

MIGRATION AS A DEMOGRAPHIC RESPONSE: THE AGE DIFFERENTIALS

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Davis (1963) developed the theory of change and response to explain the complexity of demographic change in industrialized countries. (See also Friedlander, 1969, 1983.) The theory stresses that it is not tradition or culture, or even poverty, that bring about change in demographic behavior, but rather it is change in the socioeconomic structure that prompts a population to alter its demographic behavior. The socioeconomic conditions brought about by modernization make it necessary for individuals to change their behavior to take advantage of various economic and non-economic opportunities manifested in a growing and changing economy (Nakamura and Miyamoto, 1982; Hsieh and Liu, 1983).

Thus it was in a sense the rising prosperity itself, viewed from the standpoint of the individual's desire to get ahead and appear respectable, that forced a modification of his demographic behavior (Davis, 1963: 352).

The response takes a multiphasic form encompassing the postponement of marriage, permanent celibacy, abortion, sterilization, contraception, migration and sometimes infanticide (Davis, 1963: 347, 351; Keyfitz, 1982; Sly, 1972; Mosher, 1980).

Davis (1963) compared Japan and northwestern Europe and found that, although timing and importance attached to various responses might not be identical, on the whole, the range of possible responses was largely the same in both regions. While many studies investigating the theory of change and response have concentrated on reproductive behavior (i.e., Hernandez, 1981; Teachman et al., 1983; Lieberman, 1982; Firebaugh, 1982; Easterlin, 1976), others note that migration may be the population's response to social structure alterations.

In a study of the North Central Region of the United States, Chang (1982) found that the rural population of the region had modified both its reproductive and its migration behavior to alleviate population pressures and to fulfill societal expectations. From a human-ecological perspective, Sly (1972) has suggested that demographic response could be most effective through the movement of people from one location to another than through a change in fertility. Both Friedlander (1969, 1983) and Mosher (1980) investigate the use of migration by nations as the demographic response.

This study uses the theory of demographic response as the background against which regional human migration is examined as a response to selected environmental conditions for the 1,056 counties in the North Central

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Region. Specifically, this study addresses two migration-related questions concerning county populations in the North Central Region: (1) What are the socioeconomic, demographic, and ecological factors to which county populations respond in adjusting their migration behavior? (2) Do socially important age cohorts respond to these factors differently or in a similar manner?

It is well documented in the literature that a variety of factors are responsible for prompting people to change their geographic locations. These are briefly reviewed next.

New Entrants Into, and Withdrawal From, the Labor Force

The size of specific cohorts has been found to determine migration (i.e., Roseman, 1983; Lichter, 1983). While Plane and Isserman (1983) examine interstate labor force migration, Pursell (1972) details how new labor force entrants and withdrawals affect migration and reports that, where labor supplies increase because of changes in demographic characteristics, out-migration also increases and in-migration decreases (see also, Black, 1983). Bramhall and Bryce (1969) report that cohort population size is a highly significant factor that determines cohort out-migration from states. Lowry (1966) suggests that natural increase in the working force of the resident population discourages net in-migration, whereas an increase in job opportunities enhances net in-migration. This means that, when employment potentials change in a county, the general work force will adjust its geographic locations (Roseman, 1983).

Unemployment

Mixed empirical results concerning the relation between unemployment and migration are reported (Greenwood, 1975; Blanco, 1963, 1964; Ritchey, 1976). Courchene (1970) reports that unemployment in an area both prompts and impedes outward movement. Lowry (1966) finds no relationship between labor-market conditions at the origin and out-migration, and a negative relationship between unemployment and migration at the destination. Pack (1973), Israeli and Lin (1984), Renas and Kumar, (1983), Cebula and Vedder (1973), and Sommers and Suits (1973) all observe a negative relationship between migration and unemployment. Graves et al. (1984) find no significant relationship but note that the negative coefficient is in the hypothesized direction.

