
	(2.1204)	(0.2705)
Major (baseline: low demand majors)		
Computer science major	0.2523	-1.3662
	(0.4933)	(0.4102)
Engineering major	-1.2659	-0.0513
	(0.1612)	(1.0843)
Business major	-0.3970	-0.3442
	(0.6236)	(0.5678)
GPA	-0.2725	0.2952
	(0.8587)	(1.2242)
Graduated with honors	0.0843	-0.2890
	(1.0563)	(0.9184)
Advanced degree plans (baseline: none)		
Master's degree aspirations	-0.1049	-0.2393
	(0.5980)	(0.7776)
Advanced degree aspirations	-0.3902	-0.0767
	(0.3536)	(0.7076)
Unsure about degree plans	0.1119	0.6624
	(0.6623)	(1.2633)
Distance home to school (log)	0.0195	-0.0671*
	(0.9988)	(0.9096)
Attended a private not-for-profit school	-0.2481	0.0345
	(0.7851)	(0.7704)
Employment		
Currently enrolled	-0.6768†	0.0930
	(0.4403)	(1.2450)
Job related to major (baseline unrelated)		
Job is closely related to major	0.1496	0.3022
	(1.2221)	(1.3446)
Job is somewhat related to major	-0.4890	0.1639
	(0.6201)	(1.1959)
Job is start of career	-0.5482*	0.0775
	(0.7108)	(1.1935)
Occupation		
Business/management	-0.1983	-0.4845
	(0.8586)	(0.5516)
Engineering	-1.0554	-0.1955
	(0.2267)	(0.7731)
Computer	-1.6715†	0.4819
	(0.2230)	(0.9224)
Medical professional	-1.0424†	-0.2516
	(0.4180)	(0.9021)
Reason for moving		
Contract work	0.2501	-0.0141
	(1.4109)	(0.9900)
Speculative work	-0.2241	-0.5876†
	(0.9341)	(0.5832)
Quality of life	0.1014	-0.0842
	(1.5217)	(0.9639)

Table 4.7—Polytomous Logit Model for Effect of Education, Employment, Reason for Moving and Background Characteristics on Migration to Rural/Small Towns and Large Towns Relative to Metropolitan Destinations for Employed Respondents (continued)

Predictor variables		Y1 Rural/small town	Y2 Large town
Background characteristics			
Male		0.3380	0.2607
		(1.0843)	(1.1934)
Age (baseline: 23 years old)			
Age 18-20		0.4112	-1.2193
		(4.0459)	(1.9466)
Age 21		0.2095	-0.9152*
		(1.1792)	(0.4813)
Age 22		0.1521	-0.1797
		(1.2014)	(0.8812)
Race (baseline: white)			
Black		-1.0988	-0.1841
		(0.3154)	(0.7622)
Asian		0.1312	0.3870
		(1.0024)	(1.2023)
Native Hawaiian/Native Alaskan		0.4406	1.3316
		(1.0356)	(4.1913)
Other race		0.2397	-0.7795
		(1.0127)	(0.3653)
Married		0.3038	0.6746*
		(1.4405)	(2.2191)
Have no children		-0.8030†	0.0225
		(0.4058)	(0.9734)
Parental education (baseline: BA degree)			
Less than bachelor's degree		-0.1942	0.0172
		(0.8197)	(1.0310)
More than bachelor's degree		-0.3449	-0.2102
		(0.5944)	(0.7694)
Risk to college completion		-0.5172†	-0.1095
		(0.7159)	(0.8314)
High school residence (baseline: metropolitan)			
Large town		0.1429	0.4091
		(1.0785)	(1.3797)
Small town		0.4329	0.6910*
		(1.8412)	(2.1079)
Rural		1.0167*	1.0769*
		(2.6977)	(2.8340)
Immigrant		-0.5697	-0.5457
		(0.5863)	(0.5746)
Intercepts		-0.9741	-1.9808
		(0.1988)	(0.1054)
Sample size	1886		
-2 Log Likelihood	1847.27		
Degrees of freedom	78		

*p<.05

† individual parameter is statistically significant (p<.05) but set of parameters is not statistically significant (p<.05)

Note: Odds scale coefficients are in parentheses below the log-odds scale coefficients.

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

Of the education variables, the effects of the respondent's grade point average, higher degree aspirations, whether the respondent graduated with honors, and whether the respondent attended a private postsecondary school are not statistically significant, meaning respondents who had higher grade point averages are not different from those who had lower grade point averages, respondents who planned to get a master's or doctorate/professional degree or were unsure about future degree plans are not different from those who did not plan to continue their schooling, respondents who graduated with honors are not different from those who did not graduate with honors, and respondents who attended private postsecondary school are no different from those who attended a public college or university, in terms of relocating to a rural/small town or large town relative to a metropolitan area.

The effect of the respondent being primarily a student (rather than primarily an employee) while enrolled is statistically significant in the first full model (but not the second, for employed respondents only). Respondents who were primarily students while enrolled as an undergraduate are 0.4 times as likely as those who were primarily employees to have settled in a large town rather than a metropolitan area; there is no difference between those who were primarily students and those who were primarily employees in terms of settling in a rural area or small town rather than in a metropolitan area. The set of dummy variables for major was tested for significance using the incremental chi-square test and found to be statistically significant in the first full model (but not the second). Respondents with engineering majors are 0.2 times as likely as those with low demand majors to reside in a rural area or small town rather than in a metropolitan area; however there is no difference between respondents with engineering majors and respondents with low demand majors for residing in a large town relative to a metropolitan area. The effects of the remaining major

dummy variables are not statistically significant, meaning there is no difference between respondents with computer majors and those with low demand majors or between respondents with business majors and those with low demand majors in terms of residing in a rural/small town or large town relative to a metropolitan area. The effect of distance from the respondent's home to school is statistically significant; the odds of settling in a large town rather than a metropolitan area decrease by 0.9 times for each one percent increase in distance between home and school.

The effect of respondents' degree aspirations are statistically significant in the education model (respondents who are planning to complete a master's degree are 0.6 times as likely as those not planning to continue their education to migrate to a rural area/small town rather than a metropolitan area; respondents who are planning to complete a doctorate or professional degree are 0.4 times as likely as those not planning to continue their education to migrate to a rural area/small town rather than a metropolitan area) but loses significance when other variables are introduced. No single variable appears to be the cause of this; rather the effect of degree aspirations is supplanted by the additional variables in subsequent models

The effect of respondents' current employment status is not statistically significant, meaning employed respondents are not different from unemployed respondents in terms of rural/urban migration. The effect of respondents' current enrollment status, however, is statistically significant. Respondents who are currently enrolled are 0.6 times as likely as those not currently enrolled to have migrated to a rural area/small town rather than a metropolitan area.

For the subset of employed respondents, the effect of whether the respondent's job is related to their major is not statistically significant, meaning that respondents whose jobs are closely related to their major and those whose jobs are somewhat related to their major are not different from those whose jobs are unrelated to their major, in terms of post-college migration to a rural or urban destination.

The effect of whether the respondent's job is the start of their career is statistically significant in the second full model; respondents who considered their job to be the start of their career are 0.7 times as likely as those who did not consider their job to be the start of their career to have migrated to a rural area/small town rather than a metropolitan area. The effect of the set of occupation dummy variables is statistically significant in the employed model and the second full model. None of the sets of parameters for each of the four dummies have a statistically significant effect. The effect of the individual parameters for respondents working in computer and medical occupations is statistically significant; respondents in computer jobs are 0.2 times as likely and respondents in medical professions are 0.4 times as likely as those in low demand occupations to have migrated to a rural area/small town rather than a metropolitan area.

Respondents' reason for moving was expected to be related to migration to a rural or urban destination. Contracted employment and quality of life reasons cited by respondents are not related to rural/urban migration in any model. The effect of speculative employment reason is of borderline statistical significance for the set of parameters; respondents who migrate for speculative employment reasons are 0.6 times as likely as those who do not cite speculative employment reasons to migrate to a large town rather than a metropolitan area.

Among the background variables, the effects of respondents' gender, race, parental educational attainment, risk factors to college completion, and immigrant status are not statistically significant in the background and full models, meaning that male respondents are not different from female respondents, Blacks, Asians, Native Hawaiians/Native Alaskans, and other races are not different from Whites, respondents whose parents have less than a bachelor's degree or more than a bachelor's degree are no different from those whose parents have a bachelor's degree, respondents not at risk for college attainment are not different from those at risk, and respondents who are immigrants or are children of immigrants are no different from nonimmigrants, in terms of migration.

The effect of the dummy variable for parental educational attainment is statistically significant in the bivariate model (respondents whose parents have more than a bachelor's degree are 0.6 times as likely as those whose parents have a bachelor's degree to move to a rural area/small town and 0.7 times as likely to move to a large town rather than a metropolitan destination) but loses significance in the background model. It appears that no single variable is responsible for this loss of significance. The effect of whether the student was at risk for completing their degree is statistically significant in the bivariate model (respondents without risk factors to college completion are 0.6 times as likely as those with risk factors to move to a rural area or small town rather than a metropolitan area; they are also 0.6 times as likely to move to a large town rather than a metropolitan area) but loses significance in the background model. It appears that each background variable whittles away at the effect of risk factors to college completion, with no single variable being the main cause of this loss of significance. The effect of respondents' immigrant status is statistically significant in the bivariate model; immigrant respondents are half as likely as

nonimmigrant respondents to move to large towns rather than metropolitan areas. This relationship does not hold in the background model; this appears to be due to the introduction of both the race and the high school rural/urban residence variables.

The effects of respondents' age, marital status, absence of children, and rurality of high school residence are statistically significant. Respondents who are 21 years old are half as likely as those who are 23 years old to migrate to a large town rather than a metropolitan area. Married respondents are 2.2 times more likely to migrate to a large town rather than a metropolitan area than are single respondents. Respondents with no children are 0.4 times as likely as those with children to move to a rural area/small town rather than a metropolitan area. Respondents who lived in a rural area while in high school are nearly three times (2.9) more likely than those from a metropolitan area to migrate to a rural area/small town and almost three times (2.9) more likely to move to a large town rather than to a metropolitan area. Respondents who lived in a small town in high school are nearly twice (1.9) as likely as those from a metropolitan area to migrate to a rural area/small town and are 2.1 times more likely to move to a large town rather than a metropolitan area.

SUMMARY OF RESULTS

The univariate analysis of the rural/urban migration destination variable, presented in Chapter 2, supports my hypothesis 2A: recent college graduates migrate to urban areas. Of the respondents who migrated, 84 percent settled in metropolitan areas, nine percent in large towns, four percent in small towns, and two percent in rural areas. Compared with where they lived while attending high school (72 percent metropolitan, 11 percent large town, nine

percent small town, and eight percent rural area) this represents a shift toward urban residence.

The results reported in the previous sections support hypothesis 2B: education-related factors affect migration to rural/urban areas; the education model is statistically significant at the $p<0.05$ level and several of the education factors are statistically significant in the bivariate and multivariate models.

I predicted that high achievers (respondents who were primarily students while enrolled, had higher grade point averages, graduated with honors, and had higher degree aspirations) and respondents with majors in high demand fields (engineering, computer science, business) would tend to migrate to metropolitan areas because they would be in high demand by prospective employers whose businesses tend to be located in urban areas. The high achiever argument met with mixed results. The effect of being primarily a student is statistically significant; respondents who were primarily students in college are more likely than those who were primarily employees to have settled in metropolitan areas. The effects of graduated with honors, grade point average, and higher degree aspirations are not significant in the full model. The effect of major is significant in all models, supporting my high demand major prediction. However only the effect of the engineering major is statistically significant; respondents with engineering majors are much more likely than those with low demand majors to settle in metropolitan areas rather than rural areas/small towns.

The results reported earlier in this chapter lend some support to hypothesis 2C: there is a correlation between current employment conditions and migration to rural/urban areas. Both employment models are statistically significant at the $p<0.05$ level and about half of the individual variables are statistically significant in the employment and full models.

I expected that employed respondents, whose jobs are related to their majors, whose jobs are career positions, and those in high demand occupations would be more likely to have migrated to urban destinations because businesses, particularly white-collar jobs, tend to be located in large towns and metropolitan areas. The effects of respondents' current employment status and whether respondents' job is related to their major are not statistically significant in the full models. The effect of respondents' current enrollment status is significant in the education and full models; currently enrolled respondents are less likely than those not currently enrolled to be living in a rural area or small town rather than a metropolitan area. Respondents' job is the start of a career is significant in the full model; those whose jobs are the start of a career are more likely than those whose jobs are not the start of a career to settle in metropolitan areas rather than rural areas/small towns. The effect of respondents' occupation is statistically significant; respondents in engineering, computer, and medical professions are more likely to settle in metropolitan areas and less likely to settle in rural areas/small towns than are respondents in low demand occupations.

My hypothesis regarding reason for migration, 2D: reason for move is different for migrants to rural versus urban areas, is supported in part by the data. The reason model is statistically significant at the $p<0.05$ level. None of the individual predictors, contracted employment, speculative employment, and quality of life reasons, have statistically significant effects overall. The effect of speculative employment is, however, statistically significant for migrating to a large town relative to a metropolitan area. Respondents citing speculative employment are about half as likely as those not citing speculative employment to settle in large towns rather than metropolitan areas.

My next hypothesis concerning predictors of migration, 2E: individual characteristics affect migration, is supported by the data. The background model is statistically significant at the $p<0.05$ level and several of the proposed predictors are statistically significant in the full model.

I did not expect gender to have an effect on migration to rural or urban areas. Indeed there was no significant difference between male and female respondents in their propensity to migrate to rural areas/small towns or large towns relative to metropolitan areas.

I did not predict an effect of age for this research because the range of ages included in the data is small and all respondents are at the same stage in life (recent college graduates). Respondents' age, however, is a statistically significant predictor in all of the models; 21 year olds are less likely than 23 year olds to migrate to large towns rather than metropolitan areas.

I expected race to have very little effect on migration to rural/urban destination because I think any differences are more likely attributable to socioeconomic status rather than race. As predicted, race had no effect on rural/urban migration in any of the models.

I predicted married respondents would be more likely to migrate to metropolitan areas than singles because they require a labor market to support the careers of both spouses which would likely require a larger labor market typical of a metro area. Indeed, marital status is a statistically significant predictor of rurality of migration destination but in the opposite direction; married respondents are twice as likely as singles to migrate to large towns rather than to metropolitan areas.

