

8-2020

Human Migration

W. A. V. Clark

Follow this and additional works at: <https://researchrepository.wvu.edu/rri-web-book>

Recommended Citation

Clark, W.A.V. (1986). Human Migration. Reprint. Edited by Grant Ian Thrall. WVU Research Repository, 2020.

This Book is brought to you for free and open access by the Regional Research Institute at The Research Repository @ WVU. It has been accepted for inclusion in Web Book of Regional Science by an authorized administrator of The Research Repository @ WVU. For more information, please contact ian.harmon@mail.wvu.edu.

The Web Book of Regional Science

Sponsored by



Human Migration

By

W.A.V. Clark

Scientific Geography

Series Editor:

Grant Ian Thrall

Sage Publications: 1986
Web Book Version: August, 2020

Web Series Editor: Randall Jackson
Director, Regional Research Institute
West Virginia University

<This page blank>

The Web Book of Regional Science is offered as a service to the regional research community in an effort to make a wide range of reference and instructional materials freely available online. Roughly three dozen books and monographs have been published as Web Books of Regional Science. These texts covering diverse subjects such as regional networks, land use, migration, and regional specialization, include descriptions of many of the basic concepts, analytical tools, and policy issues important to regional science. The Web Book was launched in 1999 by Scott Loveridge, who was then the director of the Regional Research Institute at West Virginia University. The director of the Institute, currently Randall Jackson, serves as the Series editor.

When citing this book, please include the following:

Clark, W.A.V. (1986). *Human Migration*. Reprint. Edited by Grant Ian Thrall. WVU Research Repository, 2020.

<This page blank>

SCIENTIFIC GEOGRAPHY SERIES

Editor

GRANT IAN THRALL
Department of Geography
University of Florida, Gainesville

Editorial Advisory Board

EMILIO CASETTI
Department of Geography
Ohio State University

MASAHISA FUJITA
Regional Science Department
University of Pennsylvania

LESLIE J. KING
Vice President, Academic
McMaster University

ALLEN SCOTT
Department of Geography
University of California, Los Angeles

<This page blank>

Contents

INTRODUCTION TO THE SCIENTIFIC GEOGRAPHY SERIES	5
SERIES EDITOR'S INTRODUCTION	7
1 Mobility and Migration: Definitions, Rates, and Data	9
1.1 Introduction	9
1.2 The Demographic Equation	10
1.3 Migration Rates and Net Migration	12
1.4 The Scale of Migration	15
1.5 The Correlates of Migration	17
1.5.1 Age	17
1.5.2 Educational Attainment	18
1.5.3 Tenure Status	19
1.6 The Impacts of Migration	19
1.7 Data for the Analysis of Migration	21
1.8 Conclusion	21
2 Residential Mobility	22
2.1 Introduction	22
2.2 Observed Behavior of Movers Within the City	22
2.2.1 Mobility Rates	22
2.2.2 Distance-Biased Moves	22
2.2.3 Directional Bias	26
2.2.4 Suburban Bias	27
2.3 Explanations of Residential Relocation	29
2.3.1 Conceptualizing the Mobility Process	29
2.4 A Classification of Reasons for Moves	31
2.4.1 Explanations of Destination Selection	34
2.5 Push-Pull and Accessibility Explanations	34
2.6 Modeling the Mobility Process	35
3 Regional Migration	37
3.1 Introduction	37
3.2 Gross Migration Flows-Interregional Migration	37
3.2.1 An Example from the United States	37
3.3 Gravity Models of Migration	40
3.4 Regression Models of Migration	42
3.5 Accounting Approaches to Migration	44
3.5.1 Multiregional Population Analysis	46
3.6 Explanations of the Patterns of Migration	46
3.6.1 The Human Capital Model of Migration	47
3.6.2 Family Migration Theory	48
3.7 The Role of Amenities in Migration	50
3.8 Expectations as a Force in Migration	50
3.9 Concluding Remarks	51
4 International Migration	51
4.1 Introduction	51
4.2 The Historical Context of International Migration	51
4.3 Migrant Labor and Regional Labor Markets	52
4.3.1 Guest Worker Movements	53
4.3.2 Regional Migration to the United States	54

4.4	The Determinants of International Migration	56
4.5	The Consequences of International Migration	56
4.6	The Global Labor Market and Political Perspectives on International Migration	57
4.7	Undocumented Migration	58
4.7.1	Undocumented Migration to the United States	58
4.8	Impacts of Illegal Immigration	60
4.9	Refugees	61
4.10	Conclusion	61
5	Concluding Remarks	63
	References	64
	About the Author	69

<This page blank>

INTRODUCTION TO THE SCIENTIFIC GEOGRAPHY SERIES

Scientific geography is one of the great traditions of contemporary geography. The scientific approach in geography, as elsewhere, involves the precise definition of variables and theoretical relationships that can be shown to be logically consistent. The theories are judged on the clarity of specification of their hypotheses and on their ability to be verified through statistical empirical analysis.

The study of scientific geography provides as much enjoyment and intellectual stimulation as does any subject in the university curriculum. Furthermore, scientific geography is also concerned with the demonstrated usefulness of the topic toward explanation, prediction, and prescription.

Although the empirical tradition in geography is centuries old, scientific geography could not mature until society came to appreciate the potential of the discipline and until computational methodology became commonplace. Today, there is widespread acceptance of computers, and people have become interested in space exploration, satellite technology, and general technological approaches to problems on our planet. With these prerequisites fulfilled, the infrastructure needed for the development of scientific geography is in place.

Scientific geography has demonstrated its capabilities in providing tools for analyzing and understanding geographic processes in both human and physical realms. It has also proven to be of interest to our sister disciplines and is becoming increasingly recognized for its value to professionals in business and government.

The Scientific Geography Series will present the contributions of scientific geography in a unique manner. Each topic will be explained in a small book, or module. The introductory books are designed to reduce the barriers of learning; successive books at a more advanced level will follow the introductory modules to prepare the reader for contemporary developments in the field. The Scientific Geography Series begins with several important topics in human geography, followed by studies in other branches of scientific geography. The modules are intended to be used as classroom texts and as reference books for researchers and professionals. Wherever possible, the series will emphasize practical utility and include real-world examples.

We are proud of the contributions of geography and are proud in particular of the heritage of scientific geography. All branches of geography should have the opportunity to learn from one another; in the past, however, access to the contributions and the literature of scientific geography has been very limited. I believe that those who have contributed significant research to topics in the field are best able to bring its contributions into focus. Thus, I would like to express my appreciation to the authors for their dedication in lending both their time and expertise, knowing that the benefits will by and large accrue not to themselves but to the discipline as a whole.

-Grant Ian Thrall
Series Editor

<This page blank>

SERIES EDITOR'S INTRODUCTION

Human migration affects all regions of our planet: too many persons, or too few, move into, or out of, a place. Studies of migration and mobility are a critical component of understanding population growth and change and subsequent societal problems.

Because of migration, zero population growth in developed countries has not put an end to the population problem. In such countries migration is the primary force behind the changing distribution of population centers. Consider the phenomenal growth of cities in the sunbelt region of the United States. Their new, quickly gained prosperity is accompanied by long-term social and economic problems: lack of infrastructure, destruction of fragile environments, and "get-rich-quick-and-run" economies leading to a helter-skelter urban landscape. The population equation is balanced with the decline of snow belt cities, many of which were themselves boom-towns in the nineteenth century. Cities with net-outmigration face problems of abandoned housing, declining property values, and declining tax bases: The young, more educated, and skilled workers move out, leaving behind persons more likely to become dependent upon government services and less likely able to pay for those services.

An average 2.5% natural increase (births less deaths) prevails in less developed countries; migration compounds the population problem. Rural areas lose their young to the major metropolitan centers. In turn, these large centers may not be able to adequately absorb the new labor force. Mexico City has a growth rate of about 2,000 persons per day. Before this century's end, Mexico City will double in size and become the largest city in the world.

Migration has an effect upon society as well as upon the individual undertaking the migration. The decision to migrate is generally made by the individual or household making the move. Local moves generally are related to job behavior and housing markets. Moves between regions generally are attributable to job behavior; they disrupt the patterns of interactions and require people to establish new contacts, new friends, and often new jobs at the destination. International migrations generally add the complication of difficulties from changes in culture.