Income Levels

One of the more important factors leading to geographic movement is income level. Greenwood and Gormely (1971) report that both white and nonwhite migrants tend to move to high-income states. A review by Ritchey (1976: 365) reports that a positive relationship between net migration and income level also is reported for counties by Tarver and Gurley (1965), for states by Bass and Alexander (1972) and Sommers and Suits (1973), and for SMSA's by Raymond (1972) and Cebula and Vedder (1973). Others report a positive association for metropolitan areas in both the United States and Canada even after sociodemographic characteristics are controlled (Stone,

1971; Miller, 1967). But findings are not always consistent. Rutman (1970) and Kleiner (1982) report no association between migration and income levels although other studies (Pursell, 1972; Lowry, 1966; Kleiner, 1984; Mead, 1982; Galloway, 1967) all generally report a negative relationship. Pursell (1972) attributes this to the more rapid expansion of job opportunities in low-wage areas that attract migrants while Black (1983) notes that "higher paid workers . . . have strong employment ties in the origin labor market" (p. 274), reducing the probability of moving. Such inconsistencies raise questions about the validity of wages as a predictor of aggregate migration and about the generalization of a negative correlation between gross in- and out-migration.

Educational and Occupational Level

Education and occupation are considered together because of their close interrelatedness as factors affecting the propensity to move. According to a cross-national comparative study of migration, education is a better indicator of migration than are the major occupational groups (Long, 1973: 257; see also Mueller, 1982; Oosterbaan, 1980; White and Woods, 1980), but it is not as good a predictor of short-distance migration as of long-distance migration. Education exerts an influence on migration even if age and occupation are controlled (Long, 1973).

Ritchey (1976) calls for further study to understand the nature of the interaction between age and education on migration in view of the fact that Lansing and Mueller (1967), Ladinsky (1967), and Long (1973) all report weakening associations between migration and education with advances in age, and that rates of migration decrease with increasing age when education is controlled.

Generally, the level of migration varies directly with educational attainment or the level of skills represented by an occupation (Lawrence and Smith, 1984; Bogue, 1969; Rose, 1958; Beshers and Nishura, 1961). Hamilton (1959), Fein (1965), and Lee (1966), all reported a bimodal distribution of migration where both the lowly educated and highly educated are more mobile while Kleiner (1982) finds no migration differences between those in higher-income occupations and those in low-income occupations.

McInnis (1971), in a detailed study of occupations, found that migration rates are highest for service workers; professional workers are a distant second, and laborers are lowest. In terms of the responsiveness of migration to earning differentials, service and clerical occupations rank highest, followed by craftsmen and professional workers.

Minority Status

In general, blacks tend to be more mobile than whites. Mueller (1982) attributes this to the more temporary employment patterns exhibited by blacks. Blacks tend to be the first to be laid off, increasing the chances for migrating. Also, separation costs tend to be lower for blacks because little nontransferable human capital is accumulated given the types of jobs blacks are hired for and because of discrimination (Mueller, 1982; see also Gold-

scheider, 1971). Bogue (1969), however, reports that the migration rate for blacks is only 60 percent that of the migration for whites and Black (1983), in a multivariate study of younger migrants, reports no race effect.

Conclusions as to whether or not migration differentials by race are a result of differences in socioeconomic characteristics or of racial differences independent of socioeconomic and demographic factors are tentative. In his review of the migration literature, Ritchey (1976) reports that there seems to be tentative support for the independent effect of race on migration and suggests more study of this effect. This means that migration differentials between racial groups would remain after socioeconomic and demographic factors have been controlled.

Residence and Population Size

Rural-to-urban migration streams have usually been well documented (e.g., Smith and Zopf, 1976; Stark, 1984). Rural-urban migration is, by definition, the movement of people from smaller to larger places. Roseman (1983) reports job concerns to be the major reason for moving from rural to urban areas. Longino (1982), in his study of the aged, reports a slowing of the rural to urban migration stream while Gober (1980) concentrates on movement from urban to rural areas. McClinnis (1971) suggests using size of the labor force instead of the more common total population size when referring to "smaller" and "larger" places or between places with differing opportunities. McClinnis (1971) also reports a positive relationship between the size of destination and migration for persons 25-44, but not for others.