I expected that respondents with no children would be more likely to migrate to urban areas and those with children to settle in nonmetropolitan areas. Respondents without children are, in fact, significantly less likely than those with children to settle in a rural area

or small town rather than in a metropolitan area. This finding agrees with the literature that nonmetropolitan areas attract people with children.

I expected that respondents who are immigrants would be more likely to settle in urban areas because they may be attracted by the existence of an immigrant community there. The effect of respondents' immigrant status is statistically significant only in the bivariate model; immigrant respondents are more likely than nonimmigrants to settle in metropolitan areas rather than large towns. There is no difference between immigrants and nonimmigrants in migration to rural areas/small towns rather than metropolitan areas.

My final hypothesis, 2F: rural areas of origin and job unrelated to major are associated with rural residence, finds some support in the data. This model tested whether respondents from rural areas migrated to rural areas and found that indeed, they did. Those from rural areas are nearly three times as likely as those from metropolitan areas to settle in rural areas/small towns and nearly three times as likely to settle in large towns, rather than metropolitan areas. Similarly, respondents from small towns were nearly twice as likely as those from metropolitan areas to settle in rural areas/small towns and twice as likely to settle in large towns rather than metropolitan areas. This would suggest that people tend to move to similarly sized or slightly larger communities than where they grow up, rather than making the jump to metropolitan areas.

I expected those who settle in rural areas/small towns to be more likely to have a job that is unrelated to their major due to the lack of white collar jobs in smaller communities. The data does not support this prediction.

DISCUSSION

The shift toward urban residence, as shown in the comparison of where respondents lived in high school and where respondents lived at the time of the B&B interview, is consistent with human investment theory that says people migrate to maximize the return on their investment in their education. Recent college graduates are migrating to metropolitan areas, presumably, because employers tend to be located there. An analysis of reasons for migrating is presented in Chapter 6.

There are far fewer significant effects in this model predicting migration to a rural/small town or large town relative to a metropolitan destination than were seen in the previous model which looked at effects on migration propensity. Significant effects for the rural/small town versus metropolitan outcome were found for only engineering majors, respondents who were currently enrolled, respondents whose jobs were the start of a career, those in computer and medical occupations, those with no children, and respondents who lived in a rural area or small town at the time they graduated from high school. For all other variables included in the model, there is no difference in who chooses a rural/small town destination versus a metropolitan destination.

Education variables had virtually no significant effects on rural/small town destination. In fact, the only significant effect, that of engineering majors, is probably more of an employment effect than an education effect. That is, location of jobs is likely the underlying reason for this effect. Engineering tends to be more specialized than most other fields of study and jobs may simply not be available in their field in rural areas and small towns. Thus, engineering majors are likely attracted to metropolitan areas due to the more

favorable job market as well as higher salaries. The same argument could be made for those in computer and medical occupations. Those whose jobs are the start of a career were likely attracted to urban areas because the white collar jobs for which they have been trained tend to be located in urban areas; those who relocate to rural areas may have to settle for jobs that they do not consider to be the start of a career. Those currently enrolled may have been attracted to urban areas because of the location of postsecondary schools, particularly those offering a graduate or professional degree program. Few such institutions are located in rural areas or small towns. Thus it seems that for the employment-related factors, the location of white collar jobs and postsecondary schools, which tend to be in urban areas rather than small towns and rural areas, is the underlying reason for these effects.

Having no children had the effect of tending to settle in a metropolitan area rather than in a small town or rural area. My sense is that the promise of "excitement" pulls these still footloose and fancy free folks to metropolitan areas. They want to live where the action is. Conversely, those with children tended to settle in a small town or rural area rather than in a metropolitan area. The literature suggests families with children prefer a more rural setting for a number of reasons such as having more space (i.e., a yard to play in), safety concerns, a slower pace of life, and perhaps even the sense of community.

Having lived in a rural area or small town at the time of high school graduation was a strong predictor of subsequent migration to a rural area or small town rather than to a metropolitan area. This suggests to me that people have a preference for the size of place they grew up in.

Significant effects favoring metropolitan rather than large town destinations were found for respondents who were primarily students while enrolled (rather than primarily

employees), those who migrated greater distances to college, respondents who cited better job opportunities as a reason for moving to the place they did, those age 21, and respondents who are single. Respondents who lived in small towns and rural areas at the time they graduated from high school favored large towns rather than metropolitan destinations. There is no difference in who chooses a large town destination versus a metropolitan destination for all other variables in the model.

Whereas several employment factors were important in distinguishing migration to a small town/rural area, none have significant effects for migration to a large town relative to a metropolitan area. This would seem to suggest the lack of job prospects for educated workers in rural areas and small towns does not extend to large towns. However the effect of speculative work reason, which indicates that those citing better employment opportunities as a reason for migrating are more likely to migrate to metropolitan areas rather than to large towns, would seem to suggest that metropolitan areas are perceived as having better job prospects than large towns.

Respondents who are primarily students (rather than primarily employees) while enrolled are more likely to settle in metropolitan areas than in large towns. The only explanation for this that seems plausible is they are more footloose than those who were supporting themselves (primarily employees) while in school and are lured to metropolitan areas for lifestyle reasons. We will explore this possibility in Chapter 6.

Greater distances between home and college are associated with increased likelihood of migrating to a metropolitan area after college graduation. Conversely, shorter distances between home and college are associated with increased likelihood of migrating to a large town after college graduation. This may be related to the personality factors, such as

aversion to risk, that I mentioned in the previous chapter. Perhaps those who migrate shorter distances are more risk averse and the choice of a large town rather than a metropolitan area is less risky to them. In contrast, those who migrate longer distances to college would seem to be more willing to take risks, so moving to a metropolitan area is a challenge that appeals to them.

Respondents who are 21 (relative to those who are 23) were more likely to choose a metropolitan destination rather than a large town. Other ages are not statistically significant. It is possible this may be related to aversion to risk or the notion of 21 year olds being more footloose than 23 year olds, but with such a small range of ages I seriously doubt there are measurable differences by age in these sorts of personality traits.

Married respondents were much more likely to choose large towns rather than metropolitan destinations. This further supports my idea that labor market for an educated workforce is as strong in large towns as in metropolitan areas, since married couples right out of college presumably settle in a place that can suitably employ both partners. Their choice of a large town rather than a metropolitan area suggests that those who marry relatively young favor a somewhat quieter community. Singles, perhaps more footloose than their married counterparts, may be drawn to metropolitan areas for the excitement or as a staging ground for finding a partner. Again, their reasons for choosing the destination they did, which is examined in Chapter 6, may shed more light on this.

Rural and small town high school residence are the only effects that are significant for both small town/rural area destination and large town destination (relative to metropolitan destination). Similar to what we saw earlier, those who lived in a rural area or a small town while in high school are much more likely to choose a large town rather than a metropolitan

area. I suggested earlier that this shows a preference for the same size community one grew up in. It may be that having grown up in a relatively tight-knit community makes the move to an urban center more difficult, perhaps scary. It may be that these people will ultimately move to an urban center but that such a move has to happen in smaller steps, by moving to a larger town before taking on the urban metropolis.

To summarize, there appear to be a couple of processes underlying the effects presented in this chapter. The disparity between labor market prospects for college graduates in small towns/rural areas versus metropolitan areas drives some to metropolitan areas to fulfill their career ambitions. No such disparity in employment prospects seems to exist for large towns relative to metropolitan areas. Lifestyle choices based on stage in life are driving those with children to small towns/rural areas and married people to large towns rather than to metropolitan areas which appeal to the more footloose population (singles, those without children). The final force pulling people to settle in a rural area/small town or large town as opposed to a metropolitan area seems to be a preference for a similar-sized community as one grew up in.

I started this chapter with the question, "who moves to rural areas, small towns, and large towns rather than to metropolitan areas?" My research shows that among recent college graduates, movers to rural areas/small towns (rather than metropolitan areas) tend to be those with low demand majors, those not currently enrolled, those whose jobs are not the start of a career, who work in low demand fields, those with children, and those who lived in a rural area or small town at the time they graduated from high school; movers to large towns (rather than metropolitan areas) tend to be those who were primarily employees while enrolled, those who did not migrate as far to college, those who did not cite speculative

employment reasons, those aged 23 rather than 21, those who are married, and those from a rural area or small town.

CHAPTER 5

WHO MOVES LONG DISTANCES: EFFECTS OF EDUCATION, EMPLOYMENT, REASON FOR MOVING, AND BACKGROUND CHARACTERISTICS ON MIGRATION DISTANCE

This chapter focuses on the question "who is moving long distances?" Because the dependent variable, distance moved, is continuous, Ordinary Least Squares (OLS) regression is used to test the hypotheses. The distance variable is quite skewed; I use a log transformation to remedy this, resulting in a more normal distribution.

Two separate analyses are performed and evaluated in this chapter. The first includes all respondents who migrated (n=2,139). The second tests the effects of employment variables (that are applicable only to employed respondents) on migration distance (n=1,857).[5]

In the first section of this chapter, I present the bivariate results for each of the independent variables. Then, the multivariate results are presented in stages to test my hypotheses. The education model tests hypothesis 3A, that education-related factors affect migration distance. The employment model tests whether there is a correlation between current employment conditions and migration distance (hypothesis 3B). The reason for move model tests hypothesis 3D, that contracted movers migrate greater distances than speculative movers. The full model tests hypothesis 3C, that individual characteristics affect migration distance. The results of the bivariate and multivariate analysis for all respondents who

[5] The number of respondents who said they migrated is 2,173. However, 34 of these (29 of whom were currently employed) provided identical zip codes for place of origin and destination, yielding a distance of zero. It is believed that those people did in fact migrate but either could not recall the zip code of origin or misinterpreted the zip code of origin question.

moved are summarized in Table 5.1. The results for employed respondents who moved are presented in Table 5.2. I conclude the chapter with a discussion of the results.

BIVARIATE ANALYSES

Each independent variable in this distance moved model was regressed onto the dependent variable, migration distance (from high school residence to current, post-college residence), to determine whether it initially supports my hypotheses. The significance of those effects is the focus of this section. I interpret the direction and magnitude of the effects in later sections.

Among the education variables, the effects of the respondent's GPA, whether the respondent graduated with honors, the distance from the respondent's home to the college the respondent attended, and whether the respondent attended a private rather than public postsecondary institution are statistically significant. The effect of whether the respondent has advanced degree aspirations appear to be significant, but the effects of whether the respondent has master's degree aspirations and whether the respondent is unsure about future education plans are not statistically significant, relative to respondents with no further degree aspirations. The effects of respondent's major and whether the respondent was primarily a student (rather than primarily an employee) while enrolled are not statistically significant.

Bivariate analysis indicates that whether the respondent is currently enrolled in an undergraduate or graduate program is not statistically significant. Respondent's current employment status is related to migration distance. Among employed respondents, the effect of whether the respondent's job is closely related to the respondent's major and whether the respondent's job is somewhat related to major appear to be significantly different from the

Table 5.1— OLS Regression Models Predicting Migration Distance (n=2,139)

Predictor variables	Bivariate models	Education model	Employment model	Reason model	Full model
Education					
Primarily a student while enrolled	-0.002	-0.055	-0.094	-0.093	-0.091
	(0.201)	(0.197)	(0.197)	(0.197)	(0.198)
Major (baseline: low demand majors)					
Computer science major	0.029	0.129	0.122	0.138	0.097
	(0.154)	(0.151)	(0.151)	(0.151)	(0.152)
Engineering major	0.140	0.146	0.156	0.187	0.114
	(0.107)	(0.105)	(0.105)	(0.106)	(0.108)
Business major	-0.095	-0.027	-0.029	-0.011	-0.034
	(0.091)	(0.090)	(0.090)	(0.090)	(0.089)
GPA	0.226*	0.145	0.140	0.138	0.158*
	(0.063)	(0.087)	(0.077)	(0.077)	(0.078)
Graduated with honors	0.108*	-0.021	-0.013	-0.013	-0.009
	(0.053)	(0.063)	(0.063)	(0.063)	(0.063)
Advanced degree plans (baseline: none)					
Master's degree aspirations	0.089	0.044	0.061	0.061	0.032
	(0.083)	(0.082)	(0.082)	(0.082)	(0.082)
Advanced degree aspirations	0.261*	0.174	0.210	0.202	0.124
	(0.089)	(0.090)	(0.094)	(0.094)	(0.095)
Unsure about degree plans	0.212	0.113	0.119	0.111	0.001
	(0.201)	(0.198)	(0.197)	(0.197)	(0.196)
Distance home to school (log)	0.081*	0.077*	0.075*	0.077*	0.069*
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Attended a private not-for-profit school	0.293*	0.254*	0.242*	0.246*	0.218*
	(0.053)	(0.053)	(0.053)	(0.053)	(0.055)
Employment					
Currently enrolled	-0.040		-0.150*	-0.183*	-0.187*
	(0.059)		(0.064)	(0.070)	(0.069)
Currently employed	-0.292*		-0.249*	-0.229*	-0.184*
	(0.077)		(0.078)	(0.079)	(0.079)
Reasons for moving					
Contracted employment	-0.048			-0.086	-0.093
	(0.056)			(0.066)	(0.066)
Speculative employment	-0.094			-0.142*	-0.139
	(0.068)			(0.072)	(0.071)
Quality of life reasons	0.024			0.014	0.002
	(0.024)			(0.060)	(0.060)
Background characteristics					
Male	0.073				0.053
	(0.054)				(0.057)

Table 5.1— OLS Regression Models Predicting Migration Distance (continued)

