Age Effects on Migration Schedule by Migration Type: Primary, Repeat, and Return Migration

Sanglim Lee, *IOM Migration Research and Training Center*
E. Helen Berry, *Utah State University*
Michael B. Toney, *Utah State University*
Jang-young Lee, *Kookmin University*

<Abstract>

The main purpose of this study is to examine whether or not age effects on schedules of migration are different by migration type. This study categorizes migrations into three types including primary migration, onward migration, and return migration employing the data from the 1979 Longitudinal Study of Youth (NLSY79). The findings present the diversity of age effects on schedules of migrations. Primary migration rates plummet from very high levels at early adult ages to similar levels with other migration types at middle ages, while rates of onward migration decrease steadily with age at low levels. With return migration, however, migration rates increase as people get older. This study explains the diversity of age effects on migration schedules using the concept of 'psychological conservatism in migration decision', that they are more likely to avoid new surroundings as they age. Such a psychological approach has been ignored by mainstream migration studies.

Age Effects on Migration Schedule by Migration Type: Primary, Repeat, and Return Migration

Sanglim Lee, *IOM Migration Research and Training Center*
E. Helen Berry, *Utah State University*
Michael B. Toney, *Utah State University*
Jang-young Lee, *Kookmin University*

Ⅰ. INTRODUCTION

In migration studies, age has been considered as an important factor to explain difference in mobility. The age pattern in migration rate is strongly related with life cycle and residence place attachment. However, it is considered that the influence of age on migration still remains, even after controlling the effects of life cycle and residence place attachment (Sandefur and Scott 1981: 367; Dennis and Kitagawa 1985: 842).

Migration is usually measured as changes of residence place regardless of destinations and migration history of migrants. However, literature has shown that the characteristics of migrations or migrants are different by different types such as primary migration and repeat migration including onward and return migration. Studies on different features of migrations have been prevented by lack of proper data which contains previous migration history of individual migrants. In addition, the effects of age by migration types also have been rarely studied.

The main purpose of this study is to examine whether or not age effects on schedules of migration are different by migration type. The comparison of age pattern of migration by

migration type may reveal the dynamic of a migration process that have been overlooked.

Ⅱ. LITUREATURE REVIEW

AGE AND LIFE CYCLE

Migration shows a strong association with age (Détang-Dessendre, Piguet, and Schmitt 2002; Jones 1990; Long 1973a; Thomas 1938; White and Lindstrom 2006). In general, the migration rate increases between the late teen ages and the early twenties, and then migration propensity declines after peaking around age 30 (Jones 1990). It is known that while the intensity of the age-specific migration pattern in a society fluctuates over a period of time, the shape of the pattern appears stable (Pandit 1997; Rogers 1979).

The high residential mobility of young adults is explained by job-career, position, and life cycle, such as union formation, child-rearing, children development and weak place attachment (Jones 1990; Ritchey 1976). These factors increase the cost of migration with respect to economic and opportunity cost (Lee and Roseman 1999; Sandefur and Scott 1981).

Indeed, the research of Sandefur and Scott (1981) reports that the age pattern in mobility is almost completely disappears after controlling the effects of family and career variables. In their study, marital status and family size are introduced in the analysis as the variables representing family life cycle and variables of wage, prestige, same employer, and self employment are employed for career.

PRIMARY MIGRATION AND REPEAT MIGRATIONS

Migration is a recurring process that may result in multiple changes in place of residence over a given period of time. Migration is therefore a complex form of behavior that can be separated

on the basis of several facets, such as primary and repeat migration, along which migration selectivity might vary.

A first migration, referred to as primary migration, may not result in a suitable residence for a migrant and thereby lead to a repeat migration. Further, the suitability of place of residence may change at points in the life course. Some migrations may end with failure to achieve what a migrant sought, and the migrant may return to his/her prior origin or move to a new destination. Also, some migrants who achieve success in new destinations keep moving in search of even better opportunities. Some individuals never migrate from their place of birth while others establish short and long-term residences in numerous places or may move back and forth between a small number of places.