Professor W. A. V. Clark is one of the world's foremost scholars on the topic of human migration. His review concentrates on the substantive empirical results documenting migration patterns that have been generated in the past three decades. He takes a geographical perspective by classifying the literature on migration along a "distance-biased" approach; migration is examined within the city, across regions, and between countries. Examples from many regions of the world are presented in support of the theories of migration. Professor Clark organizes the substantive empirical results so that the reader will come to a clearer understanding of the nature of migration and the implications of population changes through migration.

This work should be of particular interest to students of demography and population geography, sociology, anthropology, urban and regional economics, regional science and economic geography, city and regional planning, and marketing.

-Grant Ian Thrall
Series Editor

<This page blank>

1 Mobility and Migration: Definitions, Rates, and Data

1.1 Introduction

Although demographers usually identify fertility, mortality, and migration as the three major components of their field of study, in fact, studies of fertility and mortality have dominated demographic analysis in the past half-century. Within formal demographic studies there has been much less interest in migration, and even less in the spatial components of population relocation. However, in the three decades since the publication of Rossi's study of migration within the city and Lowry's study of interregional migration, there has been a proliferation of research on migration and mobility. We know a great deal more about these processes today than we did thirty years ago.

Our knowledge of migration processes has increased in both empirical detail and theoretical constructs. Indeed, research in migration studies, and there are extensive reviews of the migration and mobility literature and of international migration (Clark 1982). We recognize now more than ever that our studies of migration and mobility are critical component of understanding population growth and change. We have only to consider the recent growth of cities like Phoenix and Tucson in the so-called sun belt of the southwestern United States or the rapid growth of Mexico City, which is increasing perhaps by 2,000 inhabitants a day, to recognize the important role that migration plays in changing the population patterns of our modern world. Within developed countries as growth rates tend toward zero and population increases only slowly, migration is the primary force in changing the distributional structure of those populations. At the same time in developing nations, the major flow of population from rural areas to cities has continuing impacts on the societal structure of these countries. A clear understanding of the processes of mobility and migration will offer insights into the broader processes that influence population growth and its relationship with economic and social change.

It is the purpose of this monograph not so much to review the most recent literature, but to concentrate on the substantive empirical results that have been generated in the past three decades, and to organize these substantive empirical results so that the student of population will have a clearer understanding of the nature of migration, its place within demography and population geography, and the implications of population changes through migration. Although the emphasis will be on the substantive empirical information that has been generated in the past three decades, those important conceptual structures that are part of our present understanding of mobility will be introduced in verbal form. This book will not, except in rare instances, deal with many of the very recent and quite sophisticated mathematical approaches to migration; that is better left for a more advanced treatment.

There are many ways of organizing a text on mobility and migration. It is certainly possible to examine the classic questions of who moves, why do they move, where do they move, and what are the impacts when they get there. Alternatively, it is possible to examine migration at several different scales-within the city, across regions, and between countries. This "distance-biased" approach, although somewhat artificial because international migration may involve quite short distances, does however emphasize the different conceptual structures that have been used to organize an understanding of migration. I will follow a broadly distance-biased approach.

After this introductory section on the nature of migration, its scale and structure, three sections focus on migration within the city, migration across regions, and migration between nations. At least historically, these three kinds of moves were clearly related to distance, in that moves within a city or in a small town were quite short distance moves that did not disrupt the general patterns of day-to-day living of contacts with friends, of particular jobs, and of the myriad contacts that take place within an urban region. Moves that occurred between regions or from one state or province to another of a particular country usually disrupted the patterns of interaction and required the establishment of new contacts, new friends, and almost always required new jobs. International migrations, at least historically, involved even greater separations, including changes in culture as well as changes in jobs and the networks of friends and relatives. Of course, there are also theoretical explanations of the differences- local moves have been connected to labor and housing markets, regional moves have been related to job behavior, and international moves have been related to political and religious changes. In the late twentieth century-although there are still important distinctions

between local moves and moves at a regional level- the distinctions are much less clear cut than they were fifty years ago. Moves across international boundaries, such as those from Mexico to Southern California, for example, may be a much shorter distance and involve more similar lifestyles than movements from large cities to small towns. In the late twentieth century in developed nations, regional moves are often moves related to factors other than jobs, particularly as the elderly population increases. Even so, the division into intraurban migration, regional migration, and international migration reflects both elements of distance and important conceptual explanations.

1.2 The Demographic Equation

The traditional approach to population studies has been formalized in the demographic equation that expresses the notion of a population system. In this system, the population at a given time, t , is equal to the original population at an earlier point in time, plus births, minus deaths, plus immigration, and minus outmigration. This equation can be written

$$P_t = P_{t-1} + B_{t-1,t} - D_{t-1,t} + IM_{t-1,t} - OM_{t-1,t}$$

where

P_1	= the population at the end of the period;
P_{t-1}	= the population at the beginning of the period;
$B_{t-1,t}$	= the number of births during the period from $t - 1$ to t ;
$D_{t-1,t}$	= the number of deaths during the period from $t - 1$ to t ;
$IM_{t-1,t}$	= the number of in-migrants during the period from $t - 1$ to t ;
$OM_{t-1,t}$	= the number of out-migrants during the period from $t - 1$ to t .

Stating the equation in words, population at time t is equal to population at the beginning of period plus births, minus deaths, plus net migration (NM : the difference between in-migration and out-migration). As an example, in the United States for the period 1970-1980, the demographic equation yields the following figures (in thousands):

$$P_{1980} = P_{1970} + B_{1970,1980} - D_{1970,1980} + NM_{1970-1980}$$

$$226,546 = 203,212 + 33,308 - 19,264 + 9,291$$

Examining the equation, we see that it applies to a country, region, county, or other geographical unit. While births and deaths are enumerated at a point (location) in time, migration is both a temporal and a spatial process. The enumeration of in-migration and out-migration (the entrances and departures) is always related to a geographic unit, and the population of that geographic unit is dependent upon both the births and deaths and the exchange of population between geographic units.

Human migration implies some form of permanent or semipermanent relocation by an individual or a household, and it is the permanent or semipermanent nature of the movement that distinguishes migration from tourism and commuting. However, it is less clear how temporary and how periodic these movements can be before we will include them as migratory movements. To simplify these definitional problems, I define *migration* as a relocation or a displacement that is too far to continue commuting to the same job under normal circumstances. *Residential mobility* or *intraurban* migration is a displacement that allows continued commuting. Clearly, the distance of the move and the amount of spatial separation are important elements of migration.

In most instances, as data are collected for a set of statistical units, the identification of migration requires, at the least, the crossing of a boundary (certainly for statistical purposes) and is the major means whereby the kinds of migration are distinguished. Because migration is also defined as a change of residence, the territorial scheme whereby migration is assessed is critical. More often than not, it is a simple administrative unit (a city, a county, a state) that has been defined for other purposes and for which census statistics are collected.

For example, many of the residential relocation data in the United States are collected in the decennial census, in which this simple question is asked: "Did you live in the same house five years previously or did you live

elsewhere?” The “elsewhere” is then divided into living in the same central city (that is, the same political unit), the same Standard Metropolitan Statistical Area, or the same county, another state, or abroad. A scale of regions and relocations are thereby identified with this simple question. For example, in the United States between 1975 and 1980, 65 percent of those who moved did so within counties. Only 35 percent moved between counties. Twenty percent moved between states.

A brief examination of the southern California region in Figure 1.1 illustrates the problem of the identification of the spatial units for defining migration. In this case, a move from Mexico to San Diego is both a regional migration and an international migration, a move within the San Diego county area is a local move, a move from San Diego to Los Angeles is an intercounty migration, but the long distance move within San Bernardino County, simply because of its size, would be defined as a local move. The size and shape of areal units will certainly have an impact on the identification of the kinds of residential relocations that are being discussed.