Predictor variables	Bivariate models	Education model	Employment model	Reason model	Full model
Age (baseline: 23 years old)					
Age 18	0.657				0.751
	(0.858)				(0.829)
Age 19	0.837				0.612
	(0.544)				(0.531)
Age 20	-0.004				-0.197
	(0.236)				(0.236)
Age 21	0.231*				0.036
	(0.071)				(0.077)
Age 22	0.127				0.054
	(0.073)				(0.071)
Race (baseline: white)					
Black	0.079				0.107
	(0.115)				(0.115)
Asian	0.157				0.031
	(0.146)				(0.161)
Native Hawaiian/Native Alaskan	-0.102				-0.088
	(0.254)				(0.249)
Other race	-0.115				-0.070
	(0.147)				(0.150)
Marital status (baseline: single)					
Married	-0.192*				-0.116
	(0.062)				(0.066)
Formerly married	-0.404				-0.164
	(0.325)				(0.319)
Have no children	0.138				-0.060
	(0.128)				(0.133)
Parental education (baseline: BA degree)					
Less than bachelor's degree	-0.185*				-0.134*
	(0.065)				(0.065)
More than bachelor's degree	0.286*				0.196*
	(0.065)				(0.065)
Risk to college completion	0.076				-0.060
	(0.057)				(0.060)
High school residence (baseline: metro)					
Large town	-0.150				-0.026
	(0.077)				(0.076)
Small town	-0.409*				-0.302*
	(0.088)				(0.087)
Rural area	-0.472*				-0.344*
	(0.089)				(0.089)
Immigrant status (baseline: not immigrant)					
Immigrant – noncitizen	0.063				-0.026
	(0.231)				(0.231)
Immigrant – citizen	0.082				0.004
	(0.091)				(0.091)
Model R^2		0.0533	0.0593	0.0619	0.0934
Model F		10.88*	10.30*	8.74*	5.85*

*p<.05

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

Table 5.2—OLS Regression Models Predicting Migration Distance for Employed (n=1,859)

Predictor variables	Bivariate models	Employment model	Full model
Education			
Primarily a student while enrolled	0.089	-0.017	-0.026
	(0.209)	(0.204)	(0.207)
Major (baseline: low demand majors)			
Computer science major	0.064	0.129	0.124
	(0.155)	(0.178)	(0.177)
Engineering major	0.148	0.183	0.121
	(0.110)	(0.143)	(0.144)
Business major	-0.100	-0.020	-0.019
	(0.094)	(0.098)	(0.097)
GPA	0.225*	0.159*	0.180*
	(0.066)	(0.080)	(0.081)
Graduated with honors	0.108	-0.003	-0.001
	(0.056)	(0.066)	(0.067)
Advanced degree plans (baseline: none)			
Master's degree aspirations	0.093	0.083	0.055
	(0.085)	(0.084)	(0.084)
Advanced degree aspirations	0.227	0.232*	0.146
	(0.094)	(0.097)	(0.099)
Unsure about degree plans	0.225	0.092	-0.030
	(0.205)	(0.200)	(0.200)
Distance home to school (log)	0.082*	0.075*	0.067*
	(0.010)	(0.010)	(0.010)
Attended a private not-for-profit school	0.275*	0.228*	0.205*
	(0.056)	(0.056)	(0.058)
Employment			
Currently enrolled	-0.124	-0.203*	-0.236*
	(0.065)	(0.069)	(0.073)
Job related to major (baseline: unrelated)			
Job is closely related to major	-0.262*	-0.243*	-0.213*
	(0.070)	(0.076)	(0.075)
Job is somewhat related to major	-0.298*	-0.280*	-0.284*
	(0.083)	(0.083)	(0.083)
Job is start of career	-0.157*	-0.104	-0.079
	(0.061)	(0.065)	(0.066)
Occupation (baseline: low demand occup)			
Business/management	0.001	0.012	0.015
	(0.072)	(0.076)	(0.075)
Engineering	0.158	0.047	0.060
	(0.125)	(0.163)	(0.163)
Computer science	0.083	0.087	0.035
	(0.120)	(0.137)	(0.138)
Medical professional	-0.164	-0.081	-0.046
	(0.107)	(0.105)	(0.105)
Reasons for moving			
Contracted employment	-0.020		-0.091
	(0.058)		(0.068)
Speculative employment	-0.090		-0.165*
	(0.069)		(0.073)
Quality of life reasons	0.043		0.007
	(0.055)		(0.063)

Table 5.2—OLS Regression Models Predicting Migration Distance for Employed (continued)

Predictor variables	Bivariate models	Employment model	Full model
Background characteristics			
Male	0.072		0.058
	(0.057)		(0.060)
Age (baseline: 23 years old)			
Age 18	0.691		0.731
	(0.841)		(0.811)
Age 19	1.105		1.012
	(0.688)		(0.673)
Age 20	0.089		-0.170
	(0.240)		(0.236)
Age 21	0.216		0.016
	(0.075)		(0.080)
Age 22	0.136		0.052
	(0.075)		(0.074)
Race (baseline: white)			
Black	0.054		0.136
	(0.121)		(0.121)
Asian	0.251		0.150
	(0.163)		(0.181)
Native Hawaiian/Native Alaskan	0.129		0.176
	(0.267)		(0.262)
Other race	-0.161		-0.094
	(0.156)		(0.158)
Marital status (baseline: single, never married)			
Married	-0.222*		-0.138
	(0.065)		(0.069)
Formerly married	-0.795*		-0.490
	(0.358)		(0.353)
Have no children	0.219		-0.042
	(0.140)		(0.144)
Parental education (baseline: BA degree)			
Less than bachelor's degree	-0.178*		-0.136*
	(0.068)		(0.067)
More than bachelor's degree	0.315*		0.235*
	(0.069)		(0.068)
Risk to college completion	0.097		-0.070
	(0.060)		(0.063)
High school residence (baseline: metropolitan)			
Large town	-0.117		-0.003
	(0.080)		(0.079)
Small town	-0.342*		-0.211*
	(0.091)		(0.090)
Rural area	-0.434*		-0.267*
	(0.094)		(0.094)
Immigrant status (baseline: not immigrant)			
Immigrant – noncitizen	0.013		0.053
	(0.267)		(0.272)
Immigrant – citizen	0.073		-0.047
	(0.098)		(0.108)
Model R^2		0.0686	0.1057
Model F		7.12*	4.99*

*p<.05

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

baseline category (respondent's job is not related to their major). Whether the respondent's job is the start of a career is related to migration distance. Respondent's occupation is not related to migration distance.

None of the effects of reasons for moving (contracted employment, speculative employment, or quality of life), cited by the respondent, were statistically significant in the bivariate models.

The bivariate analysis of the background variables indicates the educational attainment of respondents' parents is statistically significant. Among the age dummy variables, respondents who are 21 years old appear to be significantly different from the baseline category (23 year old respondents). The effects of respondents' marital status and size of community while in high school dummy variables are statistically significant relative to the reference category (single and metropolitan, respectively). The effects of respondents' gender, race, whether respondents have children, whether respondents have any risk factors to college completion, and respondents' immigrant status are not statistically significant; none are significantly different from the reference category in terms of migration distance.

MULTIVARIATE ANALYSES

The education model considers the effects of the education factors on migration distance. This model is statistically significant at the $p<0.05$ level. The model R^2 is .053, meaning that 5.3 percent of the variation in migration distance can be explained by the education variables.

The employment models look at the effects of the employment factors on migration distance. The first employment model, containing current employment status and current

enrollment status in addition to the education variables, is statistically significant at the $p<0.05$ level, with a model $R^2 = .059$. Applying the incremental F test, I found that the addition of these two employment variables significantly improves the fit of the model ($F_{calc} = 6.78$, $F_{crit\ 2,2126} = 3.0$). A separate employment model for employed respondents that includes variables specific to their employment (see Table 5.2) is statistically significant at the $p<0.05$ level, with a model $R^2 = .069$.

The reason model considers the effects of the reason for move, in addition to education and employment, on migration distance. This model is statistically significant at the $p<0.05$ level, with a model R^2 of .062. The incremental F test, however, indicates that this model does not significantly improve the fit over the employment model ($F_{calc} = 1.96$, $F_{crit\ 2,2126} = 2.61$).

The full model includes the effects of the background characteristics, in addition to education, employment, and reason for move, on migration distance. This model is statistically significant at the $p<0.05$ level, with $R^2 = 0.0934$. The addition of the background variables significantly improves the fit compared to the employment model ($F_{calc} = 3.29$, $F_{crit\ 24,2102} = 1.58$).

A second full model, including the job-related variables, was estimated for employed respondents (see Table 5.2). This model, with $R^2 = .106$, is statistically significant at the $p<0.05$ level. The addition of the background variables improves the fit compared to the employment model ($F_{calc} = 3.19$, $F_{crit\ 24,1816} = 1.57$). The results reported below, with the exception of the job-related variables, are based on the first full model with all respondents, although effects are similar for variables in both full models.

Of the education variables, the effects of whether the respondent is primarily a student, major, graduated with honors, and has further degree aspirations are not statistically significant. This means respondents who were primarily students while enrolled are not different from those who were primarily employees; respondents who majored in high demand fields (computer science, engineering, business) are no different from those with low demand majors; respondents who graduated with honors are not different from those who did not graduate with honors; and respondents with master's and doctoral/professional degree aspirations are no different from those who did not plan to get additional education, in terms of distance moved. Whether the respondent graduated with honors, and whether the respondent had advanced degree aspirations are associated with migration distance in the bivariate models but lose significance when additional education variables are added. For respondents with higher degree aspirations it appears that no single variable is the cause of this; rather the effect of degree aspirations is supplanted by the additional education variables. The effect of whether the respondent graduated with honors loses significance when GPA is introduced, because the two are correlated.

Three of education variables are statistically significant and in the direction hypothesized. Respondents' GPA is statistically significant; a one point increase in respondent's GPA is associated with a 16 percent increase in the distance the respondent moved. Respondents' GPA is associated with migration distance in the bivariate model, loses significance when additional education variables are added, and then regains significance when background variables are added in the full model. It appears that no single variable is the cause of this; respondents' GPA hovers at borderline significance in all of the models. The effect of the distance from respondent's home to college is statistically

significant; a one percent increase in the distance between the respondent's permanent home and the postsecondary institution the respondent attended is associated with a seven percent increase in migration distance. Respondents who attended private colleges or universities move 22 percent farther than those who attended public colleges or universities.

The effect of respondents' current employment status is statistically significant but in the opposite direction than was hypothesized. Unemployed respondents move 18 percent farther than those who are employed. The effect of respondents' current enrollment status is statistically significant; respondents who are not currently enrolled migrate 19 percent farther than those who are currently enrolled in an undergraduate or graduate degree program.

Considering only employed respondents, the effects of respondents' occupation and whether the respondent's job is the start of a career are not statistically significant. This means that respondents who considered their jobs to be the start of their career are no different than those who did not consider their jobs to be the start of their career and respondents working in high demand occupations are no different from those working in low demand occupations, in terms of migration distance. The effect of whether the respondent's job is closely related to their major is statistically significant, but in the opposite direction as was hypothesized; respondents whose jobs are not related to their major move 21 percent farther than those whose jobs are closely related to their major and 28 percent farther than those whose jobs are somewhat related to their major.

Of the reason for move variables, none have statistically significant effects in the bivariate or full models, although the effect of whether the respondent cited speculative migration is statistically significant (borderline) in the reason for moving model and also in the full model for employed respondents. In the reason for moving model, respondents

whose reasons for moving do not include "better job opportunities/look for job" migrate 14 percent farther than those who said they moved to look for a job (16 percent farther among employed respondents).

Among the background variables, the effects of respondents' gender, age, race, marital status, immigrant status, and whether the respondent had conditions that put them at risk for completing college are not statistically significant. This means that male respondents are not different from female respondents, younger respondents are not different from 23 year old respondents, respondents who are Black, Asian, Native Alaskan/Native Hawaiian, and other races are not different from White respondents, married and formerly married respondents are not different from single respondents, respondents who are immigrants are not different from those who are not immigrants, and respondents who are not at risk for completing a bachelor's degree are not different from those at risk, in terms of migration. The effects of respondents' age and marital status are significant in the bivariate model (21 year old respondents move 23 percent farther than 23 year olds, single respondents move 19 percent farther than married respondents) but lose significance as additional variables are introduced.

Only two background effects, educational attainment of respondents' parents and size of respondents' community while in high school, are statistically significant in the full model. The effect of educational attainment of respondents' parents is in the direction hypothesized. Respondents whose parents have a bachelor's degree move 13 percent farther than those whose parents have less than a bachelor's degree; respondents whose parents have more than a bachelor's degree migrate 20 percent farther than those whose parents have a bachelor's degree. The effect of the size of community where respondents' resided during

high school is not in the direction hypothesized. Those from metropolitan areas move 34 percent farther than those in rural areas and 30 percent farther than those in small towns. There is no difference in the distance moved for respondents from large towns relative to those from metropolitan areas.

SUMMARY OF RESULTS

The results reported in the previous sections support hypothesis 3A: education-related factors affect migration distance; the education model is statistically significant at the $p<0.05$ level and several of the education factors are statistically significant in the bivariate and multivariate models.

I predicted that high achievers (respondents who were primarily students while enrolled, had higher grade point averages, graduated with honors, and had higher degree aspirations) and those with high demand majors (engineering, computer science, business) would tend to migrate greater distances because they would be in greater demand by prospective employers. For the most part this was not supported by the data. The effect of Respondents' GPA is statistically significant in the full model; a one point increase in GPA is associated with a 16 percent increase in migration distance. The effects of the other high achiever variables, however, are not statistically significant in the full model.

I predicted respondents who attended private colleges and universities would migrate greater distances than would those who attended public schools. The data support this hypothesis. The effect of whether the respondent attends a private school is statistically significant in all models; respondents who attended private postsecondary schools migrated 22 percent farther than those who attended public institutions.

The results support hypothesis 3B: respondents who migrate long distances to attend college will migrate long distances after college graduation. The effect of the respondent's distance to school is statistically significant in all models; a one percent increase in the distance between high school residence and the postsecondary school is associated with a seven percent increase in distance between high school residence and current (post-college) residence.

The results reported earlier in this chapter also support hypothesis 3C: there is a correlation between current employment conditions and migration. Both employment models (all respondents, and employed respondents) are statistically significant at the $p<0.05$ level and three of the five individual effects are statistically significant in the full models.

I predicted that employed respondents, respondents whose jobs are related to their majors, respondents whose jobs are career positions, and respondents working in high demand occupations (computer, engineering, business, medical professions) would have migrated greater distances. The effects of whether the respondent's job is the start of a career and respondent's occupation are not statistically significant in the employment and full models. The effect of whether the respondent is currently enrolled is significant in all models. I would have expected enrollment, particularly in a graduate level program, to have necessitated long-distance moves, but the data show that respondents who are not currently enrolled migrate 19 percent farther than those who are currently enrolled (23 percent farther among employed respondents). Likewise, the effect of whether the respondent is currently employed is significant in all models but in the opposite direction than was hypothesized. Unemployed recent college graduates move 18 percent farther from home than do employed graduates.