Marital Status

A change in marital status marks an important change in the life cycle (Roseman, 1983), but findings on the relationship between marital status and migration are not consistent. It often is found that married persons tend to have a higher rate of migration than do the single, widowed, and divorced (Taeuber et al., 1968; Black, 1983; Bogue, 1969). Ladinsky (1967) finds young married professionals to be more migratory than persons with a different marital status, but the relationship tends to disappear or even reverse with an advancement in age (see also White and Woods, 1980). Black (1983) finds that, among younger migrants in the U.S., a major life cycle event like marriage is positively related to migration (see also Girard et al., 1970). Long (1974) finds that families with a working wife tend to be less likely to migrate to a different city than are families without a working wife (see also Lichter, 1983).

Number of Dependents Under 18

It generally is believed that the greater the number of dependents one has, the less likely one is to migrate (Ladinsky, 1967; Lawrence and Smith, 1984; Shaw, 1975; see also White and Woods, 1980). This contention has not yet received consistent support. Caldwell (1968, 1970) and Hollingsworth (1970), for example, report that the presence of dependent children does not seem to hinder migration.

Long (1972: 381) finds that married persons with children are less migratory than married persons without children; at 25-44, couples with school-age children are about half as mobile as those having preschool children only, and school-age children hinder migration at each age for the family head (see also U.S. Bureau of the Census, 1983). Another study (Ladinsky, 1967) finds mixed and weak relationships between number of children under 18 and migration for professionals under 45. But for those 45 and over, the larger the number of children under 18, the more mobile the family becomes.

Home Ownership

Studies have reported that home ownership is a detriment to migration (i.e., Oosterbaan, 1980). Ladinsky (1967), in a study of professional workers, finds that home ownership is significantly related to migration, next only to age in the variance explained. Advances in age tended to weaken the relationship between home ownership status and mobility. Others have supported the negative relationship between home ownership (versus renting) and migration (Lansing and Mueller, 1972; Deutschman, 1972), while Prasad and Johnson (1964) reported no significant difference between home-owning and non-home-owning industrial retirees in residential mobility.

Age Groups. Patterns of migration for various age groups have been a popular topic for research. A number of researchers have examined migration among the elderly (i.e., Lawrence and Smith, 1984; Israeli and Lin, 1984; Goldscheider, 1971; Roseman, 1983; Longino, 1982) and various younger age groupings (i.e., Lawrence and Smith, 1984; Roseman, 1983; U.S. Bureau of the Census, 1983) or raw age (i.e., Goldscheider, 1971; Graves and Linneman, 1979; Linneman and Graves, 1983). The need to disaggregate migration by age groups is extremely important if migration differentials are to be identified accurately (Graves et al., 1984; Goldscheider, 1971; Mischaikow, 1984).

This study examines how persons aged 20-29, 30-44, 45-66 and 65 and over respond to selected conditions.

The age range 20-29 is chosen for a number of reasons. It has been reported that, in the United States, migration rates are highest among people aged 20-24 and second highest for those of ages 25-29 (Mueller, 1982; U.S. Bureau of the Census, 1983; White and Woods, 1980; Shaw, 1975). Rates for all other ages fall precipitously (Shryock, 1964; U.S. Bureau of the Census, 1983; Eldridge, 1965). Both Shaw (1975) and Lee (1966), however, find migration differentials by age to be bimodal, with the first peak appearing at an early age and a second peak at retirement (65). The younger group consists mostly of persons who have finished school (often with a college degree), taken a first job, and are raising a family of their own. Because of distinct needs, this group responds to the socioeconomic environment differently from persons at retirement age.

Between the young and the old are two middle-aged groups: 30-44 and 45-64. They broadly reflect two stages of changes in the life cycle. Long (1972) regards 35-45 as an age when migratory propensity declines rapidly. The growing up and departure of children, children's marriage and the freeing of

wives to take jobs outside the home, and occupational mobility characterize the condition in which persons age 30-44 live. The next age cohort of 45-64 often experiences the birth of grandchildren, the preparation for retirement, and possibly the death of spouse or a child, all occurring during the period of career peaking and stability.

Age 65 and over is probably the most agreed-upon category in migration analyses. Retirees migrate because of detachment from the labor force or to seek goods and services catering to the elderly (Chevan and Fischer, 1979; see also Longino, 1982).