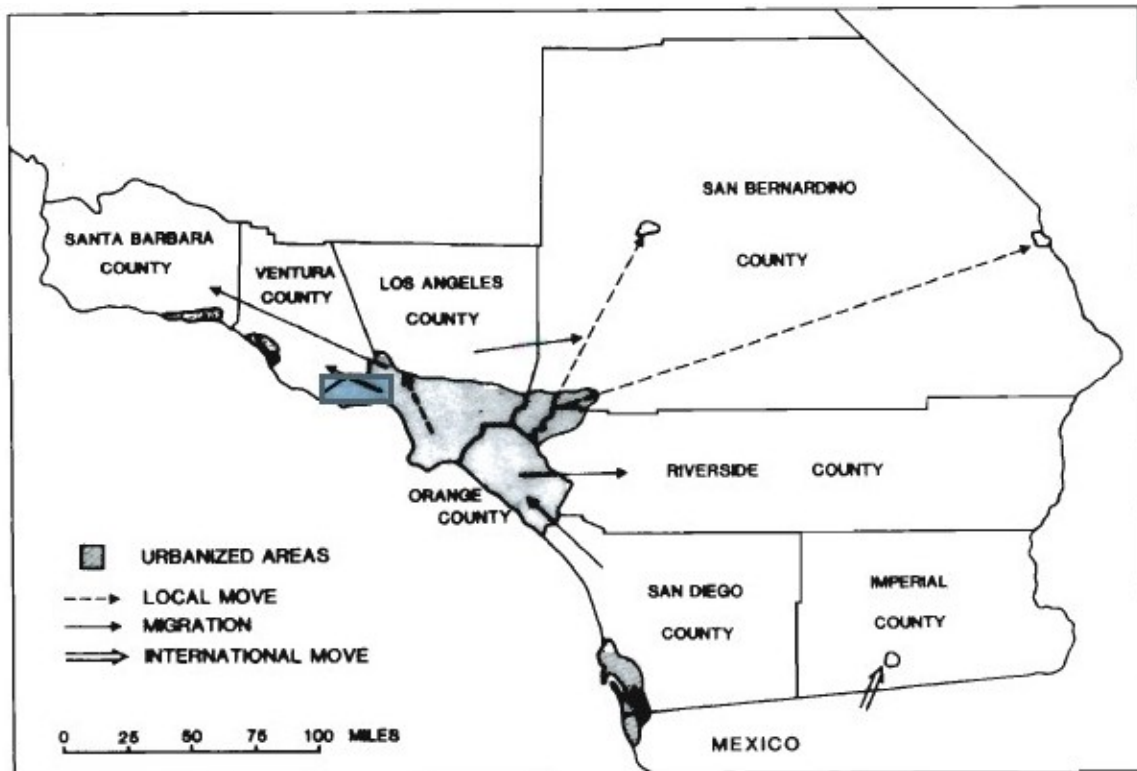


Figure 1.1 The Effect of Size and Shape on the Classification of Mobility and Migration

Because migration occurs over time as well as space, it is important to specify an interval over which migration is recorded. The longer the interval, the smaller the average number of migrants per year. This is because the question of migration or mobility is often asked in the following form: “Did you live here one year ago?” or “Did you live here five years ago?” The answer indicates the person or household had moved in the interval, but with a five-year interval it is entirely possible that the household will have moved more than once—the additional moves are lost with larger time intervals. The ideal is to have annual migration data—that is, data collected for moves in a one-year interval—because births and deaths are also recorded largely on a yearly basis. Obviously, data collected in unequal periods of time will not be comparable. Migration data are collected in several different ways, but there are two primary methods used by the U.S. Census.

One set of sample migration data is collected for one-year intervals and is reported, for example, in the Current Population Survey (CPS) and the Annual Housing Survey (AHS) on a yearly basis for the national sample and less often for individual metropolitan regions. The decennial census collects information on place of residence five years previously. This five-year rate underestimates the total amount of migration over that five-year period because it does not capture multiple moves in that interval.

Several terms require simple definitions. The area from which a migrant leaves is termed the origin, and the area to which he or she moves is the destination. The flow of population in one direction is often referred to as a migration stream, and the flow in the opposite direction is called the counterstream or alternatively, return migration.

1.3 Migration Rates and Net Migration

Gross migration flows are the total migrations between places within some time interval; for example, the flow from county i to county j and vice versa, during the interval 1975-1980. Both the flows into and out of the county are considered the gross or total flow. The total flow is the sum of the total in- and total out-migration. Net migration is the balance between in- and out-migration and is equal to the inflows minus the outflows. In many instances, net migration during an intercensal period (that is, during a five- or ten-year period) may be estimated from the relationship between total population change and natural increase. Given the growth in the population between two points in time and a measure of births and deaths, the difference clearly must be net migration during the intercensal period. The following formula can be used to calculate net migration.

$$NM = P_t - P_{t-1} - (B_{t-1,t} - D_{t-1,t}).$$

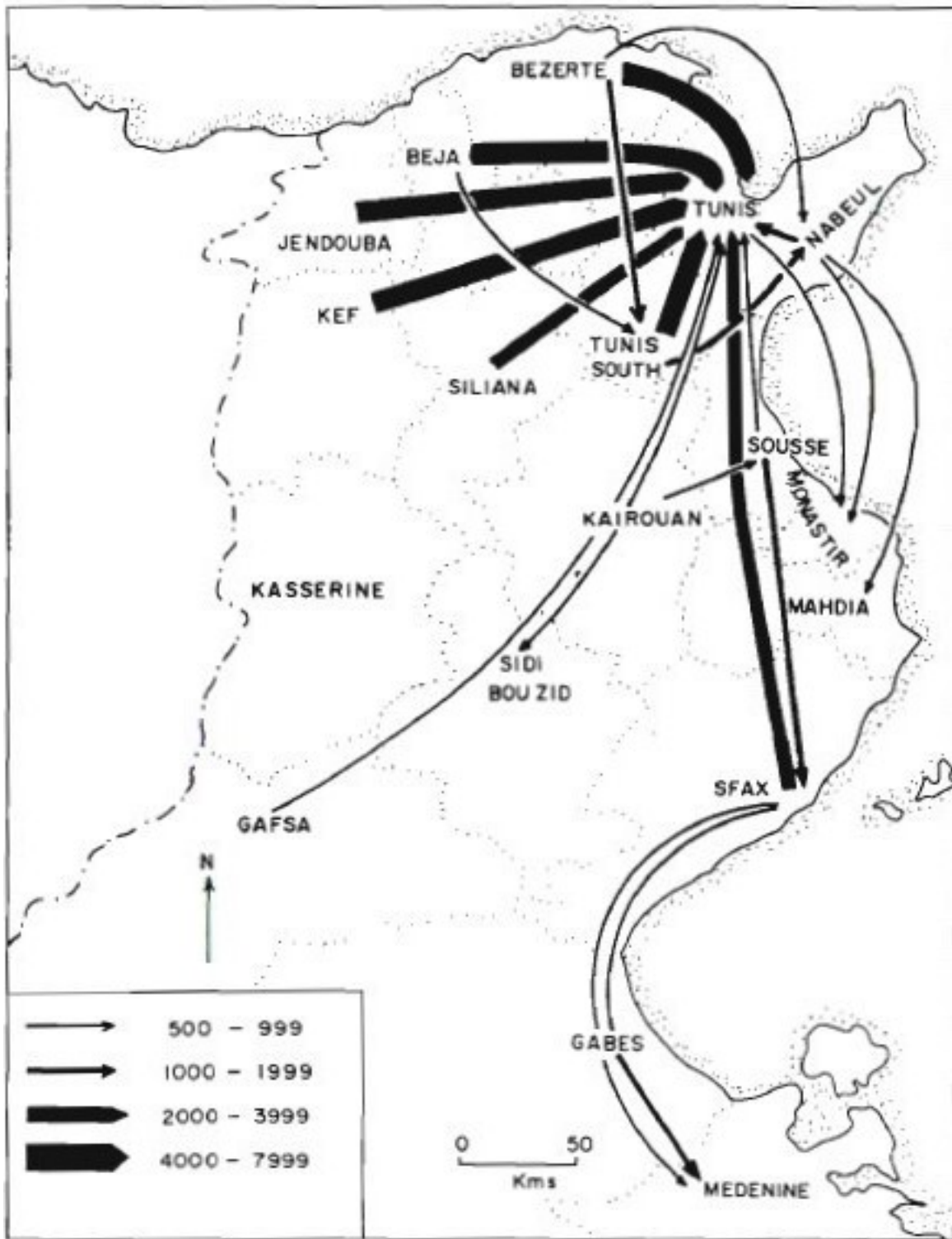
where

NM	= net migration;
P_t	= population at time t ;
P_{t-1}	= population at previous time period;
$B_{t-1,t}$	= births between time $t - 1$ and time t ;
$D_{t-1,t}$	= deaths between time $t - 1$ and time t .