Primary migration

Primary migration, which is conceptually defined as a first migration in an individual's life, has been rarely studied, largely because of data requirements. Some studies of migration define primary migration simply as the first migration observed during the period of time covered in the data being employed in their research (Bohara and Krieg 1996; DaVanzo and Morrison 1981; Howell and Frese 1983; Shyrock 1964; Shyrock and Larmon 1965). Primary migration has also been defined as a migration from one's state of birth, since this can be detected in Census data between censuses (Eldridge 1965; Lee and Roseman 1999; Liaw 1990; Miller 1977; Newbold 2001 and 1997; Newbold and Bell 2001; Shyrock 1964). These alternative measurements risk misclassifying some repeat migrations as primary migrations.

Several empirical studies show that primary migrants are relatively young (Eldridge 1965; Lee 1974; Miller 1977). This may be due to the fact that primary migration is strongly related to entering the labor market, schooling, or building a new family, as well as to the fact that it is by

definition the first migration. A study by Eldridge (1965) using 1960 census data reveals that primary migration rates decline more steeply at younger ages (e.g., between 20-24) than the other types of migrations.

Repeat migration

With respect to repeat migration, comparisons of primary migrations and repeat migrations reveal other interesting differences. The comparisons, however, seem to focus on the disparity in effects of socioeconomic status between primary and repeat migrants and between onward and return migrants. The differences in age effects by migration types have rarely received attentions.

Bohara and Krieg (1996) show that after leaving their initial place of residence, the determinants of migration propensity change. For instance, the results demonstrate that though education plays an important role in primary migration, it does not show any significant influence on the frequency of subsequent migrations.

Researchers have presented contradictory findings with respect to the characteristics of onward and return migrants (DaVanzo and Morrison 1981; Falk, Hunt and Hunt 2004; Wilson, Berry, and Toney 2009). The contradictory findings apply mostly to return migrants and are concerned with whether they have lower levels of human capital than stayers or other migrant groupings. Most findings indicate return migrants have lower levels of education and may be returning because of employment and other difficulties at their destinations (DaVanzo and Morrions 1981). Others suggest that return migrants have equal or higher levels of human capital than those who do not return (Falk, Hunt and Hunt 2004). Shortcomings in data have made adequate assessments of this difficult.

DaVanzo and Morrison (1981) conducted one of the most extensive panel-based studies of repeat migration in which a distinction between return and onward migrations was made. They

focused on the effects of human capital, primarily educational attainment and employment status, and duration of residence. In terms of education and employment status, the authors found the highly educated were more likely to move onward to another new place.

The authors conclude that the propensity of onward migrations of the educated is due to superior information for reinvestment in new places. They assert that the pattern of return migration supports the concept of “failed migration.” More specifically, their results show that the less educated and unemployed were more likely to return to their initial origin when compared to onward migrants and stayers.

Ⅲ. METHODS

This study employs the data from 1979 Longitudinal Study of Youth (NLSY79). An important component of the data is a separate data file of geographical codes that identify counties of residence and information about the characteristics of the counties. Federal Information Process Standards, referred to as FIPS codes, are used to identify counties. This geo-code file is a confidential data file that is only made available with the approval of the United States Department of Labor. These data are essential for the development of the measures of migration developed for this study.

The NLSY79 provides much more information for developing measures of migration than other U.S panel data sets, largely because of the longer period of time over which data have been gathered and the availability of information on county of birth and at age 14, as well as information about whether respondents had ever migrated at the time of the initial interview.

For the analysis of the longitudinal data, which includes recurring multiple events, this study transforms the data set into person-periods. Person- periods provide an effective way for measuring whether an event occurs during a time interval and for introducing variables measured at the beginning of the person-period to examine their effect on happenings during the interval (DaVanzo and Morrison 1981; Schoumaker and Hayford 2004). Therefore, in the data set, individuals experience independent risk of migration during each of their qualifying person-periods. Person- periods under age 18 and out of labor force are excluded in the analyses. And to select to the fittest model, log likelihoods of models (i.e. age, age^2+ age, or age^3+age^2+ age) are compared.

In this study, primary migration is defined as the first migration in an individual's life history. Operationally, individuals at risk of primary migration are identified by comparing length of residence and age at the beginning of the respondents' respective person-periods. Respondents are at risk of primary migration in person-periods for which the age of the respondent and their length of residence are equal.

Repeat migration refers to additional changes in county of residence following a previous migration. The destination of repeat migration can be to a place a migrant left previously or to a place in which a migrant has never lived. The former indicates return migration, and the later is onward migration.