The effect of whether the respondent's job is related to their college major is statistically significant but in the opposite direction than expected. Respondents who are working in jobs that are related to their major were expected to have to migrate greater distances to obtain those jobs but in fact they migrated shorter distances than did respondents who are working in jobs unrelated to their major.

The results do not support hypothesis 3D: contracted movers migrate greater distances than speculative movers. The incremental F test showed adding the respondent's reason for moving to the model does not significantly increase our ability to predict migration distance.

My remaining hypothesis concerning predictors of migration, 3E: individual characteristics affect migration distance, is supported by the data. The full model is statistically significant at the $p<0.05$ level and is a significantly better fit to the data than was the employment model. In addition, several of the proposed predictors of migration distance are statistically significant in the full model.

I predicted that respondents' gender would have no effect on migration distance since women do not have the constraints on their mobility as in previous eras. The effect of respondents' gender is not statistically significant.

I did not predict an effect of respondents' age on migration distance because the range of ages included in the data (ages 18 through 23) is too small to expect to detect differences, especially since respondents are at the same stage in life (recent college graduates). Respondents' age is, in fact, related to migration distance in the bivariate model but is not statistically significant in the full model.

Tarver and McLeod (1970, 1976) found Whites move greater distances than Blacks but noted that gap was narrowing. I expected respondents' race to have little or no effect on migration distance; any such differences are likely due to differences in respondents' socioeconomic status. As predicted, there is no difference in migration distance by race of the respondent in either the bivariate or full models.

I hypothesized that married respondents would be forced to migrate greater distances than single respondents in order to locate a labor market to support the careers of both spouses. The effect of respondents' marital status is significant in the bivariate model but in the opposite direction; married respondents move shorter distances (19 percent less) than single respondents. The effect of respondents' marital status is not, however, significant in the full model. I did not predict a relationship for formerly married respondents, who, as it turns out, are no different from single respondents in terms of migration distance.

I expected that respondents who do not have children would move greater distances than those with children, again because of higher costs (both financial and psychological) associated with moving children. No significant effect exists in any of the models.

Respondents who were raised in households with higher socioeconomic status were predicted to migrate greater distances because it is likely they would have traveled or moved growing up and hence would be more willing to do so on their own after college. Educational attainment of respondents' parents was used as a proxy for parental socioeconomic status. As expected, respondents whose parents have less than a bachelor's degree move shorter distances (13 percent less) than those whose parents have a bachelor's degree. Likewise, respondents whose parents have more than a bachelor's degree migrate 20 percent farther than those whose parents have a bachelor's degree.

The same argument (prior migration) underlies my expectation that respondents who are immigrants would move greater distances than those who are nonimmigrant citizens. The effect of the immigrant dummy variables is not statistically significant in any models, indicating that respondents who are immigrants do not migrate greater distances than those who are not immigrants.

I expected respondents at risk for college completion would migrate shorter distances because the factors that adversely affect persistence and attainment (e.g., part-time enrollment, working full-time while enrolled, financial independence, single parent status, having dependents other than spouse) might make it more difficult for them to overcome the financial and psychological barriers associated with migration distance. There is, however, no difference between those with risk factors and those without risk factors, in any of the models, indicating that having any of these risk factors does not, in fact, affect migration distance.

I hypothesized that respondents originating in rural areas would migrate greater distances because of the lack of educational and career opportunities close to home. The effects of two of the three dummy variables, namely rural area and small town, are statistically significant but in the opposite direction than was expected. Respondents from metropolitan areas migrate 34 percent farther than those from rural areas and 30 percent farther than those from small towns. Respondents from large towns are no different from those from metropolitan areas in terms of distance moved.

DISCUSSION

Looking at the education variables with respect to their effect on migration distance shows some support for the notion that high achievers migrate greater distances. Respondents with higher grade point averages, those who graduated with honors, and those aspiring to a doctorate or professional degree tended to migrate greater distances than did respondents with lower grade point averages, those who did not graduate with honors, and those who had no further degree plans in the bivariate model, although only the effect of respondents' GPA retained significance in the education and full models. One possible explanation for this effect is one I have put forth earlier, that of high achievement being associated with high demand by prospective employers. Grade point average is, after all, the one obvious indicator of college performance that often appears on one's resume. Perhaps employers who are looking for top-notch job candidates employ a geographically wider search to recruit the brightest college graduates, which translates into greater migration distances for those with higher grade point averages.

There is a known association between past migration and subsequent migration. It is hardly surprising that respondents who migrated longer distances to attend school also migrated longer distances after graduating from college. It seems likely that those who migrated long distances to attend college have likely learned to handle the psychological costs associated with migration and are therefore less hindered by those psychological barriers in later moves.

This repeat migration explanation may also apply to respondents who attended a private postsecondary school, since doing so typically requires a move from one's permanent

home. Another possible explanation has to do with the association of private college attendance with higher socioeconomic status, which affords greater opportunity for travel during one's youth which results in acquiring information about places which, in turn, tends to lower psychological barriers to moving.

Currently employed respondents tend to move shorter distances than those who are not currently employed. One explanation is that job-networking relatively close to home yielded better employment prospects than did migrating. It is also possible that the economic downturn has forced people to migrate (apparently unsuccessfully) in search of employment.

Networking may also explain why respondents working in jobs related to their major tend to have migrated shorter distances than those working in jobs that are not related to their major. Perhaps college students choose their major based on occupations and industries they are familiar with from their home community, and following graduation they return to that general area for those jobs.

Several of the background variables had significant effects that should be explored further. Respondent age is significant in the bivariate model but not in subsequent models; 21 year old respondents tend to move greater distances than 23 year old respondents. As discussed in the previous chapter, this may have to do with a more "footloose" outlook on the part of younger college graduates.

Similarly, married respondents migrate shorter distances than single respondents (in the bivariate model). This could reflect the more settled outlook of married people relative to those who are single. It might also indicate a trade-off between moving to satisfy career ambitions and settling closer to family for future help with raising children. Or it could simply reflect the increased cost of moving two people long distances.

I was surprised to discover no significant effect for respondents without children relative to those with children, in terms of migration distance. One would think those without children would have fewer obstacles to moving. It could be that moves of 50 miles are no different from moves of 500 or 5,000 miles in terms of the psychological costs of uprooting children. It is also possible that the number of respondents with children is too small to see any significant effect.

It was no surprise to find that higher levels of parental educational attainment are associated with greater migration distance. Parental educational attainment was included as a proxy for socioeconomic status. As mentioned earlier, higher socioeconomic status is thought to be associated with exposure to different places; the higher one's socioeconomic status was growing up, presumably, the more likely one is to have traveled during one's youth because educated parents have the interest and means to explore what is beyond their home community. This travel would tend to increase one's information about other places, which may lower the psychological barriers associated with moving.

Respondents from rural areas and small towns migrated shorter distances than respondents from metropolitan areas. It is possible that these young adults from rural areas and small towns are more "sheltered;" they move in order to attend school and pursue a career but limit their school choices and job search to places relatively close to home. Whereas earlier I argued that respondents from metropolitan areas did not have to move in order to go to school or get a job, it appears that when they do move, they move greater distances, perhaps to other metropolitan areas some distance away.

In summary, I have identified some common themes that help to explain these findings. Migration distance may be minimized by networking for jobs close to home. In the

chapter that looked at who moves, I suggested that knowledge about places and the ability to overcome psychological barriers, whether through repeat migration, having traveled, or having expanded networks, contribute to migration decisions. It seems that it may also affect how far one moves. Perhaps the more one has moved or traveled, or the greater distances one has moved/traveled, the less formidable are the psychological barriers. In addition, certain background characteristics may make one more or less risk averse, more footloose or more settled, and consequently more or less willing to confront those psychological barriers to long distance migration.

While the R^2 in the full models indicate that there must be other factors that can explain more of the variation in distance moved, we know from this analysis that those with higher grade point averages, who attended a private college, who migrated greater distances to attend postsecondary school, are not currently enrolled, are not currently employed, those whose jobs are not related to their major, who went to high school in a metropolitan area, and whose parents have higher levels of educational attainment move greater distances.

CHAPTER 6

WHO MOVES FOR WORK-RELATED REASONS VERSUS QUALITY OF LIFE REASONS: EFFECTS OF EDUCATION, EMPLOYMENT, AND BACKGROUND CHARACTERISTICS ON REASON FOR MIGRATION

This chapter addresses the question "who moves for work-related versus quality of life reasons?" Of the 2,173 respondents who indicated they migrated from the place they lived when they last attended high school, approximately two-thirds provided an employment-related reason and the remaining one-third provided a quality of life reason as the first reason cited. But does the reason cited vary by gender or race or age of the respondent? Does it vary based on education-related factors such as GPA, major, or whether one attends a private or public university? Are employment-related factors, such as whether one's job is the start of a career or whether one's occupation is related to one's major, associated with the migration reason? This chapter answers these questions.

The dependent variable, reason for moving, had nine response options that were collapsed into a dichotomous variable; either the respondent cited a work-related reason or a quality of life reason for moving. Logistic regression is used to test the additional hypotheses set forth in Chapter 1. For the independent variable age, I collapsed ages 18 and 19 into a single category because all respondents who were 18 had the same value on the dependent variable.

I begin this chapter with the bivariate results for each of the independent variables. The multivariate results are presented in stages to test my hypotheses about the effects of education-related factors, employment conditions, and individual characteristics on reason for migrating. The results of the bivariate and multivariate analyses are summarized in Table 6.1. The chapter concludes with a discussion of the results.

Table 6.1—Odds Ratio Estimates for Logistic Regression Models of Employment versus Quality of Life (QOL) Migration Reasons

Predictor variables	Bivariate models	Education model	Employment model I	Employment model II	Background model	Full model I	Full model II
Sample size		2,173	2,173	1,886	2,173	2,173	1,886
Education							
Primarily a student while enrolled	0.706	0.780				0.724	0.670
Major (baseline: low demand majors)							
Computer science major	0.749	0.651				0.692	0.908
Engineering major	0.300*	0.280*				0.295*	0.301*
Business major	0.775	0.695*				0.722	0.884
GPA	0.768*	0.933				0.862	0.844
Graduated with honors	0.765*	0.840				0.871	0.840
Advanced degree plans (baseline: none)							
Master's degree aspirations	0.857	0.870				0.995	1.111
Advanced degree aspirations	0.531*	0.533*				0.844	0.913
Unsure about degree plans	1.020	1.053				1.151	1.456
Distance home to school (log)	0.959*	0.967*				0.972	0.970
Attended a private not-for-profit school	0.967	0.977				1.086	1.052
Employment							
Currently enrolled	0.392*		0.373*			0.410*	0.444*
Currently employed	0.996		0.756*			0.788	
Job related to major (baseline: unrelated)							
Job is closely related to major	0.763			0.918			0.941
Job is somewhat related to major	0.773			0.838			0.888
Job is start of career	0.655*			0.687*			0.575*
Occupation (baseline: low demand occ)							
Business/management	0.814			0.815			0.754
Engineering	0.349*			0.384*			0.823
Computer science	0.661			0.704			0.766
Medical professional	1.191			1.277			1.018

Table 6.1—Odds Ratio Estimates for Logistic Regression Models of Employment versus QOL Migration Reasons (continued)

Predictor variables	Bivariate models	Education model	Employment model I	Employment model II	Background model	Full model I	Full model II
Background characteristics							
Male	0.568*				0.515*	0.571*	0.590*
Age (baseline: 23 years old)							
Age 18 and 19	1.071				0.693	0.719	0.564
Age 20	0.924				0.938	1.116	1.016
Age 21	0.601*				0.578*	0.638*	0.632*
Age 22	0.864				0.854	0.882	0.912
Race (baseline: white)							
Black	0.781				0.675	0.751	0.780
Asian	0.839				0.663	0.681	0.741
Native Hawaiian/Native Alaskan	0.972				0.875	0.927	1.029
Other race	1.187				0.929	0.912	0.867
Marital status (baseline: single)							
Married	2.069*				1.863*	1.936*	1.941*
Formerly married	0.603				0.487	0.529	0.194
Have no children	0.460*				0.669	0.789	0.861
Parental education (baseline: BA degree)							
Less than bachelor's degree	1.100				1.119	1.140	1.205
More than bachelor's degree	1.009				1.092	1.171	1.203
Risk to college completion	0.743*				0.942	0.942	0.937
High school residence (baseline: metro)							
Large town	0.896				0.772	0.761	0.723*
Small town	0.744				0.637*	0.610*	0.606*
Rural area	0.595*				0.482*	0.462*	0.489*
Immigrant status (baseline: not immigrant)							
Immigrant – noncitizen	1.324				1.809	2.026	2.419
Immigrant – citizen	1.129				1.288	1.352	1.306
-2 Log L		2740.336	2738.355	2405.599	2678.689	2569.722	2224.169
Model χ^2	—	68.088*	70.909*	35.913*	126.274*	205.750*	181.606*
Degrees of freedom	—	11	2	7	20	33	39

*p<.05

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

BIVARIATE ANALYSES

Each of the independent variables included in this final model was regressed onto the dependent variable to determine whether they initially support my hypotheses. I focus on the significance of those effects in this section. The direction and magnitude of the effects will be interpreted in subsequent sections. The sample size is 2,173. For the variables that apply only to currently employed respondents (whether respondent's job is related to their major, whether respondent's job is the start of a career, and respondent's occupation) the sample size is 1,886.

Education variables indicating whether the respondent had high achievement in college, higher degree aspirations, and majored in a high demand field are expected to be related to reason for migrating. Respondent's grade point average, whether the respondent graduated with honors, and the distance from the respondent's home to school are statistically significant predictors of reason for migrating. The first set of dummy variables, respondent's major, show differences that appear to be significant for respondents' who majored in engineering but not for computer science or business majors relative to those with low demand majors in terms of migration reason. Respondents' degree aspirations appear to be significant for those with advanced degree plans but not for those planning to get a master's degree and those unsure about future degrees relative to those with no further degree aspirations. Respondents who were primarily a student while enrolled in college and those who attended a private postsecondary institution were no different from those who were primarily an employee and those who attended a public school, in terms of migration reason.