Net migrants do not exist; rather, there are people who arrive and people who leave. The interest in net migration is derived from the fact that the rapid growth of places, particularly cities and suburbs, is often the result of a strong inflow and a weak outflow, and in the absence of more detailed data (a serious problem in studies of migration), analyses of net migration can be quite revealing of the comparative attractiveness of particular counties, regions, and even subareas of cities. Two examples illustrate the way in which maps of net migration can inform our understanding of population movements to cities in developing countries (a Tunisian example) and the movement to the suburbs in more developed countries ([Figure 1.2a](#) and [Figure 1.2b](#)). The attraction of urban areas and suburbs for migrants will be continuing themes in this book.

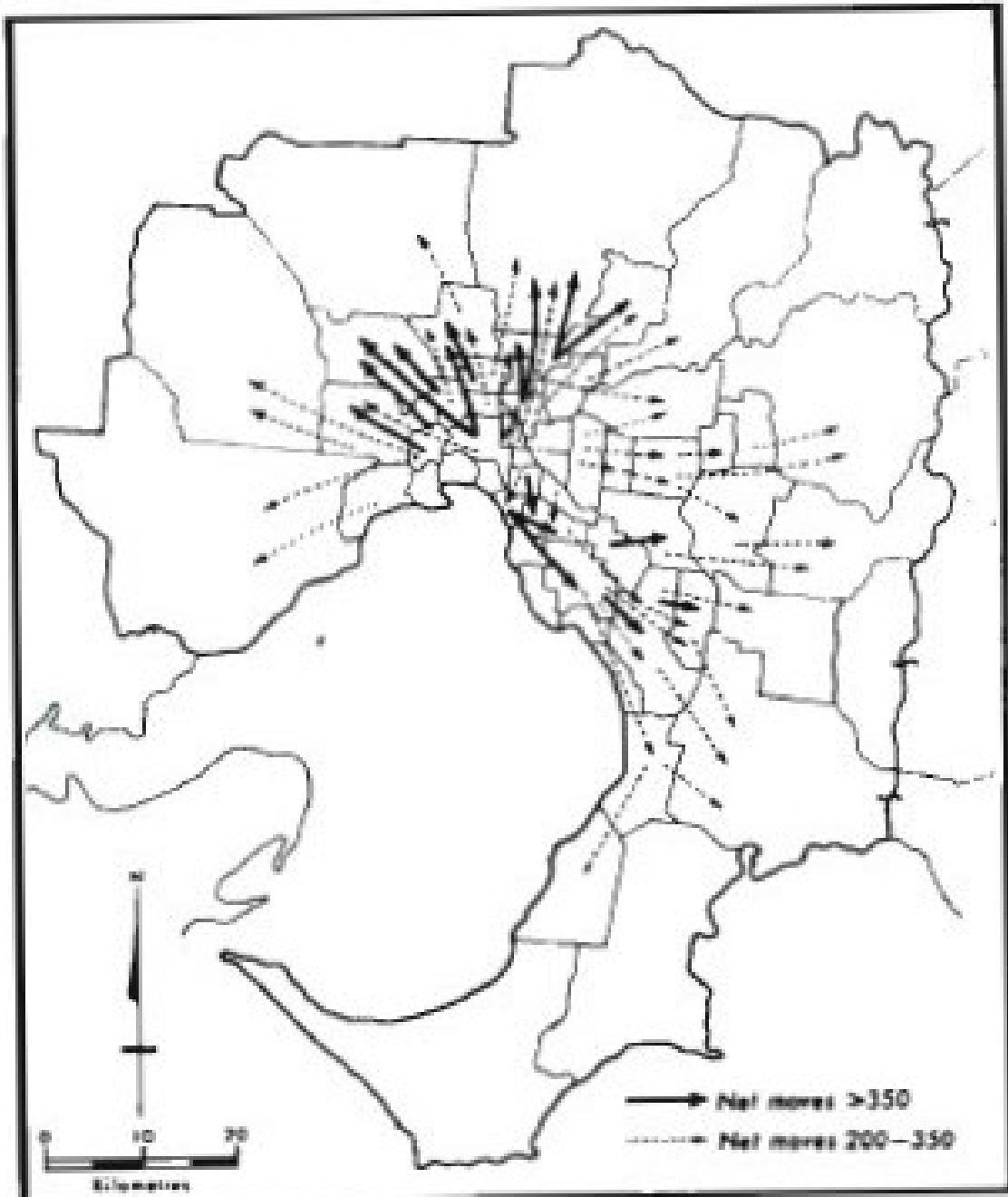
Maps of net migration can be compiled from the U.S. decennial census (easily for broad census regions, but only with difficulty for smaller spatial units) by analyzing the question, "Where did you live five years previously?" An alternative method of deriving net migration is the vital statistics method (so-called because it relies on the vital statistics of births and deaths). In this case, the difference between births minus deaths in a region is computed and the total change in population greater than that difference is attributable to net migration. (This is the method outlined in the previous formula.)

Another method used to estimate net migration utilizes a survival ratio calculation. In this case, an age and sex cohort (for example, females between 20 and 30) is examined at the beginning of a census period and, utilizing national life tables, it is possible to estimate the number of that population expected to survive to the next period. A significantly larger or smaller number than expected is attributable to net migration. (As part of demographic analysis, the term cohort refers to a group of a particular age range and sex. Cohort analysis of fertility, for example, is used to follow women through their reproductive years. Life tables tell us the number of additional years a person can expect to live, assuming that the probability of dying at each age does not change.)



SOURCE: Findlay and Findlay (1980) and Jones (1981). Reprinted by permission.

Figure 1.2a Net Migration Between Administrative Divisions of Tunisia, 1969-1975



SOURCE: Maher (1982) Residential mobility and neighborhood change in Melbourne, Australia. *Urban Geography* 3(3). Reprinted by permission.

Figure 1.2b Melbourne Intraurban Mobility, 1975-1976

To compute a rate rather than a flow, it is only necessary to divide the number of migrants by the population who could possibly have migrated. Thus, the migration is equal to the number of migrants over the population at risk multiplied by some constant (usually 1,000), so that we have the migration rate per thousand population. Migration rates can be calculated for out-migration, in-migration, and net migration, as well as for specific subgroups of the population.

For example,

$$Or = \frac{O}{P} \cdot k$$

$$Ir = \frac{I}{P} \cdot k$$

$$Nr = \frac{I - O}{P} \cdot k$$

where

- Or = out-migration rate;
- Ir = in-migration rate;
- Nr = net migration rate;
- O = number of out-migrants;
- I = number of in-migrants;
- N = number of net migrants;
- P = population at risk;
- k = constant (usually 1,000).

The term “at risk” refers to the population who might have moved. Thus, to find the rate of out-migration from Chicago, the population who left are divided by the resident population at beginning of the interval of concern (one year, five years); this is, the population who might have moved. There is often confusion over how to define immigration rates. It is frequently defined as in-migration to i , divided by population in i . This assures comparability with the out-migration rate, but is not consistent with the rate defined by using the population at risk (i.e., in-migration to i divided by the population in the system minus the population in i ; see Rees and Wilson 1977, for a comment). The denominator should be clearly specified.

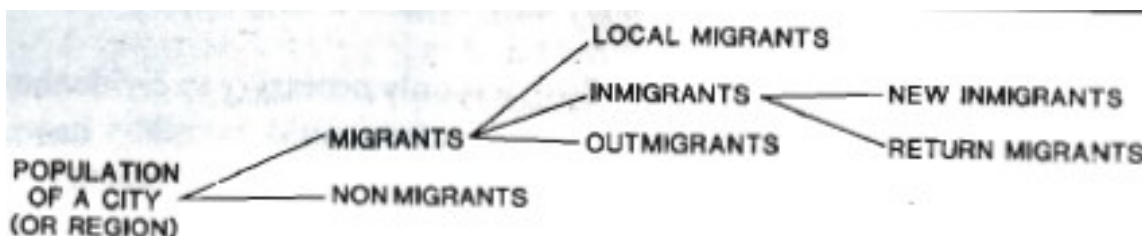


Figure 1.3 A Typology of Migrants

1.4 The Scale of Migration

Although we have discussed a number of elements related to the definition of migration, it is also important to provide a topology of population movements (Figure 1.3). In the population there are migrants and nonmigrants. The migrants can include both local movers, persons who move within the boundaries of a region, and migrants who cross a regional boundary while changing residential location (Roseman 1977). Referring only to a particular location, the migrants can be divided into local migrants (mobility), in-migrants, and out-migrants. In-migrants can be further divided into new migrants or return migrants; that is, individuals who have previously left the region and have returned. A further diagram indicates the relationship between local moves and longer distance moves (Figure 1.4). The population can be partitioned into movers and nonmovers, sometimes called “stayers.” The diagram indicates that there are local movers (those moving within a region), and from there moves can occur to other regions, they can move from that region to another region, they can return to the original region, or they can return via one or more intermediate moves.