Methods. All counties in the 12-state North Central Region were selected for study (N = 1056)¹. The dependent variables for this study are age-specific county net migration rates for 1965-1970. The socioeconomic and demographic characteristics of counties in 1960 will be used to explain 1965-1970 net migration of the county population for the different age cohorts. The use of independent variables at the beginning of the migration time period allows not only for more of a causal interpretation for the effects but also avoids a downward bias in the estimated coefficients (Graves et al., 1984; see also Greenwood and Sweetland, 1972).

The Dependent Variable

The dependent variable, age-specific migration rates, is based upon the 15-percent sample of the 1970 Census of Population (U.S. Bureau of the Census, 1977). Migration is defined as change of residence across county lines. Net migration is the difference between in-migration and out-migration and may be positive or negative. Net migration rates for the four age groups (20-29, 30-44, 45-64, and 65 and older) and for all people 20 and older are calculated for 1965-1970 as:

$$\text{Net migration rate of persons age } i = \frac{i \text{ in } 1965-1970}{1970 \text{ county population of age } i} \times 1,000$$

where *i* denotes each of the four age groups and the broad age group 20 and older.

The Independent Variables

The independent variables are defined as follows:

New entrants into the labor force: Population aged 10-19 is taken as a percentage of the total population of the county in 1960 because persons 10-19 in 1960 would be entering the labor force during the 1965-1970 migration period. We use the age of 15 as the age of entry into the labor force, one year higher than the 1960 lower limit of labor force defined by the U.S. Bureau of the Census (1962).

Withdrawal from the labor force: Population aged 55-59 in 1960 is taken as a percentage of the total population of the county in 1960 because persons 55-59 in 1960 would be eligible for social security and retirement and thus

¹ Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

most probably leaving the labor force during the 1965-1970 migration period.

Unemployment: The percentage of the county labor force aged 14 and over in 1960 that is unemployed.

Income level: Median family income for counties in 1960.

Educational level: The percentage of the county population aged 25 and over in 1960 with a high school education.

Occupational level: The percentage of the employed labor force engaged in white-collar occupations in 1960. The Census definition of white-collar occupation is used (see, for example, U.S. Bureau of the Census, 1972a).²

Minority status: The percentage of nonwhite (the only category used by the 1960 Census to refer both to blacks and other nonwhite races) population in a county in 1960. The nonwhite group has, for the most part, the character of the black population because almost 90 percent of the nonwhite population are blacks (Tomasson, 1960).

Metropolitan residence: A county is coded "1" if it is a metropolitan county; "2" if it is a contiguous nonmetropolitan county; or "3" if it is a noncontiguous nonmetropolitan county (see U.S. Bureau of the Census, 1972a).

Labor force size: The total labor force of a county as a percentage of the total county population in 1960.

Marital status: The ratio of married to the sum of single, divorced, and widowed of the county population in 1960.

Dependent children: Ratio of persons under 18 years of age living with both parents to the number of husband-wife families in 1960.

Home ownership: The percentage of all occupied units in a county that are owner occupied in 1960.

Analyses and Discussion. Ordinary least squares regression is used to examine multivariate linkages between specific environmental conditions of the 1,056 counties in the North Central Region and migration by age. Correlation coefficients are used to examine bivariate associations between variables.

First, as presented in Table 1, the long-noted positive association between in-migration and out-migration is found. State and county of residence³ in 1965 and 1970 is used to derive gross migration for the 5-year period. Persons living in county x on the 1970 census date but reporting a different county or country of residence in 1965 are defined as in-migrants, whereas persons residing elsewhere in the United States on April 1, 1970, but reporting county x as the place of residence in 1965 are defined as out-migrants (U.S. Bureau of the Census, 1977:1).

² White-collar occupations include professional, technical and kindred workers, managerial, officials and proprietors, and sales and clerical workers.

³ Residence data may understate migration because multiple movement and mortality occurring during the 5-year period before the 1970 census are not taken into account.