The results of the bivariate analysis indicate that respondents' current enrollment status is related to migration reason but respondents' current employment status is not. Looking only at employed respondents, the effect of whether the respondent's job is the start of a career is statistically significant in terms of reason for migrating. The effect of the set of occupation dummy variables is also statistically significant; respondents who are engineers appear to be significantly different from respondents working in low demand occupations in terms of migration reason but respondents in business/management, computer, and medical jobs are not different from those working in low demand occupations. Whether respondents' job is related to their major is not related to migration reason.

Several of the individual characteristics are related to reason for migration in the bivariate models. Respondents' gender, whether respondents have children, and whether the respondent had any conditions that put them at risk for college completion are statistically significant predictors of migration reason. Among the sets of dummy variables, the effects of respondents' age, marital status, and size of community when in high school are statistically significant. Respondents who are 21 years old are significantly different from those who are 23 years old (but 18 and 19, 20, and 22 year olds are no different from 23 year olds) in terms of migration reason. Respondents who are married are significantly different from those who are single (but formerly married people are no different) in terms of reason for migration. Respondents from rural areas are significantly different from respondents from metropolitan areas in terms of migration reason (but those from small and large towns are not different from those from metropolitan areas). Respondents' race, the educational attainment of respondents' parents, and respondents' immigrant status are not related to reason for migrating.

MULTIVARIATE ANALYSES

The education model looks at the effects of all the education factors on migration reason. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 68.1$ and 11 degrees of freedom.

The employment models consider the effects of the employment factors on reason for migrating. The first employment model, containing only current employment status and current enrollment status, is statistically significant at the $p<0.05$ level, with model $\chi^2 = 70.9$ and 2 degrees of freedom. A second employment model was created for respondents who were currently employed (n=1,886). These factors are not included in the first employment model because these questions were only asked of employed respondents, which removes all unemployed respondents from the model. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 35.9$ and 7 degrees of freedom.

The background model looks at the effects of the individual characteristics, such as respondents' gender, age, race, and marital status, on reason for migrating. This model is statistically significant at the $p<0.05$ level, with model $\chi^2 = 126.3$ and 20 degrees of freedom.

The full model includes the education variables, the employment variables with the exception of those that were only asked of currently employed respondents, and the background variables. The model, with model $\chi^2 = 205.7$ and 37 degrees of freedom, is statistically significant at the $p<0.05$ level. A second full model, that includes the job-related variables, is statistically significant at the $p<0.05$ level with model $\chi^2 = 181.6$ and 39 degrees of freedom. The results reported below, with the exception of the job-related variables, are based on the first full model, although the magnitude of effects is quite similar for variables in both full models.

Of the education variables, only the effect of the set of dummy variables for respondents' major is statistically significant (evaluated using the incremental chi-square test). Respondents who majored in engineering are 0.3 times as likely as those who majored in low demand fields to migrate for work-related reasons. Respondents who majored in computer science or business are not different from those who majored in low demand fields, in terms of reason for migrating.

The effects of whether the respondent was primarily a student, whether the respondent graduated with honors, respondent's grade point average, respondent's educational aspirations, the distance between respondent's permanent home while enrolled and the postsecondary school the respondent attended, and whether the respondent attended a private postsecondary institution are not statistically significant in the full model. This means that respondents who were primarily students are not different from those who were primarily employees, respondents who graduated with honors are not different from those who did not graduate with honors, respondents who had higher grade point averages are not different from those who had lower grade point averages, respondents who aspired to get a master's degree, doctoral/professional degree, or were unsure whether they would continue their schooling are no different from those who did not plan to return to school, respondents who migrated longer distances to school are no different from those who migrated shorter distances, and respondents who attended private postsecondary universities are no different from those who attended public schools, in terms of reason for migrating.

Two effects, respondent's GPA and whether the respondent graduated with honors, are statistically significant in the bivariate models but lose significance when the rest of the education variables are added. For GPA it appears that both graduating with honors and

further degree plans are the cause of this loss of significance. For graduating with honors, GPA alone appears to be the cause.

Three effects lose statistical significance between the education model and the full model. Respondents who were business majors are significantly different from those in low demand majors in terms of migration reason in the education model but this effect is no longer statistically significant (borderline) in the full model. It appears that the introduction of the respondents' gender causes business majors to lose statistical significance. The effect of the set of dummy variables for respondents' plans for further education loses significance in the full model. The cause of this appears to be the introduction of the currently enrolled variable which is related to the dummy variable representing the respondents' advanced degree plans (those with doctoral/professional degree plans typically enroll immediately following college graduation). The effect of distance from the respondent's permanent home to school is significant in the education model but not in the full model. No single variable appears to be responsible; rather effect of distance to school is supplanted by the additional variables in the full model.

Of the employment variables, the effects of whether respondents' are currently enrolled and whether respondents are working in a job that is the start of their career are statistically significant. Enrolled respondents are 0.4 times as likely as respondents who are not enrolled to have moved for employment reasons. Respondents whose jobs are the start of their career are 0.6 times as likely as those whose jobs are not the start of a career to have moved for work-related reasons.

Whether the respondent is currently employed, working in a job related to their major, and respondent's occupation are not statistically significant. This means respondents

who are currently employed are no different from those who are not employed, respondents whose jobs are closely or somewhat related to their major are no different from those whose jobs are not related to their major, and respondents in high demand occupations (engineering, computers, business/management, and medical) are no different from those in low demand occupations in terms of reason for migrating.

Two effects that are significant in the employment models lose significance when additional variables are added. The effect of whether the respondent is currently employed is statistically significant (just barely) in the employment model but loses significance in the full model. Again the effect appears to be supplanted by the additional variables. The effect of the set of occupation dummy variables is statistically significant in the employment model but is not significant in the full model. It appears that respondents' major, which is, of course, related to respondents' occupation, causes occupation to lose significance in the full model.

The effects of respondents' gender, age, marital status, and size of community while in high school are statistically significant individual characteristics in the full model. Male respondents are 0.6 times as likely as female respondents to move for employment reasons. Respondents who are 21 years old are 0.6 times as likely as those who are 23 years old to cite employment reasons for migrating; respondents who are 18 and 19, 20, and 22 years old are not different from 23 year old respondents in terms of reason for migration. Respondents who are married are nearly twice (1.9 times) as likely to cite employment reasons for moving compared to those who are single; respondents who are formerly married are not different from those who are single. Respondents who hail from rural areas are about half (0.5 times) as likely, and respondents from small towns are 0.6 times as likely as those from

metropolitan areas to cite work-related reasons for moving. Respondents from large towns are not significant in the first full model but are in the second full model (0.7 times as likely as those from metropolitan areas to cite work-related reasons).

The effects of the respondent's race, whether the respondent has children, educational attainment of the respondent's parents, whether the respondent had any conditions that put them at risk to college completion, and the respondent's immigrant status are not statistically significant in the full model. This means, in terms of reason for migrating, that respondents who are Black, Asian, Native Hawaiian/Native Alaskan, and other race are no different from White respondents; respondents with no children are no different from those with children; respondents whose parents have less than a bachelor's degree or more than a bachelor's degree are no different from those with a bachelors degree; respondents with one or more risk factors for completing college are no different from those with no risk factors; and respondents who immigrated or whose parents immigrated are no different from those whose families settled in earlier generations.

Two of the background effects, having no children and risk to college completion, are statistically significant in the bivariate models but not in subsequent models. The addition of respondents' age and marital status appear to cause this change in effect for both variables.

SUMMARY OF RESULTS

The univariate analysis of the reason for move variable, presented in Chapter 2, supports my hypothesis 4A: recent college graduates migrate for job-related reasons. Indeed, they cite employment reasons twice as often as quality of life reasons. This is consistent with

the human capital theory that says these young adults want to maximize the return on their investment in education.

The results presented in the previous sections support hypothesis 4B: education-related factors are associated with reason for migrating; the education model is statistically significant at the $p<0.05$ level and several of the education factors are statistically significant in the bivariate and multivariate models.

I predicted that high achievers (respondent who were primarily students while enrolled, had higher grade point averages, graduated with honors, and had higher degree aspirations) and those with high demand majors (engineering, computer science, business) would tend to cite employment reasons for migrating because they wanted to reap the returns for their hard work. On the contrary, these high achievers and those in high demand majors are significantly less likely to cite employment reasons for moving than were low achievers and those with low demand majors in the bivariate models. However, very few of these relationships actually remained statistically significant in the later models. In fact, only engineering majors retained significance in the full model, with engineers being 0.3 times as likely as low demand majors to cite employment reasons.

The results reported earlier in this chapter also support hypothesis 4C: there is a correlation between current employment conditions and reason for migrating. Both employment models are statistically significant at the $p<0.05$ level and two of the five individual variables are statistically significant in the full models.

I predicted that employed respondents, respondents whose jobs are related to their majors, respondents whose jobs are career positions, and respondents working in high demand occupations would be more likely to have cited employment reasons for migrating.

Again, my prediction was incorrect; the effects that are statistically significant in the employment and/or full models (whether the respondent is currently enrolled, whether the respondent's job is start of a career, and respondents working in engineering jobs) are associated with quality of life rather than employment reasons for migrating. Respondents who are enrolled in an undergraduate or graduate program are 0.4 times as likely as respondents who are not enrolled to cite employment reasons. Respondents working in jobs they consider to be career positions are 0.6 times as likely as those working in jobs that are not career positions to cite employment reasons. Respondents who are employed as engineers (in the employment model, not statistically significant in the full model) are 0.4 times as likely to cite employment reasons compared to those working in low demand occupations.

My final hypothesis concerning reasons for migration, 4D: reason for migrating is associated with individual characteristics, is supported by the data. The background model is statistically significant at the $p<0.05$ level and three of the proposed predictors are statistically significant in the full model.

I predicted no effect of respondents' gender, age, or race on reason for migrating. Respondents' race does not have an effect in the full model. Age and gender of the respondent do, in fact, have a statistically significant effect; respondents who are 21 years old are 0.6 times as likely as respondents who are 23 years old and male respondents are 0.6 times as likely as female respondents to cite employment reasons for migrating.

I expected that married respondents (without children) would tend to cite employment reasons because they would require a labor market to support the careers of both spouses. Indeed, the effect of respondents' marital status is significant and in the hypothesized

direction, with married respondents citing employment reasons at twice the rate of single respondents.

I did not predict an effect of whether the respondent has any children on reason for migrating. The literature suggests those with children tend to migrate to rural areas for quality of life reasons but at this stage in life (right out of college) the economic realities of raising children might lend pressure to the importance of employment. At the bivariate level, not having children is associated with quality of life reasons but this relationship disappears when additional background variables are added.

I expected respondents who come from families with higher socioeconomic status (as measured by educational attainment of respondents' parents) to cite employment reasons for migrating because their parents would have likely instilled in them the importance of having a good job. No significant effect for educational attainment of respondents' parents is found in any of the models.

I predicted that respondents who are immigrants would cite job-related reasons due to their investment in education, but thought strong family ties might produce the opposite effect. Respondents' immigrant status, however, is not statistically significant in any of the models.

I hypothesized that respondents with rural origins would migrate for employment reasons because of the lack of jobs in their home communities, but also noted that they might cite quality of life reasons such as a desire for urban living/getting away from small town. The effect of originating in a rural area or a small town is statistically significant in the background and full models, and large town is of borderline significance in the first full model and significant in the second full model (employed respondents). Respondents from

rural areas were about half as likely as those from metropolitan areas to cite work-related reasons; respondents from small towns were 0.6 times as likely as those from metropolitan areas to cite work related reasons; respondents from large towns were 0.7 times as likely as those from metropolitan areas to cite work related reasons.

DISCUSSION

While only one education effect is statistically significant in the full model, the significant effects from the bivariate and education models deserve a second look. I was completely taken aback to discover that high achievers (respondents with higher grade point averages, respondents who graduated with honors, and those intending to pursue a doctorate or professional degree) and those in high demand fields are significantly less likely to cite employment reasons than were the not-so-high achievers and respondents with low demand majors. But this finding is quite reasonable: high achievers and those in high demand fields have more options available to them upon college graduation. Despite the sluggish economy, they may have received multiple job offers or felt secure enough to choose where they wanted to live rather than going where employment prospects appeared favorable. Those with lower grades, lower aspirations, and in lower demand fields may have felt more desperate to get a job, so employment prospects weighed more heavily in their migration decisions.

The effect of respondents' major remained significant in the full model, with engineering majors being 0.3 times as likely as those who majored in low demand fields to cite employment reasons. The fact that the odds-ratio is so low for engineers, combined with the belief that engineers are likely the highest demand major for prospective employers, lend

support to this new hypothesis that they have more options for employment and can thus make migration decisions based on other factors, knowing that they will have little trouble securing a job.

Among the employment variables, respondents who are currently enrolled are more likely to cite quality of life reasons than are respondents who are not currently enrolled and those whose jobs are not the start of a career. Those enrolled in graduate school would seem to fall into the high achiever explanation; they have the flexibility to choose a graduate school based on quality of life rather than employment reasons.

Many of the background characteristics had significant effects on reason for migrating, including respondents' gender, age, marital status, and rurality of the place the respondent resided in high school. It came as a bit of a surprise that male respondents were significantly more likely to cite quality of life reasons for moving compared to female respondents. If anything, I would have expected women to cite quality of life (especially family-related) reasons more often than men. One explanation for this effect may have to do with the options they perceive to be available to them. Another may have to do with gender differences in risk aversion. Men, perhaps, are more likely than women to choose a destination based on quality of life considerations because they expect to be able to land a job anywhere and are more willing to take risks. Women, still relatively new to the professional labor force, perhaps feel pressure to prove their education is put to good use and therefore migrate for job-related reasons.

It is not entirely clear why there would be any difference between respondents who are 21 years old and those who are 23 years old in terms of reason for migrating. It is possible that younger adults are more footloose and willing to take risks, hence they are more

likely to move for quality of life reasons, whereas older respondents exercise more maturity by making employment a higher priority when choosing where to live. Given the very small range of ages, however, I offer this explanation with reservations.

Married respondents are more likely to cite employment reasons for migrating compared to single respondents. This finding was not unexpected and there are a couple of reasonable explanations for this. In light of this notion of certain categories of people having more options available to them, it would seem that married people trying to find a job market to support two careers would have fewer options available to them in terms of employment and hence would need to make employment their main concern when choosing where to live. In addition, marrying at a relatively young age (these respondents are between 18 and 23) may be characteristic of a more "settled" personality. Conversely, single respondents can afford to be more footloose. They typically are supporting no one but themselves and are, therefore, free to follow their dreams and take whatever work they can get to support them.