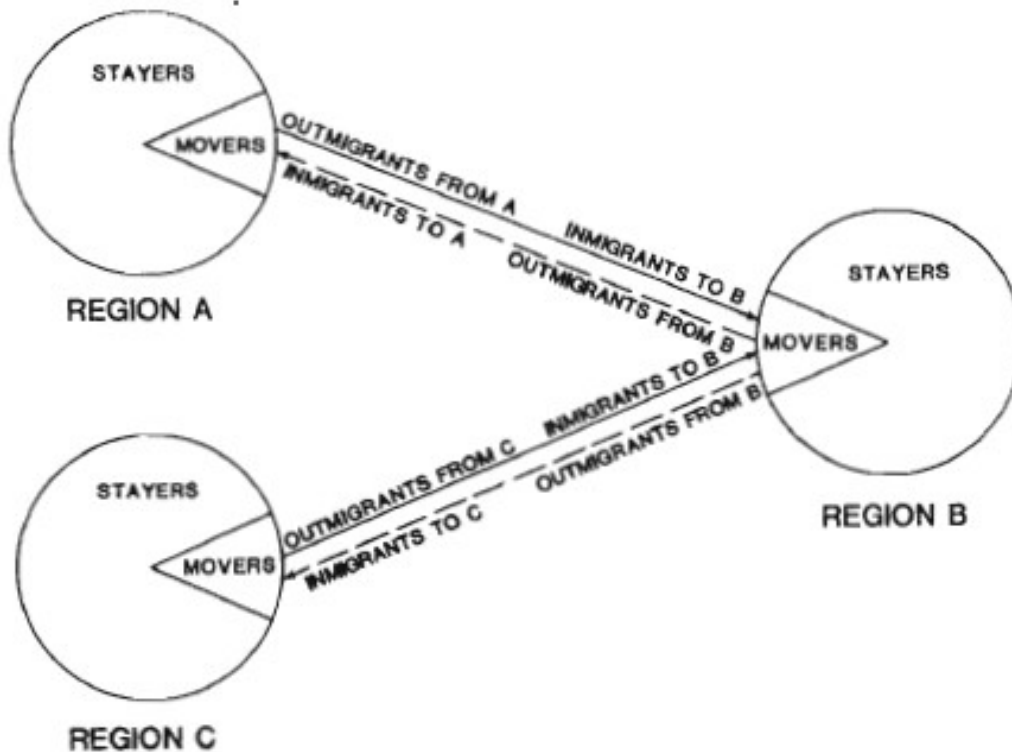


Figure 1.4 An Illustration of In- and Out-Migration

The most useful typology of migrant behavior is to set the migrant into a sociospatial context. Initially, we identify a migrant and a series of interactions with work, friends, and other community facilities (Figure 1.5). When a move takes place to a nearby location (a new home), the pattern of interaction will likely still involve some or all of the old sites. Both Cavalli-Sforza (1962) and Roseman (1971) have identified these moves as partial displacement moves. When the move occurs and there is no tie with the former location, the migration is a total displacement migration. (The actual day-to-day patterns of commuting and other ties are often referred to as reciprocal movement, in that there is a constant return to an initial location.) The reciprocal movement is disrupted when migration takes place to a distant new location. Most of the moves associated with residential mobility are partial displacement moves.

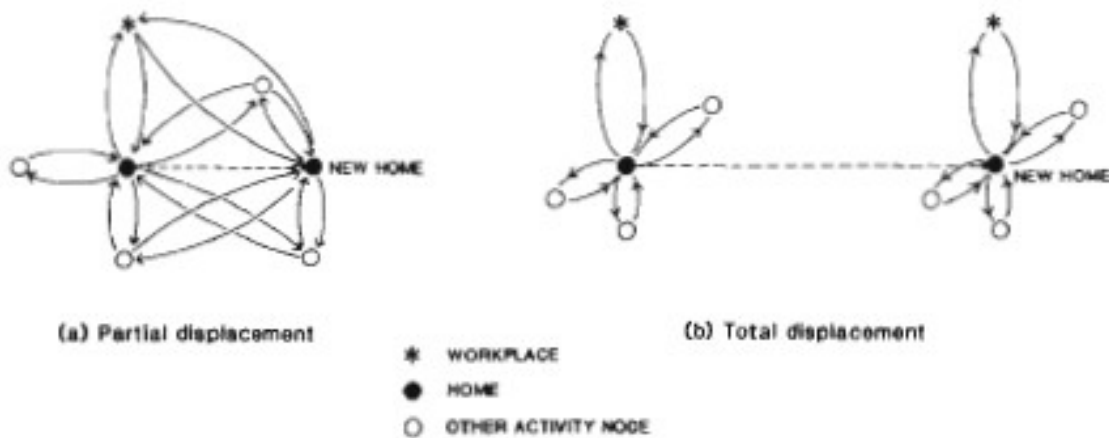


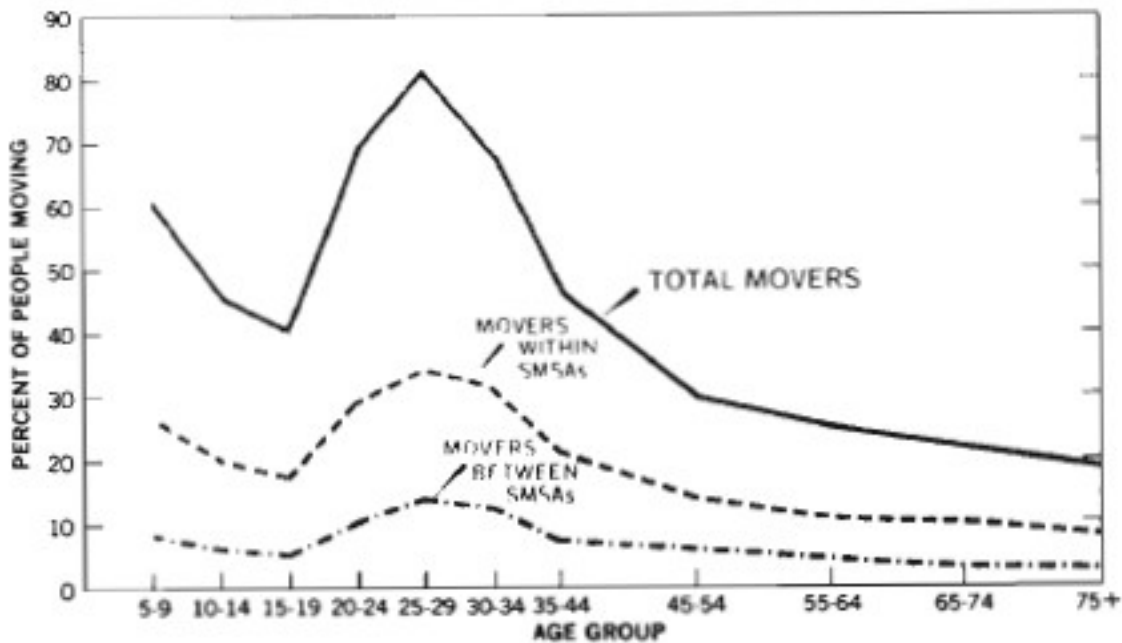
Figure 1.5 A Classification of Migrant Behavior (After Roseman 1971)

The other important element of understanding the spatial structure of migration is to recognize the notion of periodic migration or circulation, which has been identified in general in developing countries and in particular in the Pacific Islands. Bedford (1973), among others, has indicated that a number of migrations occur in which there are semipermanent to permanent residences established for periods from six months to several years; these are not seen as permanent locations, but rather as stopping places during a circulation among a number of possible sites. These moves often involve seasonal migration, returning to home bases after a work season. The distinguishing characteristic is the length of residence in the resident community. These movements have been categorized as daily, periodic, seasonal, and long term. While the first is little more than an extended commuting pattern, the periodic and seasonal moves involve short-term or repetitive cyclical movements. The distinction is between those movements that lack any *permanent intention* of establishing a long-standing change of residence and those that do. Migration, as defined by the Census Bureau in the United States, involves a permanent change of residence of at least one year in a host community. Clearly, the discussion of these issues emphasizes that definitions are an important part of identifying and understanding the extent of migration. But to reiterate, our principal definition of migration defines mobility as a change of residence that may or may not break ties in the local community, whereas migration is a change of residence that disrupts the basic ties with the local community and is a move that prevents commuting at least at any reasonable cost.