Because past research on these two types of migration (i.e., primary migration and repeat migration) indicates they are fundamentally different, the examination of migration propensities is conducted in separate analyses. In the first analysis on primary migration, this study makes a comparison of characteristics between primary migrants and those who continue to remain in their county of birth. And, analyses for repeat migration also divided into two separate set

making two comparisons between non-migration and return migration, and non-migration and onward migration because the fittest models for onward and return migrations may be different.

The impact of age on migration is presented by probability of migration transformed from coefficients of age in the logistic regression analysis for each type migration. In order to present impact of age, effects of major demographic, socioeconomic, and life cycle factors are controlled in each analysis. The demographic factor includes as race/ethnicity and gender, socioeconomic factor includes education, house ownership, and employment status, and life cycle factor includes residence duration, number of children.

Ⅳ. RESULTS

Description of migration distributions

Distributions of migration rates by socioeconomic and demographic characteristics are presented on Table 1. In general, the results confirm the findings of previous studies demonstrating negative association between mobility and age. This result, however, cannot be considered as age effects on migration because age is strongly related with life cycle and socioeconomic.

In terms of migration pattern by other socioeconomic characteristics, the results show some interesting disparity by migration type. Some different pattern of mobility is found in return migration compared to the other type of migrations. For instance, return migration rate of blacks is the highest while whites are highest mobility group in primary and onward migrations. Such differences are presented in migration rate distributions by education attainment and number of children. These may mean evidence showing the unique pattern of return migration as failed migration, which reported in many previous studies.

==========

Table 1 about here

==========

Age effects on migrations

The fittest models for four types of migration including total migration which include all types of migrations, primary migration, onward migration, and return migration are estimated by comparison log likelihoods (Appendix 1). Interestingly, the influence of age even after accounting effects of socioeconomic and life cycle variables in all types of migrations remain statistically significant ($p<0.001$). For the effects of the other socioeconomic characteristics, findings show some interaction by migration types. The results is shown in Appendix 2.

Age pattern of migration rates of total migration regardless of migration types is presented in figure 1. The pattern looks similar with the general age schedule of migration at adult ages before retiring ages.

==========

Figure 1 about here

==========

Results of estimate of age effects on migration of other type, however, show some different patterns from that of total migration. In comparisons of age effects by migration types, results show that the diversity of age effects on schedules of migrations.

In both primary and onward migrations, migration rates after accounting effects of socioeconomic and life cycle variables are in downward trend as age increases (Figure 2 and Figure 3). These two types of migration are defined in common as migration to new residence places. But, the drop in migration rate of primary migration is much larger than in onward migration. Primary migration rate dramatically decline at early adult ages to similar level with total migration and onward migration at middle ages.

==========

Figure 2 about here

==========

==========

Figure 3 about here

==========

The most interesting finding on age effects is in return migration. In return migration, migration rates increase as people get old at very low rates (Figure 4). Another difference from primary and onward migrations is that age effects on return migration are sharply reduced when effects of socioeconomic and life cycle variables are controlled.

==========

Figure 4 about here

==========

Ⅴ. CONCLUSION

This study examined differences in age effects on migration by migration type. This study categorizes migrations into three types including primary migration, onward migration, and return migration, while major part of migration studies has ignored the diversity of migration mainly due to lack of relevant data. This study employed the data from NLSY79, which provides migration history of individuals.

The results prove the diversity in migrations by migration types presenting three important findings. First, the results demonstrate independent impacts of age on migration. Though life cycle and residence place attachment, which includes job-career, play an important part in age schedule of migration, age effects still remain even after controlling those effects in all kind of migrations.

Second, this study shows the diversity in age pattern of mobility by migration types. Primary migration rates plummet from very high levels at early adult ages to similar levels with other migration types at middle ages, while rates of onward migration decrease steadily with age at low levels. With return migration, however, migration rates increase as people get older.

Third, the results also present the variety of migration mechanism with respect to effects of various socioeconomic factors. The findings might confirm the explanation of literature on ‘failed migration’ because the concept is strongly relative with distribution of resources and social opportunity.

The findings of independent effects of age and diversity in age effects on migration might contribute to understandings on migration extending to conceptual frameworks to which little attention has been paid. The mainstream of migration research seems to reflect economic perspectives focusing on cost and benefit, or disparity of resource distribution. The results from

our study might mean another factor to explain age pattern in migration in addition to traditional approach in migration study.