Because rural areas and small towns tend to have few opportunities for white collar employment I expected work-related reasons to be particularly important to respondents from rural communities, but that was not the case. Respondents from rural areas and small towns are significantly more likely to cite quality of life reasons compared to those from metropolitan areas. Given the finding from Chapter 4, that respondents from rural areas/small towns were more likely to settle in a similar-sized community, combined with their citing quality of life reasons for migrating suggests that certain aspects of rural or small town lifestyle are important to them.

There appear to be three dynamics at work that explain these reasons for migrating results. The first is one of being in high demand or at least being confident in one's ability to

land a job that accounts for the tendency of engineering majors and those currently enrolled to cite quality of life reasons for migrating. In other words, if one has several job offers or expects to have no problem securing a job (because one is in a marketable field, has good college credentials) one can choose where they want to live based on quality of life considerations such as climate, where family and friends are located, and preference for an urban or a recreational environment. Conversely, those who expect to have difficulty landing a job in their field, either because supply outstrips demand (as may be the case for low demand majors) or because their college performance was poor would tend to put a higher value on finding a job when making migration decisions.

The second dynamic has to do with being "footloose" or more willing (and able) to take risks or conversely, more mature, settled, and risk averse. Men, singles, and 21 year olds were more likely to cite quality of life reasons, while women, married respondents, and 23 year olds tended to cite work-related reasons for migrating. It seems that singles and younger adults would be less tied down and in a better position, psychologically and economically, to take risks with regard to employment. They may decide that at this stage in life they are willing to perform unskilled work (e.g., wait tables) that will allow them to scrape by while they live their dream in the destination of their choice. Married people and slightly older adults may feel more pressure to settle down and get a "real job" (i.e., one that uses their education). In general, I think this same line of thinking can be applied to gender; young adult males tend to be more footloose and willing to take on risk whereas young adult females tend to be more risk-averse and thus more focused on employment in their migration decisions.

The third dynamic has to do with the size of community in which one was raised and how that may shape one's values. Those who lived in a rural area or small town at the time of high school graduation were more likely to cite quality of life reasons than were those from metropolitan areas. As noted in Chapter 4, respondents from rural areas and small towns tended to migrate to rural areas and small towns and large towns rather than to metropolitan areas. Taken together, these findings suggest that people from small towns and rural areas prefer to live in these small communities despite the lack of employment prospects. The quality of life that they associate with small town/rural living, whether it is the proximity to family or friends, the feeling of a close-knit community, the slower-pace, is more important than their work.

At the beginning of this chapter, I posed the question "who moves for work-related versus quality of life reasons?" The answer, based on this research, is those citing quality of life reasons tend to be engineering majors, those currently enrolled, those working in a job that is the start of a career, males, 21 year olds, those who are single, and those who went to high school in a nonmetropolitan area. Those citing employment reasons tend to be low demand majors, those not currently enrolled, those working in a job that is not the start of a career, females, 23 year olds, those who are married, and those hailing from metropolitan areas.

CHAPTER 7

CONCLUSIONS

Much research has been done on the selectivity of migration in developed countries. While this particular population, namely young recent college graduates, has not been looked at in great detail, the answers to the question of "who moves?" are consistent with the general literature. It is the analyses of migration to rural or urban destinations, migration distance, and reason for migration for this population that have broken new ground. The results presented in the preceding chapters show that education, employment, and background factors are related to these outcomes, although the factors that are statistically significant vary from model to model. Table 7.1 summarizes the statistically significant effects. In this chapter I will briefly review the findings of this study, tie together those findings with five explanations of migration patterns, link these findings back to migration theory, and discuss the implications of these findings. I will also discuss the limitations of this research and avenues for future research.

SUMMARY

Who migrates after completing a bachelor's degree? Approximately half the sample migrated after graduating. Results reported in Chapter 3 revealed that migrants tend to have majored in computer science and engineering, plan to get a doctorate or professional degree, attended a private college, migrated to attend college, are currently enrolled, have no children, lived in a rural area, small town, or large town at the time of high school graduation, have parents with higher levels of educational attainment, and were born in the

Table 7.1— Summary of Significant Effects

Predictor variables	Who moves	Rural/urban migration	Migration distance	Reason for migrating
Education				
Primarily a student while enrolled		*		
Major (baseline: low demand majors)				
Computer science major	*			
Engineering major	*	*		*
Business major				
GPA			*	
Graduated with honors				
Advanced degree plans (baseline: none)				
Master's degree aspirations				
Advanced degree aspirations	*			
Unsure about degree plans				
Distance home to school (log)	*	*	*	
Attended a private not-for-profit school	*		*	
Employment				
Currently enrolled	*	*	*	*
Currently employed			*	
Job related to major (baseline: unrelated)				
Job is closely related to major			*	
Job is somewhat related to major			*	
Job is start of career		*		*
Occupation (baseline: low demand occ)				
Business/management				
Engineering				
Computer science		*		
Medical professional		*		
Reasons for moving				
Contracted employment				
Speculative employment		*	*	
Quality of life reasons				

Table 7.1— Summary of Significant Effects (continued)

Predictor variables	Who moves	Rural/urban migration	Migration distance	Reason for migrating
Background characteristics				
Male		*		*
Age (baseline:23 years old)				
Age 18				
Age 19				
Age 20				
Age 21		*		*
Age 22				
Race (baseline: white)				
Black				
Asian				
Native Hawaiian/Native Alaskan				
Other race				
Marital status (baseline: single)				
Married	*	*		*
Formerly married				
Have no children	*	*		
Parental education (baseline: BA degree)				
Less than bachelor's degree	*		*	
More than bachelor's degree	*		*	
Risk to college completion				
High school residence (baseline: metro)				
Large town	*			*
Small town	*	*	*	*
Rural area	*	*	*	*
Immigrant status (baseline: not immigrant)				
Immigrant – noncitizen	*			
Immigrant – citizen	*			

*p<.05

Source: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study:2000-2001 (B&B:2000/01) restricted use data.

U.S. or to U.S.-born parents. Factors that were not statistically significant include whether the respondent was primarily a student or employee while enrolled, respondent's GPA, whether the respondent graduated with honors, is currently employed, works in a job related to his or her major, works in a job that is the start of a career, respondent's occupation, gender, age, race, and whether the respondent was at risk to college completion.

Who migrates to rural versus urban destinations? As reported in Chapter 4, recent college graduates tend to move to metropolitan destinations, although certain categories of respondents were more likely to choose rural areas/small towns or large towns over metropolitan areas. Movers to rural areas/small towns (compared to metropolitan areas) tend to be respondents who majored in low demand fields, those who are not currently enrolled, those whose jobs are not the start of a career, those who work in low demand occupations, those with children, and those who lived in a rural area or small town at the time they graduated from high school. Movers to large towns (compared to metropolitan areas) tend to be respondents who were primarily employees while enrolled, those who did not migrate as far to college, those who did not cite speculative employment reasons, those aged 23 rather than 21, those who are married, and those from a rural area or small town.

Who migrates greater distances? Among those who migrated, the average distance was 457 miles. Greater distance moves were reported (in Chapter 5) by respondents with higher grade point averages, those who attended a private college, who migrated greater distances to attend postsecondary school, who are not currently enrolled, who are not currently employed, whose jobs are not related to their major, who went to high school in a metropolitan area, and whose parents have higher levels of educational attainment. Respondent's major, whether he or she was primarily a student while enrolled, whether the

respondent graduated with honors, whether the respondent had advanced degree aspirations, respondent's reasons for moving, respondent's gender, age, race, marital status, immigrant status, and whether the respondent was at risk for completing college were not statistically significant in this model.

Who cites quality of life reasons versus work-related reasons for migration? Work-related reasons were cited by approximately two-thirds of respondents. Certain categories of respondents, however, were more likely to cite quality of life reasons than their counterparts, as reported in Chapter 6. Those citing quality of life reasons tend to be engineering majors, those currently enrolled, those working in a job that is the start of a career, males, 21 year olds, those who are single, and those who lived in a nonmetropolitan area while in high school. Factors that were not statistically significant include whether the respondent was primarily a student or employee while enrolled, respondent's GPA, whether the respondent graduated with honors, is currently employed, has advanced degree aspirations, the distance between respondent's home and college, whether the respondent attended a private college, whether the respondent is currently employed, whether the respondent works in a job related to his or her major, respondent's occupation, race, immigrant status, whether the respondent has children, respondent's parents' educational attainment, and whether the respondent was at risk to college completion.

There is evidence, based on the results of the education variables in each of the models, supporting a migration pattern for those I have dubbed high achievers and high demand majors. They show a tendency toward settling in metropolitan areas and citing quality of life reasons for moving (compared to low achievers and low demand majors). It appears that being in high demand by potential employers gives these recent college

graduates confidence in their ability to secure suitable employment, which in turn provides them with the flexibility to move where they want to move; that is, they can choose a destination based on factors other than the location of jobs. For engineering majors and those currently enrolled, the tendency is to settle in a metropolitan location. Earlier I argued that this is where engineering jobs and graduate schools tend to be located, but considering engineering majors and those currently enrolled tend to cited quality of life reasons, it seems they look at destinations that are favorable for employment/schooling (or where they had job or graduate school offers) but ultimately choose the destination based on other criteria.

A second story of migration patterns that emerges from these results relates to the respondent's stage in life, namely whether they are in a "provider" role (i.e., have family and/or financial responsibilities) or whether they are footloose, making migration and employment decisions with little concern about the impact of those decisions on others. The greater migration propensity and settlement in large towns exhibited by married respondents, as well as their tendency to cite work-related reasons for migrating is an example of this "provider" role. I hypothesized that married respondents are more likely than singles to migrate because of their need to find a labor market that can support the needs of both spouses. This is supported by the work-related reasons for moving cited by this group. Married respondents are also more likely to settle in a large town. Singles, on the other hand, are more likely to settle in a metropolitan area, and to cite quality of life reasons for moving, typifying a more footloose population with few responsibilities. Having children fits into this pattern as it increases the pressure to settle down, get a job and support one's family. Recent college graduates with children (providers) are less likely to migrate and those who do migrate tend to settle in a rural area or small town which is often viewed as a better place for

raising children. Those without children (footloose) are more likely to migrate and to settle in metropolitan areas. Despite the small range of ages included in this study, age proved statistically significant, with younger respondents (age 21) being more footloose in terms of moving to metropolitan areas and citing quality of life reasons. Their older counterparts (age 23) acted more like "providers," settling in large towns and citing employment reasons for migrating. Despite my reluctance to stereotype by gender, the results of the reason for migrating model suggest that males at this stage in life are more footloose, citing quality of life reasons for migrating, whereas females are more likely to cite employment reasons. This finding suggests to me that this explanation of migration patterns may need to include something along the lines of risk aversion, with young males generally being more willing to take risks than are females.

A third pattern concerns knowledge about other places and the ability to overcome psychological barriers. While not directly observed, certain factors such as socioeconomic status seem to be related to knowledge about potential migration destinations and the ability to overcome obstacles to migration. The level of education attained by respondents' parents, migration distance to attend college, and enrolling in a private postsecondary school were related to migration propensity and migration distance. Respondents whose parents were more highly educated, those who migrated longer distances to attend college, and those enrolled in a private college or university are more likely to migrate and are more likely to migrate longer distances than respondents whose parents were less highly educated, respondents who migrated shorter distances to attend college and those enrolled in a public college or university. These effects appear to be a proxy for prior migration. Distance between respondent's home and college certainly is, since it shows whether the respondent

migrated to attend college. Whether the respondent attended a private college or university and the educational attainment of the respondent's parents give us some information about the socioeconomic class of the respondent's family. Past research has suggested higher socioeconomic status is positively associated with migration propensity as well as vacation travel.

What is it about prior migration that leads individuals to repeat this behavior? One answer is that prior travel, whether as vacation or migration, gives people more information about places. This networking argument says that the more information one has about a place, either from living there, visiting there, or knowing people who have lived or visited there, the more likely one is to move there. Conversely, if one knows nothing about a place, it is unlikely to even be in consideration as a potential migration destination. This is no doubt why companies fly a potential employee and their spouse to the city where the job is located: the more information the couple has about the place, the better able they are to make an informed decision about moving there. Another answer to the question of repeat migration is that those who have moved in the past have successfully overcome the psychological barriers associated with moving and therefore those barriers are less formidable than they are to those who have never moved. For example, a young adult may be apprehensive about moving to a place where he knows no one, yet discovers he makes new friends and can still keep in touch with old friends and family via phone, email, or return visits. Hence, a subsequent move is less scary because he feels more confident that he will make new friends while keeping in touch with the old friends and family.

The fourth pattern I found in these migration results has to do with community embeddedness and, by extension, knowledge of work opportunities in one's home

community. Specific measures of community embeddedness, that is, how closely one is tied to one's home community, were not collected in the data used in this research. However, some of the employment results suggest that knowledge of business opportunities in one's community may reduce migration. In the migration distance model, currently employed respondents and those working in jobs related to their major tended to migrate shorter distances than did those who were not currently employed and those whose jobs are unrelated to their major. This suggests that networking may be more effective than college placement offices in finding employment, particularly in one's chosen field, immediately following college graduation.

The final pattern relates to the size of the community where the respondent lived during high school. This set of dummy variables is statistically significant in all models. For the most part there is no difference in effect between those from metropolitan areas and those from large towns. However respondents from rural areas and small towns are consistently different from those hailing from metropolitan areas. Respondents from rural areas and small towns are much more likely to migrate, are more likely to settle in a rural area/small town or in a large town (rather than a metropolitan area), tend to migrate shorter distances, and cite quality of life (rather than work-related) reasons for migrating compared to those from metropolitan areas. The lack of employment opportunities for college graduates in rural areas and small towns was expected to drive these young adults to larger communities, and to a certain degree it does. However, these results suggest that recent college graduates have a preference for the same or similar size community as the one they grew up in, and in relatively close proximity to where they grew up. The quality of life reasons cited by small town and rural respondents reinforce the notion that something other than employment,

perhaps closeness to family or preference for a rural environment, is the most important consideration for this subpopulation when choosing a destination.