1.5 The Correlates of Migration

1.5.1 Age

One of the first and still most significant findings from studies of migration is the role of age in distinguishing migrants from nonmigrants. It is clear from Figure 1.6 that young adults between the ages of 20 and 35 are among the most migratory segments of the population. This is true for different cultural contexts and at all spatial levels. For example, of all Americans who were 20 to 34 years old in 1978, between 50 and 60 percent had moved across a county line between 1975 and 1978. Two-thirds of that cohort had made some kind of move, possibly only a local one within the same community. By the middle 30s the rates for migration drop considerably.



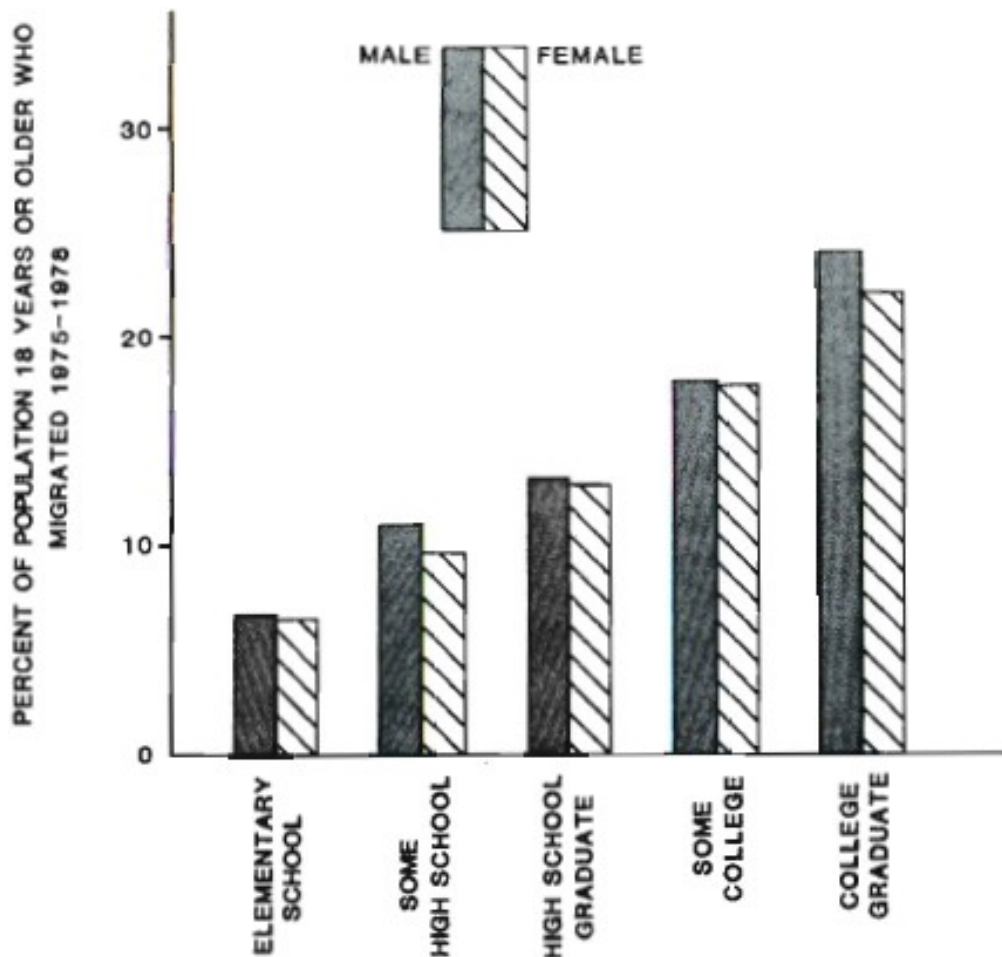
SOURCE: U.S. Bureau of the Census (1981, Table 4).

Figure 1.6 Migration by Age

Of course, the rates for younger children are partly related to the birth of children in the age period 25-35 and the associated higher mobility of individuals in those age classes. At the very oldest ages there is a smaller upturn in the probability of migrating that reflects retirement. There is some supporting evidence from Sweden in the mid-1960s that females are somewhat more migratory than males. In contrast, House and Knight (1965), using data from Great Britain, reported that males are more migratory than females. Schnell and Monmonier (1983) also show that males are slightly more migratory. Richmond points out (1969) that gender will be less important as women enter the labor force in larger numbers. In general, the difference between the migration rates for males and females is not great.

1.5.2 Educational Attainment

The second clear influence on migration is educational attainment. The higher the level of education of an individual or household, the greater the likelihood of a move. This is true in the United States, probably true for Western Europe, and may hold in lesser developed countries as well. The figure emphasizes a clear trend of increasing migration rates as educational attainment increases (Figure 1.7). A person with a college degree is three times as likely to migrate as someone who has a simple elementary school education, and more significantly, is likely to move a longer distance. An individual with a college education is six times more likely to move to a contiguous state than an individual with an elementary school education.



SOURCE: U.S. Bureau of the Census (1978).

Figure 1.7 Migration by Education Level

1.5.3 Tenure Status

Migration also varies by tenure status. People who are renters are three to four times more likely to migrate than individuals or households who are owners. The explanation is simple: People who have invested in owning a dwelling and who have also invested in the considerable search costs in locating that dwelling are less likely to move away from it. In addition, there are the brokers and bank fees associated with a move that further increase the cost of relocation. However, individuals and households who are renters have much less of a stake both in the dwelling and in the community and may find it easier to move. In addition, many renters are single and have smaller households to move. The major differences in tenure impacts of mobility show up in general and for central cities and suburbs. The traditionally higher levels of mobility in the suburbs are also evident (Table 1.1).

TABLE 1.1
Migration by Tenure

<i>Total</i>	<i>Percentage Moved in the Past Year</i>
Owner occupied	11.3
Renter occupied	38.9
In central cities	
owner occupied	10.4
renter occupied	36.0
In suburbs	
owner occupied	11.7
renter occupied	41.5

SOURCE: U.S. Bureau of the Census, Annual Housing Survey 1977.
General Housing Characteristics.

We can conclude, certainly for the United States and the Western world, that internal migration is closely associated with age, educational status, and tenure.

The relationship between age and mobility has been conceptualized in the concept of the life cycle (Ross 1955). The life cycle perspective on migration is one in which the moves of an individual or household are seen as part of the cycle through which individuals pass during their aging process. At very young ages individuals move as part of a household. Later, the individual establishes a separate residence and the movement “away from home” is the first of a set of moves, which include moves related to occupational changes, family composition changes (including marriage, the addition of children, divorces, and separations), and moves that result from economic changes. Passage through the life cycle in and of itself generates moves from the changing needs of the household, and the changing opportunities that the individual or household seeks out. (We will explore the life cycle perspective in more detail in [section 2](#).) This conceptualization of migration suggests the possibility of a dozen individual/ household relocations simply because of the variations of the aging process.

1.6 The Impacts of Migration

Although it is important to understand migration rates, the spatial structure of migration flows, and the correlates of migration, it is also important to set any discussion of migration into a larger societal framework, to see migration as having outcomes and impacts, and not just as an isolated process. Unfortunately, there has been much less research on the effects of migration on changing spatial patterns and on the changes in societal and political structures. It is clear that at the regional and national level the movement of population has not stopped, and the continuing in-migration into the world’s larger cities, many of which are now in the developing countries, has significant implications for societal change, the political process, and the basic abilities of the societies to provide an adequate standard of living for their populations.