TABLE 1
Correlation Coefficients Between In- and Out-Migration by Age, 1965-1970.*

Out-migration	Total	In-migration			
		20-29	30-44	45-64	≤65
Total	0.96	0.96	0.95	0.94	0.96
20-29	0.97	0.98	0.95	0.94	0.95
30-44	0.96	0.97	0.95	0.94	0.96
45-64	0.94	0.93	0.93	0.93	0.94
≤65	0.91	0.91	0.91	0.91	0.93

*All correlations are significant at $p \leq .001$.

Positive and nearly perfect relationships are observed for all age groups. Theoretically, according to wage theory, the relationship should be negative under the assumption that levels of wages are negatively associated with out-migration and positively associated with in-migration (i.e., Ritchey, 1976; Cebula, 1979). Empirical evidence, however, is replete with inconsistencies; our analysis, for one, does not sustain the relationship.

Secondly, Table 2 shows the existence of highly significant *positive* relationships between in- and out-migration and the median income level of counties. The positive relationship is found, without exception, among all age categories. The relationship, however, is stronger between in-migration and income level than between out-migration and income level.

TABLE 2
Correlation Coefficients Between In-Migration, Out-Migration, and Median Income by Age, 1965-1970.*

Correlation Between Total	20-29	30-44	45-64	≤65	
In-migration and median income	0.47	0.45	0.46	0.43	0.42
Out-migration and median income	0.39	0.41	0.39	0.35	0.30

*All correlations are significant at $\leq .001$.

Lowry (1966), Miller (1967), Stone (1971), and Vanderkamp (1971) all suggest that a high-income area can expect to have higher rates of out-migration than economically depressed areas because previously prolonged net in-migration into the prosperous area may have furnished the area with a potentially mobile population. Geographic movement of this population seems

habitual. Lowry (1966) contends that prolonged net out-migration from low-income areas tends to cause the resident population in those areas to age inasmuch as young adults are predominant among migrants. As the aging process takes place, the rate of net out-migration from these economically depressed areas tends to level off because an aged population tends to be less migratory than a younger one.

Courchene (1970) and Vanderkamp (1971) believe that the lower income level in an area hampers job relocation despite the enticement of higher income elsewhere; people just cannot afford to move. Stone (1971) thinks it possible for areas of rapid economic change to entice in-migrants and repel old residents at the same time.

Although this is an important area of investigation in migration research, the scope of the paper does not allow us to pursue it further. In summary, the nearly perfect correlations between in- and out-migration (Table 1), indicate that the stream and counterstream vary together; i.e., the higher the in-migration into a county, the higher is the out-migration from it.

The next section addresses the question of how migrants of various age categories respond to environmental conditions.

Because the causal linkages of these independent variables to migration are very unclear in the literature, the socioeconomic, demographic, and ecological variables are entered together in the regression analysis. Bivariate causal linkages between each independent variable and the dependent variable, while holding other independent variables constant, are thus implied. The regression results are presented in Table 3.

Of the 12 independent variables, county education level and minority status exhibit no significant effect on migration for any of the age groups. The other variables display various degrees of linkage to migration. Before the control on age is applied, 5 of the 12 variables show no significant relationship to migration: unemployment, median income, educational level, minority status, and population size of the labor force (Column 1 of Table 3).

It also is observed that the independent variables together explain the largest amount of variance among the youngest migrants age (20-29; $R^2 = .364$) and the least amount of variance among the oldest migrants (age 65 and older; $R^2 = .111$), with about an equal amount of explained variance (.200) for the two intermediate groups. At this aggregate level, response to environmental conditions is not bimodal.

The answer to the question of whether migrants of different age cohorts respond differently to the various conditions is strongly affirmative. Both the amount of explained variance and the patterns of response differ for each age group and the total population over age 20.