THEORY

To a certain degree, the results of this research do support the human investment theory of migration presented in Chapter 1. This theory says the individual calculates the expected costs and returns over time when considering whether to migrate. However, migration data typically do not include information about the expected costs and returns associated with migration, as these are highly difficult to measure, and the B&B data was no exception. This data set included reason for migrating and certainly the majority of respondents who migrated indicated they did so for work-related reasons, hence supporting the economic-based theory of migration. The wrinkle to this theory, however, is the high achievers/high demand respondents who were more likely than their counterparts to cite quality of life reasons (rather than employment reasons) for migrating. This presents an interesting twist in that the best and brightest are not, presumably, following economic considerations at all. On the contrary, it appears that they are confident in their ability to find employment, hence they are more likely choose the destination based on noneconomic considerations and then worry about getting a job.

In general, however, few of the employment variables were statistically significant in any of my models, suggesting perhaps that another theory of migration is needed to better explain who moves and why. Lee's theory (1966), which considers "pull" factors that hold people to an area, ties in, to some extent, with my arguments about repeat migrants overcoming psychological barriers of migration. Once those "pull" factors are overcome

once, their pull would be less of a force in subsequent migration decisions. But this theory does not attempt to predict the characteristics of migrants.

What is needed to extend the economic theory, in my opinion, is one that incorporates networking, both within one's home community and outside the community. As discussed earlier in this chapter, local ties, particularly those that are employment-related, may prevent or lessen the distance of migration. Non-local ties, whether through prior travel, migration, or meeting people who live outside one's community, presumably increase the migration hazard.

Based on my findings, it would seem that a completely different type of theory, one that considers stage in life and even personality type is also needed to explain differences in migration propensity, destination and reason. Johnson and Fuguitt (2000) reported the settlement of older adults and families with children in rural areas and small towns, hypothesizing that noneconomic factors (e.g., rural areas seen as a preferable environment to raise children) may exert a stronger influence than economic factors for some people. My findings of "providers" tending to settle in rural areas/small towns and large towns agree with these previous findings. It is interesting to note, however, that unlike other researchers who have dubbed this a quality of life decision, my research shows that these "providers" are more likely than their footloose counterparts to cite work-related reasons as the primary reason for choosing their destination. That said, it would seem that their choice of destination has to do with quality of life considerations as well, however for these providers, employment reasons are the foremost consideration.

While this provider/footloose dichotomy appears to be somewhat effective in predicting migration propensity, destination, and reason, it seems as though another factor is

missing, namely one's sense of adventure or, conversely, aversion to risk. This, in my opinion, would be helpful in predicting who will migrate and how far they will migrate. The adventuresome risk-takers, it would seem, would not only be more likely to migrate, but also to migrate longer distances, and possibly seek out the excitement associated with metropolitan living. Sense of adventure would seem to be somewhat age-related, which may make this useful only for the subset of the population covered by this research.

IMPLICATIONS

Communities and states spend considerable money educating children in public schools from kindergarten through college. If they lose these young people to jobs in other parts of the country, that investment in their education is wasted, from their perspective, unless a comparable number of young educated people move in to take their place.

The most educated and brightest students, as shown here and in other research (e.g., Indiana State Commission for Higher Education, 1995; Tornatzky et al., 2001), are also the most mobile, which potentially results in a brain drain for communities. Among the recent college graduates included in this research, those who migrated to attend college are significantly less likely to settle within 50 miles of where they attended high school (41 percent) than those who did not migrate to attend college (59 percent; $\chi^2=230.6$, $p<.0001$). This is especially true in rural areas, where the lack of postsecondary institutions and white collar jobs force young people to migrate to attend college and find suitable employment.

What can be done to slow or reverse this outmigration, or alternatively, to attract bright students and college graduates from other areas? One way to address this issue is to reduce the outmigration to attend college. A potential solution is to increase the number and

distribution of public colleges and universities, particularly serving rural areas, to provide postsecondary options that do not require students to migrate in order to attend college. The expansion of the community college network attempted to do so, but community colleges may not provide sufficient challenge to the brightest students. Distance education programs are a more feasible and increasingly popular means of providing postsecondary education without requiring migration.

An issue currently at the center of much debate in North Carolina indirectly deals with this concern: the University of North Carolina at Chapel Hill (UNC-CH) is considering increasing the percentage of out-of-state students admitted to the school from 18 to 22 percent. Not only will this increase revenue (as out-of-state students pay higher tuition whereas in-state students are heavily subsidized) but it is expected to increase the prestige of the school. The expected effect of this action on student migration is that more of North Carolina's brightest high school graduates who might otherwise attend elite out-of-state schools will choose to attend UNC-CH because of its increased prestige, hence reducing the brain drain. Similarly, more of the brightest students from outside North Carolina will be attracted to UNC-CH because of its academic reputation.

The other way to address the migration issue is to retain and attract recent college graduates. While it is difficult or impossible to address many of the quality of life factors (e.g., presence of family, climate), communities may be able to deal with the employment reasons for migrating, cited by the majority of migrants in the B&B:2000/2001 data. A healthy job market with employment opportunities for college graduates is of primary importance. For example, Research Triangle Institute (RTI), a non-profit organization specializing in scientific research and technology development, was founded to retain local

talent (especially recent graduates from UNC-Chapel Hill, Duke, and North Carolina State University). Other methods for communities or employers to attract or retain college graduates might include financial incentives such as higher salaries, signing bonuses, or the promise of paying off a percentage of one's student loans for each year they work at that business or in that community. Employers may lure recent college graduates with quality of life incentives such as shorter work weeks, more vacation days, and at-work recreation facilities. Businesses must also be "on the radar" to attract college graduates; this may be accomplished by offering internship/co-op programs to college students and/or recruiting on campus through career placement offices.

LIMITATIONS AND EXTENSIONS

There were a number of issues related to the questions asked in the B&B:2000/2001 study that should be noted and, perhaps, improved upon when collecting similar data in the future. The first of these is the way in which the reason for moving question was asked. At the start of data collection, the question wording was, "Why did you decide to move away from where you last attended high school (to where you are now)?" The parenthetical portion was not read by interviewers unless clarification was requested by the respondent. Project staff quickly realized respondents were frequently answering "to go to school" and removed the parentheses so the clause "to where you are now" was read by interviewers. There was no way to extract these early responses from the data file, which likely skewed the data to some degree. For future data collection the wording of the question should be clarified based on whether the intent is to collect reason for leaving the place of origin or the reason for choosing the particular destination.

A second issue with the data concerned inconsistencies between the question that asked whether the respondent lives more than 50 miles from the place lived in high school (the definition of migration used by this study) and the actual distance between current residence and place lived in high school (based on zip code distance calculation). A number of respondents said they moved more than 50 miles yet provided identical zip codes for the origin and destination. Yet others provided different zip codes but the calculated distance contradicted their answer to the question of whether they live more than 50 miles from the place they lived in high school. Real-time error checking is recommended to help limit such inconsistencies in the future. The simplest solution, perhaps, would be to ask the respondent to confirm the city and state associated with the zip code entered to ensure that digits are not transposed. Another possible solution would be to calculate the distance between zip codes real-time to verify that those who said they migrated did, in fact, move more than 50 miles and vice versa. One solution I do not recommend would be to ask the respondent for the distance moved (to satisfy both pieces of information), as this is known to be highly inaccurate.

Origin and destination zip codes were not included in the B&B:2000/2001 data files due to issues of respondent confidentiality. The classification of rural/urban based on these zip codes and included on the data, while not comparable to the U.S. Census standard, seemed to be more accurate in describing the rurality of a given place. It is unfortunate, however, that more data about the area (based on the zip code), such as the local job market, industries, unemployment rate, access to recreational areas, and other such indicators, were not included in the data. This type of information would be extremely valuable in looking at macro-level influences on migration.

I would highly recommend inclusion of a set of migration items in the next B&B longitudinal study to allow trend analysis. That cohort will most likely be followed-up (no follow-up of the B&B:2000/2001 cohort is planned), hence it would be prudent to include migration items in later interviews to allow analysis of migration over time (e.g., 5 and 10 years later) to see whether there is a pattern of repeat migration, whether those who did not originally migrate eventually do migrate, and whether their reasons for migrating change over time as more of them fall into the "provider" category.

The low R^2 value for my distance model suggests there are effects that have been left out of the model. Because the B&B data was not specifically geared toward the study of migration, it did not include several items that might have been useful in answering the research questions posed in this study, including:

- a set of items that could be used to operationalize the concept of risk aversion or sense of adventure as a personality trait;
- a better proxy for parental socioeconomic status. Level of parents' educational attainment was statistically significant in most of the models, and may indeed be a better predictor of migration behavior factor than other socioeconomic measures, but without additional measures of socioeconomic status there is no way of knowing that.
- whether the respondent is a first generation college student. This variable, often included in NCES postsecondary data, is not available for this cohort and may, in fact be related to migration patterns.
- actual information about migration patterns and travel experiences while growing up, including frequency of migration, distance of migration, where lived, length of time at residence, age at each migration, and positive/negative/indifferent reaction to those moves;
- information on where and how college seniors and recent college graduates get information about jobs and places to see whether this affects their migration patterns;

- a proxy for community embeddedness, such as strength of familial ties, friendships with people in one's home community, and knowledge of local employers/businesses in one's home community;

- information about internships and co-operative experiences in college as this might "pull" potential migrants to continue working in that job rather than migrate; and

- qualitative information, perhaps gained through focus groups, to gain a better understanding of why quality of life reasons take precedence over work-related reasons for high achievers, males, and those in high demand fields and, conversely, why work-related reasons are more salient for females; and what are the qualities of urban life that appeal to the "footloose" crowd.

Future research might benefit from using a data set specifically geared toward migration.

This research has covered a lot of ground with respect to the effects on migration of recent college graduates, but there are avenues for additional research in this area in addition to those already mentioned. How does the mobility of this select population compare with that of similar-aged adults who did not complete a 4-year degree? How does it compare with those who complete higher degrees? Do the effects found for this cohort translate to the general population, where age and education level vary considerably?

In our increasingly mobile society, the study of migration behavior is important in order to recognize and effectively deal with issues such as the brain drain in rural areas and labor market demands for specially-trained employees in certain regions of the country (e.g., shortages of nurses or teachers). To some extent, policies that encourage or discourage migration can be implemented to address such issues. With a better understanding of individual's locational preferences and reasons for moving, we should be in a better position to meet both the quality of life and employment needs of the population.

REFERENCES

Ballweg, J., and E. Droz. 1991. "Geographic Mobility." In Thomas, J., and J. Dunkelberger (eds.), *From Higher Education in Agriculture to Employment: Attainment and Assessments by Graduates*. Auburn, AL: Department of Research Information, Alabama Agricultural Experiment Station, Auburn University.

Ballweg, J., and L. Li. 1992. "Employment Migration among Graduates of Southern Land Grant Universities." *Southern Rural Sociology* 9:91-102.

Barbett, S. 1998. *Residence and Migration of First-time Freshmen Enrolled in Degree-Granting Institutions: Fall 1996*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Bartel, A. 1979. "The Migration Decision: What Role Does Job Mobility Play?" *The American Economic Review* 69:775-86.

Beale, C. 1975. *The Revival of Population Growth in Nonmetropolitan America*. Washington, DC: U.S. Department of Agriculture, Economic Research Service.

Becker, G. 1964. *Human Capital*. New York: Columbia University Press.

Beaulieu, L., M. Barfield, and K. Stone. 2001. "Educated Workforce, Quality Jobs: Still Elusive Goals in the Rural South." *Rural America* 15(4):28-35.

Black, M. 1983. "Migration of Young Labor Force Entrants." *Socio-economic Planning Sciences* 17:267-80.

Bowman, M., and R. Myers. 1967. "Schooling Experience, and Gains and Losses in Human Capital through Migration." *Journal of the American Statistical Association* 62:875-98.

Braswell, C., and R. Gottesman. 2001. "Analyses of Factors Influencing Employment Migration of Recent Degree Recipients." Paper presented at the Annual Meeting of the Association for Institutional Research. Long Beach, CA. June 3-6.

Bureau of Labor Statistics. U.S. Department of Labor. 2000. *Occupational Outlook Handbook, 2000-01 Edition*. Washington: U.S. Government Printing Office.

Chase, J. 1969. "The Contribution of Education to Economic Growth in the State of Michigan." Doctoral dissertation, University of Michigan.

Cheong, K., M. Toney, and W. Stinner. 1986. "Racial Differences among Young Men in the Selection of Metropolitan and Nonmetropolitan Destinations." *Rural Sociology* 51:222-8.

Clark, W. 1986. *Human Migration*. Beverly Hills, CA: Sage Publications.

Cromartie, J. 2001a. "Nonmetro Migration Drops in the West and among College Graduates." *Rural Conditions and Trends* 11(2):32-8.

Cromartie, J. 2001b. "Nonmetro Outmigration Exceeds Immigration for the First Time in a Decade." *Rural America* 16(2):35-7.

Dahlstrom, M. 1996. "Young Women in a Male Periphery: Experiences from the Scandinavian North." *Journal of Rural Studies* 12:259-71.

DaVanzo, J. 1981. "Microeconomic Approaches to Studying Migration Decisions." In De Jong, G. and R. Gardner (eds.), *Migration Decision-Making*. New York: Pergamon Press.

DaVanzo, J. 1983. Repeat migration in the United States: who moves back and who moves on? The Review of Economic Statistics, 65, 552-559.

DaVanzo. J. and P. Morrison. 1981. "Return and Other Sequences of Migration in the United States." *Demography* 18:85-101.

Détang-Dessendre, C., and I. Molho. 1999. "Migration and Changing Employment Status: A Hazard Function Analysis." *Journal of Regional Science* 39:103-123.

Détang-Dessendre, C., and I. Molho. 2000. "Residence Spells and Migration: A Comparison for Men and Women." *Urban Studies* 37:247-60.

Falaris, E. 1988. "Migration and Wages of Young Men." *The Journal of Human Resources* 23:514-34.

Fenske, R., C. Scott, and J. Carmody. 1972. *College Student Migration*. Iowa City, IA: Research and Development Division, American College Testing Program.

Findley, S. 1977. *Planning for Internal Migration: A Review of Issues and Policies in Developing Countries*. Washington: Department of Commerce, Bureau of the Census.

Frey, W. 1994. *College Grad, Poverty Blacks Take Different Migration Paths*. Ann Arbor, MI: University of Michigan Population Studies Center Research Report No. 94-303.

Fryman, J. 1988. "Factors in the Interstate Migration of College Students." *College and University* 63:234-47.