Migration does not occur in a vacuum. When people move, they affect both the place they leave and the place they move into. In general, population movements are seen as having a beneficial effect on the places receiving migrants, and a negative effect on the places from which migrants come. This is clearly an overstatement; in

some cases, immigration can so burden places, particularly in Third World countries, that there is no way in which migration can be seen as beneficial, either to the infrastructure of the community itself or to the individual migrants who arrive there. On the other hand, areas that have large out-migrations may remain quite pleasant environments for those individuals who continue to live there, especially if they have jobs and relatively stable economic environments.

One way in which the impacts of migration have been evaluated is in relationship to the changing structure of society as a whole. One view of migration is that it is intimately connected with the transformation from a traditional society into a modern one. The mobility transition postulates that there are successive and more intense forms of human activity and migrations (Zelinski 1971, p. 231). Initially, societies have only limited migration and circulation and the society is geographically focused in a limited local area. (It is worth noting that this is true of historically emerging societies as well as more recently transplanted ones and present tribal societies.) In early transitional stages there is a rapid rise in fertility, a consequent growth in population, and the emergence of rural to urban migration and the setting up of towns. This is also the period of frontier colonization in many societies. A third stage in the process is that of the rapid rise of cities and the intensification of rural to urban migration. In effect, the rural to urban migration transforms society from rural to urban, and with the slackening of growth (that is, with lower levels of natural increase and most of the population in cities) much of the migration occurs between and within cities; in advanced societies almost all migration is of this type. At various phases of societal development or various stages of modernization, the contribution of migration varies. It begins as local changes of rural to urban migration and ends up largely as city to city.

The model of the mobility transition speaks to both spatial and social changes. The model emphasizes the increasing numbers of population concentrated in large urban areas, which has been occurring over the past two centuries. The model also reflects the significant social changes that have occurred as indigenous populations have moved to cities in which the exchange of ideas and the diffusion of information are much greater than in rural areas. The model also reflects the breakdown of traditional family structures, especially in cases in which migrants have moved to cities and maintain only occasional links with their former villages, despite the fact that they may have wives and children in those villages. However, the model does not explicitly address the political implications of this mobility. With increasing numbers of migrants in cities and an inflow far in excess of the ability of these cities to provide jobs for the in-migrants, there are significant problems of urban unemployment and underemployment. In many developing countries today the urban population growth rate of 7-10 percent is at least double the growth rate of the employment in these cities. This is in sharp contrast to the historical development of cities in European and North American contexts, when large proportions of the increase in migrants were absorbed in new industrial and service activities. Many of the urban in-migrants in developing countries survive only via the ever-expanding informal or unregulated economic sectors of petty services, bartering, begging, and theft.

Migration not only influences the overall growth of towns and cities, it also has significant impacts on the internal structure of the city. Historically, migrants have moved to cities, especially to the central areas of cities, and after a period of adjustment and socialization, migrants moved to outer areas of the city. This pattern of growth and change, of migration into the inner city and then, over a period of years or decades, moves to more affluent suburban surroundings has been documented for European and American cities (Ward 1971). At the same time, ethnic neighborhoods and communities exist and thrive within these cities.

Although in the past large numbers of urban migrants have been able to go through the process of increasing their social status and moving to suburban locations, black populations have not "moved through" the city in the same way. The differential migration process for white ethnic groups and blacks has contributed to a situation in which central cities of many American metropolitan areas are partitioned into black central cities and white suburbs. The explanations for these patterns are beyond the scope of this work; the reasons are complex and involve analyses of housing composition and the geographic structure of the city. Despite attempts to desegregate urban housing, the strong forces of in-migration and relocation within the city have served to perpetuate concentrated black populations.

1.7 Data for the Analysis of Migration

The final part of this introductory section will briefly review the data from the major sources (population registers, national population censuses, social surveys, and birthplace data) used in the analysis of population migration. (See Moore and Clark 1978, for a discussion of the impacts of data on migration research.)

Population registers contain the most comprehensive and detailed migration data but are really only available in a few European countries. Population registers are inventories of all persons and their present dwelling locations; the inventory is updated whenever an individual moves. Population registers are maintained only for the Scandinavian countries, the Netherlands, Japan, and some of the Eastern European countries. The direct use of the inventory, such as that in the Netherlands, is to provide detailed information on housing use and availability. Population registers, although useful for spatial and longitudinal studies, are not without problems. In practice, the data maintenance demands for population registers are acute; this is a direct result of the large numbers of individuals on the population registers. In addition, population registers are event oriented. Births, deaths, marriages, construction, and demolition are often of greater concern than the relocations of the households and individuals.

The main alternative source for large-scale migration analyses is the decennial census. Such censuses are used widely in both Western and non-Western societies. National censuses are the only other sources for migration data that cover the total population. Census data are used for estimates of net migration for counties, states, and urban places, with intervals of ten years and migration questions related to place of residence five years previous to the time of the census. Detailed year-to-year migration analyses cannot be accomplished. Questions on a decennial census of where a household or individual lived one or five years previously provide only the number of movers over a one- or five-year interval, rather than movers on a year-to-year basis. These data are a cross-sectional analysis of what is a dynamic phenomenon.

The third method for collecting migration data are surveys specifically geared to sample populations and that include questions on the movement history of households. One group of these surveys are national, multipurpose, large-scale, and include questions on retrospective migration, such as those conducted by the U.S. Bureau of the Census in the Current Population Survey, or the Census Bureau's Annual Housing Survey, or in the General Household Survey in Great Britain. These surveys are run on a yearly, biannual, or triannual basis and have specific questions on the duration of residence, frequency and distance of moves, and related sociodemographic information on the household, and characteristics of the housing units. A second set of social surveys consists of panel studies (that is, a study that is conducted on a year-to-year basis) of small samples of households. Although these studies are often developed for specific purposes, the income dynamics panel of the Michigan Survey Center is a rich source of longitudinal migration data. Unfortunately, panel studies are likely to have a relatively small sample size and will not allow an analysis at a fine geographic level.

Finally, there is a large number of what we will call ad hoc migration studies that are restricted in geographic area, sample size, and substantive interest. In many cases these studies involve questions of retrospective mobility behavior; that is, mobility behavior that has occurred in some past time period. Although there are problems of recall and rationalization, a great deal of detailed information has emerged from these ad hoc surveys. They, of course, are the basis for much of the work conducted in residential mobility.

1.8 Conclusion

This introductory section has laid out the basic definitions, geographic components, and data sources that are used in migration studies. The differentiation of migration at local, regional, and international scales has been outlined, and the importance of the contextual nature of migration and its setting within a larger social background has been stressed. It is important to recall that migration occurs within a social context, and as each of the following sections unfolds there will be a special emphasis to relate mobility to housing markets in the case of residential mobility, to labor markets in the case of migration for jobs, and to changing political contexts in the case of refugees and international labor markets. Although there will be an emphasis on the spatial patterns and spatial outcomes of migration in the monograph, the research from sociologists, economists, geographers, and demographers will be integrated in the discussion. My aim is to provide a succinct introduction to the study of migration and its links to the wider urban and social structure.

2 Residential Mobility

2.1 Introduction

“For sale” signs prominently displayed on front lawns or notices of apartment vacancies propped up in apartment windows are visual indications of the underlying population shifts that occur every day in urban areas. In some cities these visual signs are restricted or even absent, but in these cases the seemingly solid structure of residential areas belies the underlying population relocations that occur on a day-to-day basis. Many of the relocations associated with these signs are moves within the same community. Short-distance intracommunity moves take place within one city, usually within one part of the city; they do not break the web of contacts, daily services, and social links that individuals build up from being residents in a particular community. At first thought, short-distance moves might be expected to have little impact on residential structure; one household is merely replacing another, according to the particular needs of the household. However, as Rossi (1955) so clearly pointed out in his seminal study, it is the shifts of the households who move short distances that produce a large part of the change and flux of population structures and subsequently change the associated residential areas. It is the cumulation of individual movements that eventually establishes the density and composition of the population, and even the land use and the associated commuting and traffic flows.