The number of new entrants into the labor market signifies a change in job demands that ease or aggravate unemployment. The tightening of the job market, therefore, deters the youngest cohort aged 20-29 from moving in (Table 3). But the market condition of the young does not necessarily affect the inflow of the older cohorts, 30-44 and 45-64. This is because the young and

TABLE 3

**Standardized (β) and Unstandardized (b) Regression Coefficients
Between Environmental Conditions in 1960 and
Net Migration By Age During 1965-1970.**

Environmental Conditions	Total (\geq)	20-29	30-44	45-64	≤ 65
New entrants into labor force	0.113* ^a (6.83)	-0.033 (-6.83)	0.106* (7.41)	0.074* (3.09)	-0.018 (-1.20)
Withdrawal from labor force	-0.341* (-37.208)	-0.382* (-144.29)	-0.132* (-16.75)	-0.015 (-1.14)	-0.046 (-7.91)
Unemployment	0.015 (0.50)	0.058* (6.76)	0.046 (1.82)	0.055 (1.29)	0.075* (2.79)
Median income	-0.017 (0.14)	0.140* (0.38)	0.034 (0.31)	-0.031 (-0.17)	-0.072 (-0.62)
Educational level	-0.017 (-8.24)	-0.023 (-38.99)	-0.021 (-11.64)	-0.018 (-5.97)	0.016 (8.35)
Occupational level	0.311* (3.77)	0.171* (7.19)	0.095* (1.34)	0.252* (2.13)	0.226* (3.01)
Minority status	0.008 (0.40)	0.002 (-0.39)	0.017 (0.11)	-0.036 (-0.13)	0.004 (0.22)
Residence	-0.143* (-18.07)	-0.153* (-67.18)	-0.157* (-23.05)	-0.037 (-3.24)	-0.005 (-0.67)
Size of destination's labor force	-0.005 (-0.93)	0.053* (3.56)	-0.013 (-0.31)	-0.016 (-0.22)	0.005 (0.12)
Marital status	-0.154* (-0.40)	-0.145* (-1.31)	-0.007 (-0.20)	0.024 (0.44)	-0.012 (-0.34)
Dependent children < 18	-0.488* (-175.90)	-0.324* (-404.16)	-0.327* (-136.84)	-0.261* (-65.51)	-0.240* (-95.04)
Home ownership	0.284* (0.36)	0.120* (0.52)	0.324* (0.47)	0.318* (0.28)	0.101* (0.14)
R ²	.360	.364	.198	.197	.111

^aThe top figure is the standardized regression coefficient (β). The bottom figure in parentheses is the unstandardized regression coefficient (b).

* $p \leq .05$

the old do not share the same job market and also because the entering of the young into the job market only intensifies the competition for jobs among the young who likely are seeking beginning jobs. As far as the youngest cohort is concerned, our finding offers no support for arguments suggesting a negative relationship between labor supply and in-migration.

Greenwood (1975: 411) was puzzled by the failure of unemployment to explain migration. An examination of our data (Table 3) reveals that unemployment virtually encourages (i.e., positive coefficients) the net-migration of all four cohorts! It is, however, the youngest and the oldest cohorts that respond significantly to unemployment, while the two intermediate cohorts exhibit nonsignificant responses. While such results are contrary to those expected from Black (1983), Israeli and Lin (1984), Pack (1973) and others, our significant positive results may be due to the different age cohorts responding to unemployment in their own unique way (see also Todaro, 1969). It does, however, conform Gober's (1980) findings for her national sample of counties that the North Central region was the only region of the country to display a positive relationship between unemployment and net migration. We agree with Greenwood (1975) and Gober (1980) that this is an important research problem deserving attention and suggest that age of migrants be taken into consideration in future research. The information gained in this study converges on one point, i.e., the young and the old do not share the same job market and they behave differently in their response to environmental conditions.

Cohorts aged 20-29 and 30-44 are responsive to the withdrawal of retirees from the labor market. The relationship, however, is negative for both cohorts, i.e., the larger the amount of withdrawal from the labor market the smaller (or possibly more negative) is the net migration of these cohorts. The results imply that migration of the two younger cohorts and retirement of the old are two separate market phenomena. It is likely that the youngest cohort (20-29), possibly seeking a beginning job, is unable to fill the positions left by the retiring population (Beta = -0.382, the strongest negative response of all responses made by all cohorts). The advanced positions left by the retirees must be taken over by migrants of similar occupational status and experience. The much weaker response of the cohort aged 30-44, compared with that of the youngest cohort (Beta = -0.132 and -0.382, respectively), indicates that some of the 30-44 year olds could have filled some of the jobs vacated by the retirees, but not all the jobs. The findings about new entrants, withdrawal from the labor force, and unemployment taken together seems to indicate that the young and the old are responding to different market needs.