We pay attention to psychological factors to explain the independent effects of age and diversity in age effects suggesting a hypothesis of 'psychological conservatism in migration decision', that they are more likely to avoid new surroundings as age goes on. This psychological concept may explain why old people are more likely not only to stay in a same place but also to come back to their previous residence places.

Psychological perspective could be applied to other migration phenomena, though psychological factors such as occupational aspiration and subjective place attachment have been ignored by mainstream migration studies. Particularly with respect to return migration which show unique pattern from migration to new residence place, psychological approach might provide deeper understandings on destination decision.

Reference

Bohara, A.K. and Krieg, R.G. 1996. "A Zero-inflated Poisson Model of Migration Frequency." *International Regional Science Review* 19:211-22.

DaVanzo, J.S. and P.A. Morrison. 1981. "Return and Other Sequences of Migration in the United States." *Demography* 18(1):85-101.

Dennis, P. Hogan, D. P. and E. M. Kitagawa. (1985) "The Impact of Social Status, Family Structure, and Neighborhood on the Fertility of Black Adolescents" *The American Journal of Sociology* 90(4): 825-55.

Détang-Dessendre,C., V. Piguet, and B. Schmitt. 2002. "Life Cycle Variability in the Microeconomic Determinants of Urban-Rural Migration." *Population* (English edition) 57(1):31-56.

Eldridge, H.T. 1965. "Primary, Secondary, and Return Migration in the United States, 1955-60." Demography 2:444-55.

Falk, W.F., L.L. Hunt, and M.O. Hunt. 2004. "Return Migrations of African-Americans to the South: Reclaiming a Land of Promise, Going Home, or Both?" *Rural Sociology* 69:490-509.

Howell, F. M. and W, Frese. 1983. "Size of Place, Residential Preferences and the Life Cycle." *American Sociological Review* 48:569-80.

Jones, H. 1990. *Population Geography*. London: Paul Chapman.

Lee, S.W. and C.C. Roseman. 1999. "Migration Determinants and Employment Consequences of White and Black Families, 1985-1990." *Economic Geography* 75(2):109-33.

Liaw, K.L., 1990 "Joint Effect of Personal Factors and Ecological Variables on the Interprovincial Migration Pattern of Young Adults in Canada." *Geographical Analysis* 22:189-208.

Miller, A.R. 1977. "Interstate Migrants in the United States: Some Social-Economic Differences by Type of Move." *Demography* 14(1):1-17.

Newbold, K.B. 1997. "Race and Primary, Return and Onward Interstate Migration." *Professional Geographer* 49(1):1-14.

___. 2001. "Counting Migrants and Migrations: Comparing Lifetime and Fixed-Interval Return and Onward Migration." *Economic Geography* 77(1):23-40.

Newbold, K.B. and M. Bell. 2001. "Return and Onwards Migration in Canada and Australia: Evidence from Fixed Interval Data." *International Migration Review* 35(4):1157-84.

Pandit, K. 1997. "Cohort and Period Effects in U.S. Migration: How Demographic and Economic Cycles Influence the Migration Schedule." *Annals of the Association of American Geographers* 87(3):439-50.

Ritchey, N.P. 1975. "The Effect of Minority Group Status on Fertility: A Re-examination of Concepts." *Population Studies* 29:249-57.

Rogers, A. 1979. "Migration Patterns and Population Redistribution." *Regional Science and Urban Economics* 9:275-310.

Sandefur, G.D. and W.J. Scott. 1981. "A Dynamic Analysis of Migration: An Assessment of the Effects of Age, Family and Career." *Demography* 18(3):355-68.

Shyrock, H.S., Jr. 1964. *Population Mobility within the United States*, Chicago: University of Chicago Community and Family Study Center.

Schoumaker, B. and S.R. Hayford. 2004. "A Person-Period Approach to Analyzing Birth Histories." *Population* (English edition) 59(5):689-701.

Shyrock, H.S., Jr. and E.A. Larmon. 1965. "Some Longitudinal Data on Internal Migration Some Longitudinal Data on Internal Migration." *Demography* 2:579-92.

Thomas, D. 1938. *Research Memorandum on Migration Differentials*. New York: Social Science Research Council.