Fuguitt, G. and T. Heaton. 1995. "The Impact of Migration on the Nonmetropolitan Population Age Structure." *Population Research and Policy Review* 14:215-232.

Gibbs, R. 1995. "Going Away to College and Wider Urban Job Opportunities to Take Highly Educated Youth Away from Rural Areas." *Rural Development Perspectives* 10(3):35-44.

Gibbs, R. 1998. "College Completion and Return Migration among Rural Youth." In Gibbs, R., P. Swaim, and R. Teixeira (eds.), *Rural Education and Training in the New Economy: The Myth of the Rural Skills Gap*. Ames, IA: Iowa State University Press.

Gibbs, R. 2000. "College Graduates in the Nonmetropolitan South: Origins and Prospects." *Southern Rural Sociology* 16:36-59.

Gibbs, R., and J. Cromartie. 1994. "Rural Youth Outmigration: How Big is the Problem and for Whom?" *Rural Development Perspectives* 10(1):9-16.

Gober, P. 1993. *Americans on the Move*. Washington, DC: Population Reference Bureau.

Gordon, I. 1992. "Modeling Approaches to Migration." In Champion, A., and A. Fielding (eds.), *Migration Processes and Patterns, Vol 1*. London: Belhaven Press.

Gossman, C., C. Nobbe, T. Patricelli, C. Schmid, and T. Steahr. 1968. *Migration of College and University Students in the United States*. Seattle: University of Washington Press.

Greenwood, M. 1973. "The Geographic Mobility of College Graduates." *The Journal of Human Resources* 8:506-15.

Greenwood, M. 1975a. "A Simultaneous Equations Model of Urban Growth and Migration." *Journal of the American Statistical Association* 70:797-810.

Greenwood, M. 1975b. "Research on Internal Migration in the United States: A Survey." *Journal of Economic Literature* 8:397-433.

Groat, H. 1964. "Internal Migration Patterns of a Population Subgroup: College Students, 1887-1958." *American Journal of Sociology* 69:383-94.

Gutheil, B., and G. Copa. 1981. *Factors Influencing the Geographic Migration of New Entrants to the Labor Force from Area Vocational-Technical Institutes in Southwest Minnesota.* Minneapolis: Minnesota Research and Development Center for Vocational Education.

Heaton, T., W. Clifford, and G. Fuguitt. 1981. "Temporal Shifts in the Determinants of Young and Elderly Migration in Nonmetropolitan Areas." *Social Forces* 60:41-60.

Hoffman, C, and P. Ritchey. 1992. "Assessing the Differences in Distance of Interstate Migration, 1980." *Sociological Focus* 25:241-55.

Indiana State Commission for Higher Education. 1995. "Mobility of Graduates from Indiana Public Postsecondary Education: Working Paper." Indianapolis: unpublished paper.

Jamieson, L. 2000. "Migration, Place and Class: Youth in a Rural Area." *The Sociological Review* 48:203-223.

Johns, V., and D. Viehland. 1989. "Migration Patterns of First-Time Freshmen in the United States." *Research in Higher Education* 30:485-502.

Johnson, K., and G. Fuguitt. 2000. "Continuity and Change in Rural Migration Patterns, 1950-1995." *Rural Sociology* 65:27-49.

Kiernan, K. 1979. "Characteristics of Young People who Move Inter-regionally: A Longitudinal Study." In Hobcraft, J. and P. Rees (eds.), *Regional Demographic Development*. London: Croom Helm.

Kobrin, F. 1976. "The Fall of Household Size and the Rise of the Primary Individual in the United States." *Demography* 13:127-38.

Kosinski, L. 1975 "Education and International Migration." In Muhsam, H. (ed.), Education and Population: Mutual Impacts. Dolhain, Belgium: Ordina Editions.

Landale, N., and A. Guest. 1985. "Constraints, Satisfaction and Residential Mobility: Speare's Model Reconsidered." *Demography* 22:199-222.

Lansing, J., and E. Mueller. 1967. *The Geographic Mobility of Labor*. Ann Arbor, MI: Survey Research Center, University of Michigan.

Lee, E. 1966. "A Theory of Migration." *Demography* 3:47-57.

Lichter, D., and G. DeJong. 1990. "The United States." In Nam, C., W. Serow, and D. Sly (eds.), *International Handbook on Internal Migration*. Westport, CT: Greenwood Press.

Lohr, S. 1999. *Sampling: Design and Analysis*. Pacific Grove, CA: Duxbury Press.

Long, L. 1972. "The Influences of Number and Ages of Children on Mobility." *Demography* 9:371-82.

Long, L. 1988. *Migration and Residential Mobility in the United States*. New York: Russell Sage Foundation.

Long, L. and K. Hansen. 1977. "Selectivity of Black Return Migration to the South." *Rural Sociology* 41:317-31.

Long, L., and P. Glick. 1976. "Family Patterns in Suburban Areas: Recent Trends." In Schwartz, B. (ed.), *The Changing Face of the Suburbs*. Chicago: University of Chicago Press.

Lyson, T. 1986. "Migration Selectivity and Early Adult Attainments." *Rural Sociology* 51:328-42.

Massey, D. 1990. "Social Structure, Household Strategies, and the Cumulative Causation of Migration." *Population Index* 56:3-26.

Maynard, L., T. Kelsey, R. Thee, and P. Fousekis. 1997. "Rural Migration: What Attracts New Residents to Nonmetropolitan Areas." *Journal of the Community Development Society* 28:131-41.

McGranahan, D. & L. Ghelfi, 1998. "Current Trends in the Supply and Demand for Education in Rural and Urban Areas." In Gibbs, R., P. Swaim, and R. Teixeira (eds.), *Rural Education and Training in the New Economy: The Myth of the Rural Skills Gap*. Ames, IA: Iowa State University Press.

McGranahan, D., J. Hession, F. Hines, and M. Jordan. 1986. *Social and Economic Characteristics of the Population in Metro and Nonmetro Counties, 1970-80*. Washington, DC: U.S. Department of Agriculture, Economic Research Service.

McGranahan, D., and K. Kassel. 1995. "Rural-Urban Migration Patterns Shift." *Rural Conditions and Trends* 6(1):10-3.

Molho, I. 1987. "Migration Decisions of Young Men in Great Britain." *Applied Economics* 19:221-43.

Morgan, J., and E. Robb. 1981. "The Impact of Age upon Interregional Migration." *Annals of Regional Science* 15:31-45.

Morrill, R. J. Cromartie, and G. Hart. 1999. "Metropolitan, Urban, and Rural Commuting Areas: Toward a Better Depiction of the United States Settlement System." *Urban Geography* 20:727-48.

Mueser, P., M. White., and J. Tierney. 1988. "US Migration: Age Patterns and Spatial Differentiation." *Canadian Journal of Regional Science* 11:57-76.

Mulder, C., and M. Wagner. 1993. "Migration and Marriage in the Life Course: A Method for Studying Synchronized Events." *European Journal of Population* 9:55-76.

Murdock, S., B. Parpia, S. Hwang, and R. Hamm. 1984. "The Relative Effects of Economic and Non-Economic Factors on Age-Specific Migration, 1960-1980." *Rural Sociology*, 49:309-18.

National Association of Colleges and Employers. 2003. *Job Outlook 2003: Degrees in Demand*. http://www.jobweb.com/joboutlook/outlook7.htm

Nord, M., and J. Cromartie. 1999. "Rural Areas Attract Young Families and College Graduates" *Rural Conditions and Trends* 9(2):28-34.

Owen, D., and A. Green. 1992. "Migration Patterns and Trends." In Champion, A., and A. Fielding (eds.), *Migration Processes and Patterns, Vol 1*. London: Belhaven Press.

Perry, K. 2001. "Where College Students Live After They Graduate." Unpublished paper.

Petersen, R. and C. Smith. 1978. *Migration of College Students: Preliminary Analysis of Trends in College Migration*. Washington, DC: National Center for Education Statistics.

Plane, D. and P. Rogerson, 1994. *The Geographical Analysis of Population: With Applications to Planning and Business*. New York: John Wiley & Sons, Inc.

Rieger, J. 1972. "Geographic Mobility and the Occupational Attainment of Rural Youth: A Longitudinal Evaluation." *Rural Sociology*, 37:189-207.

Rieger, J., J. Beegle, and P. Fulton. 1973. *Profiles of Rural Youth: A Decade of Migration and Social Mobility.* Lansing, MI: Michigan State University Agricultural Experiment Station. Research Report 178.

Ritchey, P. 1976. "Explanations of Migration." *Annual Review of Sociology* 2:363-404.

Rogers, C. 1997. *Changes in the Social and Economic Status of Women by Metro-Nonmetro Residence*. Washington, DC: U.S. Department of Agriculture.

Rothenberg, J. 1977. "On the Microeconomics of Internal Migration." In Brown, A. and E. Neuberger (eds.), *Internal Migration: a Comparative Perspective*. New York: Academic Press.

Rosenzweig, M. and O. Stark. 1997. *Handbook of Population and Family Economics*. Amsterdam: Elsevier.

Rudkin, L., G. Elder, and R. Conger. 1994. "Influences on the Migration Intentions of Rural Adolescents." *Sociological Studies of Children* 8:87-106.

Salant, P., L. Carley, and D. Dillman. 1996. *Estimating the Contribution of Lone Eagles to Metro and Nonmetro In-Migration.* Pullman, WA: Social and Economic Sciences Research Center, Washington State University.

Salant, P., D. Dillman, and L. Carley. 1997. *Who's Moving to Nonmetro Counties? Evidence from Washington State*. Pullman, WA: Social and Economic Sciences Research Center, Washington State University.

Sandefur, G. 1985. "Variation in Interstate Migration of Men Across the Early Stages of the Life Cycle." *Demography* 22:353-66.

Sandefur, G. and W. Scott. 1981. "A Dynamic Analysis of Migration: an Assessment of the effects of Age, Family and Career Variables." *Demography* 18:355-68.

Sanderson, A. and B. Dugoni. 2002 *Interstate Migration Patterns of Recent Science and Engineering Doctorate Recipients*. Washington, DC: National Science Foundation, Science Resources Statistics.

Schachter, J. 2001a. *Why People Move: Exploring the March 2000 Current Population Survey*. Washington DC: U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau.

Schachter, J. 2001b. *Geographical Mobility*. Washington DC: U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau.

Schwartz, A. 1973. "Interpreting the Effect of Distance on Migration." Journal of Political Economy 81:1153-69.

Schwartz, A. 1976. "Migration, Age, and Education." Journal of Political Economy 84:701-19.

Sheetz, L., and P. Gardner. 1993. *Employment Survey of Michigan College Graduates: Report of Destinations, Average Starting Salaries, and Unemployment, 1990—Michigan State University.* Lansing, MI: Collegiate Employment Research Institute, Michigan State University.

Shryock, H. and J. Siegel. 1980. *The Methods and Materials of Demography*. Washington, DC: Department. of Commerce, Bureau of the Census.

Sjaastad, L. 1962. "The Costs and Returns of Human Migration." *Journal of Political Economy* 70:80-93.

Speare, A. 1974. "Residential Satisfaction as an Intervening Variable in Residential Mobility." *Demography* 11:173-88.

Steahr, T., and C. Schmid. 1972. "College Student Migration in the United States." *Journal of Higher Education* 43:441-63.

Swanson, L., and D. McGranahan. 1989. "Nonmetro Youths Lagging in Education." *Rural Development Perspectives* 5(3):36-7.

Tarver, D. and R. McLeod. 1970. "Trends in Distances Moved by Interstate Migrants." *Rural Sociology* 35:523-33.

Tarver, D. and R. McLeod. 1976. "Trends in the Distance of Movement by Interstate Migrants." *Rural Sociology* 41:119-26.

Taylor, A. 1973. *Migration and Post-Graduation Activities of Bachelor Degree Recipients, University of Virginia, 1972*. Charlottesville, VA: Office of Institutional Analysis, University of Virginia.

Todaro, H. 1980. "Internal Migration in Developing Counties: A Survey in Population and Economic Change" In Easterlin, R. (ed.), *Developing Countries*. Chicago: University of Chicago Press.

Tornatzky, L., D. Gray, S. Tarant, and J. Howe. 1998. *Where Have All the Students Gone?* Research Triangle Park, NC: Southern Growth Policies Board.

Tornatzky, L., D. Gray, S. Tarant, and C. Zimmer. 2001. *Who Will Stay and Who Will Leave?* Research Triangle Park, NC: Southern Growth Policies Board.

Tuckman, H. 1970. "Determinants of College Student Migration" *Southern Economic Journal* 37:184-9.

U.S. Department of Agriculture. Economic Research Service. 2002. Measuring Rurality: Rural-Urban Commuting Area Codes. http://www.ers.usda.gov/Briefing/Rural/Data/desc.htm

U.S. Department of Education. National Center for Education Statistics. 2001. *Digest of Education Statistics*. Washington, DC: U.S. Department of Education.

U.S. Department of Education. National Center for Education Statistics. 2002. *National Postsecondary Student Aid Study 1999-2000 (NPSAS):2002 Methodology Report*. Washington, DC: U.S. Department of Education.

U.S. Department of Education. National Center for Education Statistics. 2003. *Baccalaureate and Beyond Longitudinal Study: 2000/01 Methodology Report.* Washington, DC: U.S. Department of Education.

Vourkas, A. 1972. "The Sociology of Migration." *International Behavioural Scientist* 4:21-34.

Whyte, W. 1957. *The Organization Man*. Garden City, NY: Doubleday.

Williams, A., and P. Jobes. 1990. "Economic and Quality of Life Considerations in Urban-Rural Migration." *Journal of Rural Studies* 6:187-94.

Williams, J., and A. Sofranko. 1981. "Why People Move." *American Demographics* 3:30-1.

Wilson, F. 1984. *Intercity Variations in Returns to Migration*. Madison, WI: Center for Demography and Ecology, University of Wisconsin-Madison.

Wilson-Figueroa, M., E. Berry, and M. Toney. 1991. "Migration of Hispanic Youth and Poverty Status: A Logit Analysis." *Rural Sociology* 56:189-203.

WWAMI Rural Health Research Center. 2002. *The Use of RUCAs in Health Care*. http://www.fammed.washington.edu/wwamirhrc/rucas/use_healthcare.html

Zelinsky, W. 1974. "Selfward Bound? Personal Preference Patterns and the Changing Map of American Society." *Economic Geography* 50:144-79.