Median income of a county, though nonsignificant in the absence of age control, is a factor to which the cohort 20-29 responds significantly and positively. Existing evidence generally supports this finding (Greenwood and Gormely, 1971; Black, 1983; Tarver and Gurley, 1965), because potential migrants would seek out a destination where wages surpass those at the origin. For the young who are not totally settled in a career, the pull of higher wages must be a strong incentive for moving.

Occupational level is one of the most significant variables to which all cohorts respond. Table 3 exhibits that the two older cohorts, 45 and over, tend to respond to the county occupational level more strongly than the two younger cohorts under 45. Occupational selectivity of migrants is well documented (i.e., Lawrence and Smith, 1984; Shaw, 1975). Our study corroborates literature suggesting that persons with high occupational status are more

likely to migrate than are persons with low occupational status. That the older migrants respond more strongly to occupational level than the younger cohorts seems to indicate a close relationship between age and occupational status. Between the two older cohorts, those 45-64 are somewhat more likely to respond to occupational status than those 65 and over. This again demonstrates that the oldest migrants may not move solely for job and economic reasons (i.e., Hsieh and Liu, 1983; Longino, 1982; Chevan and Fischer, 1979). In counties where occupations are largely white-collar, services indispensable to older people also would tend to be more available, e.g., medical service, hospitals, transportation facilities.

On the whole, the two younger cohorts are somewhat less responsive to the county occupational level than the two older cohorts. The response is stronger for the 20-29 cohort than for the 30-44 cohort.

The response to metropolitan residence is largely behavior of the cohort under 45; the more metropolitan the county, the higher is the net migration of the 20-44 year olds (metropolitan counties are coded 1, contiguous non-metropolitan counties are coded 2, and noncontiguous nonmetropolitan counties are coded 3). The two younger cohorts respond equally to residence, whereas the two older cohorts do not seem to be influenced by residence at all. Metropolitan residence probably serves as a surrogate for job availability and county income levels, which generally are sought by younger rather than older migrants. Metropolitan residence also could be a proxy for the size of population at destination. That the cohort aged 20-29 responds significantly to both the size of the destination population (Table 3) and metropolitan residence is partly indicative of the tendency for younger migrants to move to metropolitan areas where the labor force and jobs are more available.

Table 3 also indicates that the more numerous the married people in relation to single, divorced, and widowed people in a county, the less is the net migration of the youngest cohort aged 20-29. This seems to mean that the larger the married resident population, the higher is the outward movement (negative net migration) of the youngest cohort. The older cohorts respond to marital status of the county population very weakly. The explanation given by Rossi (1955) almost 30 years ago serves the present purpose well. Married couples not only are as migratory as single persons, but also are motivated to migrate simply because of family needs for a larger house, a nicer neighborhood, or a better school (cited by Petersen, 1975: 293; see also Bogue, 1969). The youngest cohort's responsiveness to marital status indicates that marriage and migration are closely related. According to a number of sources, younger women marrying for the first time tend to change residence and move across county lines (U.S. Bureau of the Census, 1972b, 1983; Weeks 1981:154).

The number of dependent children under 18 per family is the most influential variable, transcending all age groups. The relationship is a negative one, i.e., family size tends to retard migration for all age categories. Its effect is stronger on migrants 20-29 and 30-44 years old than on migrants aged 45 and older. This finding reinforces existing evidence. Long (1972: 371), for example, finds

that the number of children under 18 tends to hamper migration for families where the husband is younger than 35; after 35, however, the relationship tends to be irregular. Our finding indicates that, for older persons, the number of dependent children also has an inhibiting effect on decisions to move, although the effect is felt less strongly than it is for the younger migrants.

Home ownership, to which all age categories respond significantly, shows a positive effect on net migration. The positive effect may be attributed to the generally strong desire for home owning by all age groups (Michelson, 1977). The effect of home owning is stronger for middle-aged than for the very young and the very old. The youngest cohort, which is yet to be settled as far as residence and career are concerned, responds to home ownership much less strongly than do the intermediate cohorts. This is also true with the oldest cohort for which retirement may make home-owning a secondary, rather than a primary consideration.