White, M.J. and D.P. Lindstrom. 2006. "Internal Migration," Pp. 311-346 in *Handbook of Population,* edited by D.L. Poston and M. Micklin. New York: Springer Publisher.

Wilson, B. A., E. H. Berry, M.B. Toney, Y. T. Kim, and J.B. Cromartie. (2009) "A Panel Based Analysis of the Effects of Race/Ethnicity and Other Individual Level Characteristics at Leaving on Returning" *Population Research and Policy Review* 28(4): 405-28.

Table 1. Migration Rates by Characteristics and Migration Types

(%)

	Primary Migration		Onward Migration		Return Migration	
Total	1,738	(4.9)	8,047	(8.9)	5,405	(6.1)
Age						
18 ~ 24	1,048	(6.8)	3,041	(12.1)	1,897	(7.9)
25 ~ 29	344	(3.9)	2,160	(8.9)	1,495	(6.4)
30 ~ 34	207	(3.3)	1,561	(7.2)	1,150	(5.4)
35 ~ 39	111	(3.3)	936	(6.9)	661	(5.0)
40 ~ 44	28	(2.0)	349	(5.6)	202	(3.3)
Race/ethnicity						
White	869	(5.7)	5,089	(10.1)	3,066	(6.4)
Black	646	(4.6)	1,710	(7.7)	1,485	(6.7)
Hispanic	223	(3.9)	1,248	(6.9)	854	(4.8)
Sex						
male	940	(5.2)	4,400	(9.3)	3,003	(6.5)
female	798	(4.7)	3,647	(8.5)	2,402	(5.7)
Marital Status						
not married	1,229	(5.7)	4,623	(10.4)	3,066	(7.2)
married	509	(3.7)	3,423	(7.4)	2,339	(5.2)
Education						
under high.	329	(5.5)	1,035	(8.0)	860	(6.7)
high school	1,149	(4.6)	4,391	(8.2)	3,341	(6.4)
some college	101	(4.2)	560	(9.3)	303	(5.3)
over Univ.	142	(8.0)	1,987	(11.5)	847	(5.2)
missing	17	(5.3)				
Number of children						
1	202	(3.5)	1,154	(7.1)	3,428	(7.3)
2~3	198	(2.6)	1,354	(5.9)	890	(5.6)
4+	23	(3.2)	114	(5.0)	995	(4.4)
0	1,315	(6.2)	5,425	(11.0)	92	(4.1)
Employment status						
employed	1,464	(4.8)	7,234	(8.7)	4,781	(5.9)
unemployed	274	(6.1)	813	(10.5)	624	(8.2)
Homeownership						
non-own	1,402	(5.9)	5,921	(11.3)	3,962	(7.9)
own	242	(2.9)	1,450	(5.4)	955	(3.6)
missing	94	(3.1)	676	(6.0)	488	(4.4)
Residence length						
0-2 yr			2,916	(14.2)	3,090	(14.9)
3-5 yr			2,135	(10.6)	1,421	(7.3)
6-10 yr			1,383	(7.2)	563	(3.1)
over 11 yr			1,598	(5.2)	331	(1.1)
missing			15	(5.1)	1	0.0
Measurement interval						
1 yr	1,560	(5.2)	6,599	(9.4)	4,470	(6.6)
2 yr	178	(3.5)	1,448	(7.0)	935	(4.7)

Source: NLSY79 (1976~2004)

Figure 1. Probability of Total Migration by Age

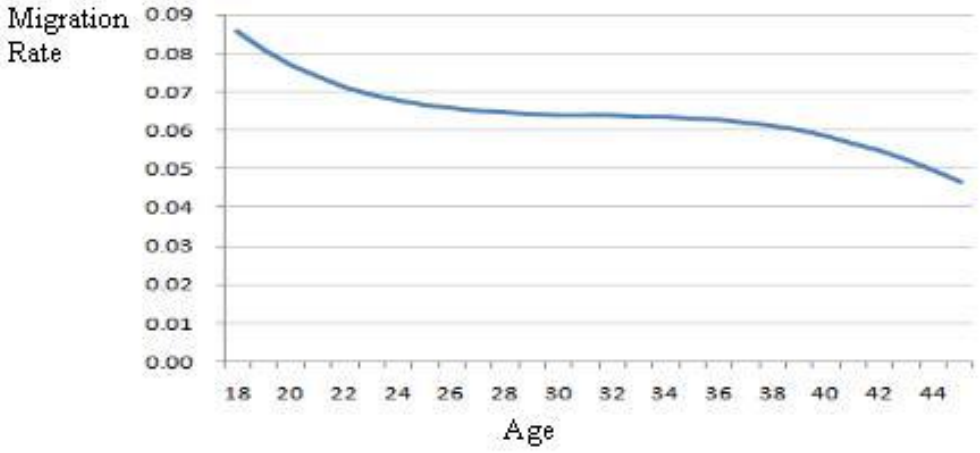


Figure 2. Probability of Primary Migration by Age

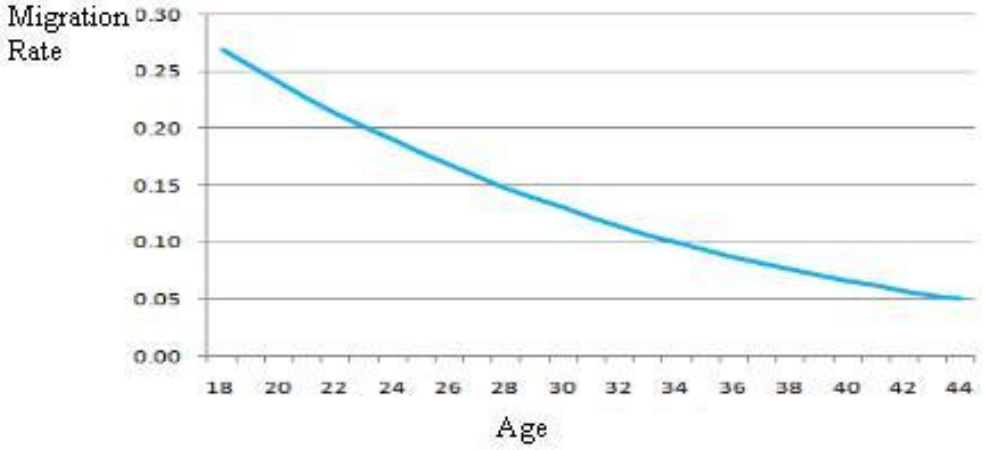


Figure 3. Probability of Onward Migration by Age

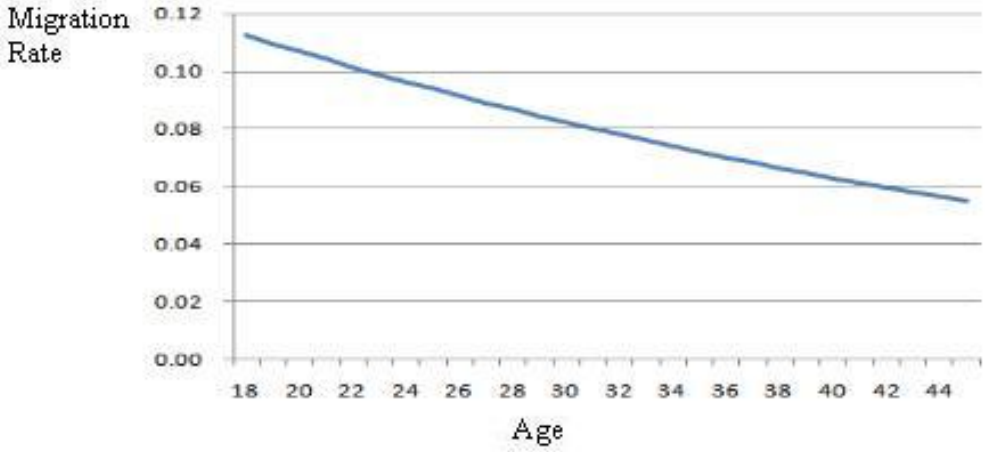
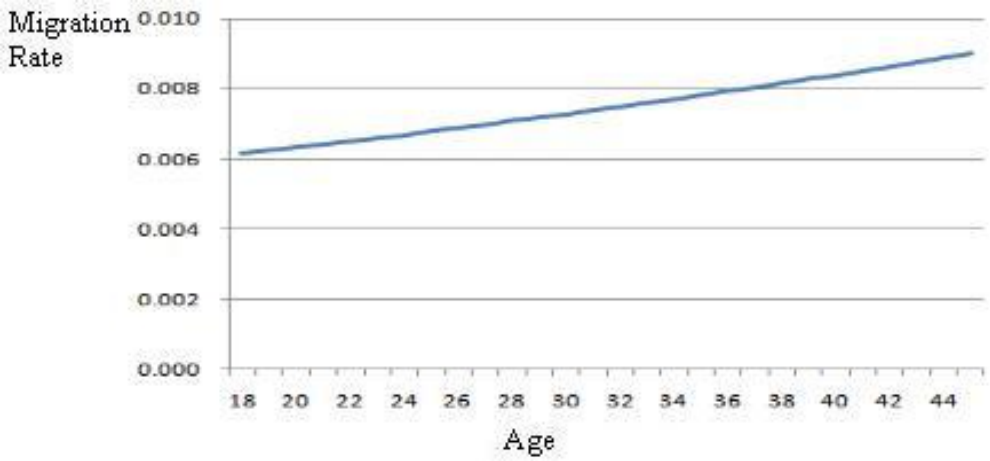