Summary and Conclusions

This study, using aggregate data for the 1,056 counties in the North Central Region, examined the linkages between socioeconomic, demographic, and ecological conditions of counties on the one hand and age-specific migration on the other. Environmental variables in 1960 were used to explain migration of various age cohorts during the 1965-1970 period.

It was found that educational level and minority status of counties registered no significant influence on net migration, other conditions being equal. It also was observed that the youngest migrants tended to respond most strongly while the oldest cohort responded most weakly to environmental conditions. The two intermediate cohorts, which tended to be similar in their response to environmental conditions, fell in between. Observed also was the long-noted positive association between gross in- and out-migration; the two streams of migration varied consistently together, and both were positively related to income.

One of the principal purposes of this study was to examine how migrants of socially important age categories differed in their response to environmental conditions. Our analysis indicated that different age cohorts responded to selected conditions in their own unique ways.

Migrants aged 20-29 sought counties characterized as metropolitan with large labor forces and probable job opportunities. Unemployment in urban areas served as no deterrent to this cohort; it presumably was easier to eventually find a job in metropolitan than in nonmetropolitan areas. They moved away to places where they could meet the needs of a married life. To them, home ownership was desired and increased the likelihood to migrate, whereas the number of dependent children tended to impede migration.

The cohort aged 30-44 sought opportunity for occupational mobility. Like the younger cohort aged 20-29, they moved away from places where jobs left by retirees were unsuitable for them. New potential job seekers in a county constituted no threat to this cohort to migrate. They took up urban residence

where jobs were more likely available. To them, home ownership was most strongly desired and definitely enhanced chances to migrate while the number of dependent children strongly hampered their geographic movement.

Migrants 45-64 years of age were drawn to places where jobs were available; new potential job seekers also posed no threat to this cohort. They migrated in pursuit of occupational mobility. Home ownership, which was strongly desired, tended to enhance migration, whereas the number of dependent children retarded movement. Their tendency toward shunning job opportunity and income levels of a county as reasons for migration seemed to be indicative of their interest in noneconomic reasons, important to pending retirement.

Finally, the cohort aged 65 and over was understandably more concerned about retirement (i.e., Cebula, 1979); indeed, some might already have detached from the labor force. They were as strongly inclined to seeking occupational mobility as were the 45-64 year olds. To them, home ownership, which was desired, tended to enhance migration, while the number of dependent children hampered migration. But the effect of home ownership tended to be considerably weaker for this cohort than for the 45-64 cohort. This oldest cohort tended to shun job opportunity and income levels of a county as reasons for migration; noneconomic reasons and retirement seemed to dictate responses (Hsieh and Liu, 1983).

In sum, age of migrants played a definite role in determining a response to the socioeconomic and environmental conditions of counties. Such conditions were interpreted to mean different things to different cohorts. While educational level and minority status of counties were not significant conditions for any cohort, 3 of the 12 conditions were significant for all age cohorts: occupational level, dependent children under 18, and home ownership. Withdrawal of retirees from the labor market and metropolitan residence were significant for the two younger cohorts aged 20-29 and 30-44, while median income, size of the labor force at destination, and marital status were important only for the youngest cohort aged 20-29. The number of new job seekers entering the labor market was important to the two intermediate cohorts aged 30-44 and 45-64, whereas unemployment was important for the very young and the very old.

The theory of demographic response predicts that a population responds to various environmental conditions by altering its geographic location, reproductive behavior, and even mortality patterns. In this study, only one type of response is examined, i.e., geographic mobility. Geographic mobility has been regarded as the fastest and most effective response that a population can make to change its demographic characteristics. The population of the North Central Region has indeed made significant responses to selected conditions through migration.

Age is an indication of the life cycle positions a population occupies, and life cycles, in turn, imply differences in socioeconomic needs. This study clearly demonstrates the significance of age in the ways populations respond to environmental conditions in decisions to migrate.

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