Figure 4. Probability of Return Migration by Age



Appendix 1. Comparison of Model Fitness

-2 Log likelihood		
Total migration		
Model 1 (age)	Model 2 Δ (age^2)	**Model 3 Δ (age^3)**
85693.44	3.79 (1)	14.47 (1)
Primary migration		
Model 1 (age)	Model 2 Δ (age^2)	Model 3 Δ (age^3)
13421.23	0.22 (1)	0.09 (1)
Onward migration		
Model 1 (age)	Model 2 Δ (age^2)	Model 3 Δ (age^3)
51169.5	3.68 (1)	5.41 (1)
Return migration		
Model 1 (age)	Model 2 Δ (age^2)	Model 3 Δ (age^3)
35416.7	1.46 (1)	1.03 (1)

Appendix 2. Logistic Regression Estimate of Migration by Types

	Primary		Onward		Return	
	b (s.e.)		b (s.e.)		b (s.e.)	
Constant	0.348 (0.548)		-1.544 (0.136)	***	-5.343 (0.171)	***
Race/ethnicity (white)						
Hispani	-0.386 (0.078)	***	-0.318 (0.034)	***	-0.196 (0.042)	***
Black	-0.197 (0.057)	***	-0.333 (0.031)	***	-0.041 (0.035)	
Sex (female)						
male	0.021 (0.052)		0.067 (0.024)	***	0.075 (0.030)	**
Empl. status (unemployed)						
employed	-0.112 (0.072)		-0.116 (0.041)	***	-0.143 (0.048)	***
Homeownership (own)						
missing	0.172 (0.130)		0.144 (0.050)	***	0.053 (0.060)	
non- own	0.471 (0.084)	***	0.715 (0.035)	***	0.545 (0.043)	***
Marital Status (not married)						
married	-0.145 (0.069)	**	-0.027 (0.030)		0.060 (0.036)	
Education (over Univ.)						
missing	-0.694 (0.268)	***	-		-	
under high.	-0.702 (0.113)	***	-0.428 (0.044)	***	0.482 (0.055)	***
high school	-0.767 (0.097)	***	-0.341 (0.031)	***	0.414 (0.042)	***
some college	-0.646 (0.136)	***	-0.113 (0.052)	**	0.218 (0.071)	***
Number of children (0)						
1	-0.399 (0.085)	***	-0.187 (0.038)	***	-0.032 (0.044)	
2~3	-0.487 (0.093)	***	-0.223 (0.039)	***	-0.119 (0.046)	***
4+	-0.207 (0.222)		-0.305 (0.101)	***	-0.133 (0.115)	
Residence length (over 11 yr)						
missing	-		-0.104 (0.268)	***	-16.767 (2404.1)	
0-2 yr	-		0.870 (0.034)	***	2.739 (0.060)	***
3-5 yr	-		0.665 (0.035)	***	1.987 (0.063)	***
6-10 yr	-		0.309 (0.039)	***	1.068 (0.071)	***
Measurement interval (2yr)						
1 yr	-0.755 (0.148)	***	-0.442 (0.046)	***	-0.157 (0.055)	**
Age						
	-0.075 (0.044)	***	-0.029 (0.003)	***	0.014 (0.004)	***
N	35,170		90,651		88,009	

*p<0.10, **p<0.05, ***p<0.01

Source: NLSY79 (1976~2004)