It is quite clear that increasing the population density in one area and *decreasing* it in another, or shifting population composition from a large number of school-age children to one with essentially elderly people, have important consequences to both the areas that are so affected and the resulting traffic flow. In seeking to understand the nature and importance of residential mobility (intraurban migration), it is useful to begin with a discussion of the observed behavior of households that relocate within the city. This discussion will be followed by an explanation of the observed residential relocation and mobility process within cities.

2.2 Observed Behavior of Movers Within the City

2.2.1 Mobility Rates

Rates of residential mobility are not constant across nations and may not be constant over time. The population of United States is much more mobile than those of other countries. The percentage of the population moving locally (within U.S. metropolitan areas) is between 11 and 14 percent (depending on the size of the urban area) but only 6.2 percent for the largest seven urban areas in Great Britain and 9.4 percent for the largest metropolitan areas in Japan (Long and Boertlein 1978). Researchers also provide some tentative evidence that rates of mobility in the United States may be declining. Although there is little hard evidence, Long and Boertlein report that Boston’s 1970 intracity rate was only one-third that of the 1890 rate, and the commonly accepted 20 percent of the United States population moving each year has dropped to 17 or 18 percent moving each year.

2.2.2 Distance-Biased Moves

Perhaps the most frequently reiterated finding of studies of residential mobility is the short average distance of most moves. Many moves are of only a few blocks: even across the street to a house or an apartment building nearby. These short distance moves within the city fit well with the general notion of distance as a constraint on mobility. One of the earliest observations by Ravenstein in 1885 that has been verified again and again by numerous other researchers is the predominance of short-distance moves as well as of directional biases in these moves. As we will discover later, regional migration as well as short-distance migration is constrained and there are more short-distance than long-distance moves. This pattern of mobility seems to be true within cities, across regions, and generally within varying levels of economic development. The emphasis of the relationship between migration and distance is one of geography’s important contributions in the analysis of migration (Haynes and Fotheringham 1984).

Distance has always been viewed as a barrier or as a friction to movement, and we would expect that the probability of moving between two places would decrease as the distance increased. A diagram that shows

the pattern of origins and destinations is seemingly a random pattern of lines (Figure 2.1a). However, it is possible to assume a common origin and plot the moves as a set of vectors (Figure 2.1b).



Figure 2.1a A Sample of Household Moves in the San Fernando Valley of Los Angeles.

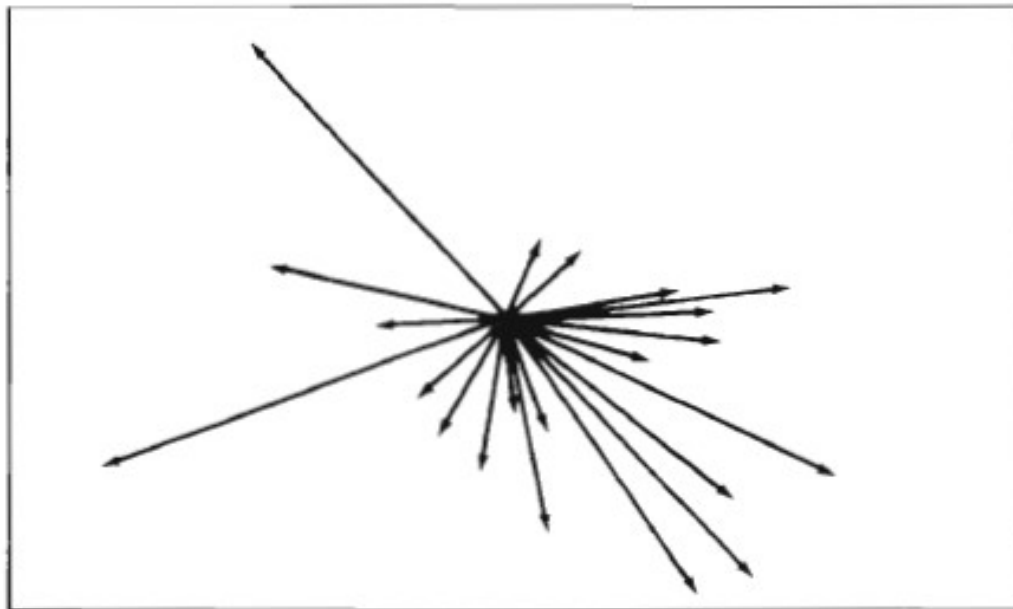


Figure 2.1b Samples of Moves from Figure 2.1a Platted with Common (Hypothesized) Origin

Two methods are available for assessing the relationship between the number of moves and distance. The simplest method is simply to sum the percentages of the population moving particular distances. The frequency distributions, shown in Table 2.1, indicate a large proportion of the population moving short distances. Clearly, the size of the city has some effect on the probability of moving certain distances; if the

city is only five miles across, you would not expect many movements of that distance. However, even in cities that are very large there are few long-distance movements. The comparable data from New Zealand and North America confirm that these patterns of movements are quite stable. It is interesting to note that these movements can also be examined for various compositions of the population, but only the breakdown by race in North America has proved particularly interesting. The data show black households move much shorter distances than white households (Table 2.1).

TABLE 2.1
Intraurban Migration Distances

<i>distance moved</i>	<i>Omaha, Nebraska (1978)</i>				<i>Christchurch, New Zealand (1969)</i>	
	<i># of white movers</i>	<i>% of white movers</i>	<i># of black movers</i>	<i>% of black movers</i>	<i># of movers</i>	<i>% of movers</i>
0.0-0.5	15	10.3	24	15.9	47	11.9
0.5-1.0	12	8.3	30	19.9	54	13.7
1.0-1.5	13	9.0	33	21.9	47	11.9
1.5-2.0	23	15.9	23	15.2	53	13.5
2.0-2.5	16	11.0	11	7.3	32	8.1
2.5-3.0	10	6.9	5	3.3	36	9.1
3.0-3.5	11	7.6	10	6.6	33	8.3
3.5-4.0	6	4.1	4	2.6	21	5.3
4.0-4.5	8	5.5	1	0.7	18	4.6
4.5-5.0	3	2.1	1	0.7	9	2.3
5.0-5.5	8	5.5	2	1.3	13	3.3
5.5-6.0	2	1.4	4	2.6	9	2.3
6.0-6.5	3	2.1	0	0.0	4	1.0
6.5-7.0	2	1.4	1	0.7	6	1.5
7.0-7.5	3	2.1	2	1.3	2	0.5
7.5-8.0	3	2.1	0	0.0	3	0.8
8.0-8.5	2	1.4	0	0.0	2	0.5
8.5-9.0	1	0.7	0	0.0	2	0.5
9.0-9.5	1	0.7	0	0.0	2	0.5
9.5-10.0	1	0.7	0	0.0	0	0.0
10.0-10.5	1	0.7	0	0.0	1	0.2
10.5-11.0	1	0.7	0	0.0	0	0.0
	145		151		394	

Given the data in Table 2.1, it is possible to examine the extent to which some simple equations can be fitted to this data. To carry out this analysis requires two additional steps. Although the frequency distribution tells us the percentage of the migrants moving from 0 to 0.5 miles, 0.5 to 1 miles, 1.0 to 1.5 miles, and so on, the mobility behavior is not standardized by the number of alternatives. It is clear that there are more opportunities at greater distances from the migrants' origin; therefore, the longer the move distance, the greater the opportunities are for that particular household. Thus, to analyze frequency of moves by distance for a population, it is common to standardize the variation in opportunities by computing the area available to a mover of a specified distance. Consider moves grouped by 0.5-mile (or kilometer) intervals. For each of these distances it is possible to compute the area of the band. The area of each band is computed simply by calculating the area within the initial circle, then the area within the larger circle, and taking the smaller from the larger. The number of households or persons moving that distance is divided by the band area, giving an adjusted frequency of move. The areas of the bands for the example from the movements of white households in Omaha are given in Table 2.2. Using these standardized movements by distance, it is possible to plot migration against distance (Figure 2.2). The relative frequency (or as it is sometimes called, "the interaction

level”) is plotted on the vertical axis and the distance on the horizontal axis. It is immediately clear that the relationship is not linear but is highly negatively skewed. The shorter distance moves predominate. Although several different equations can be fitted to this data, the most common is that of the exponential,

$$y = aD^{-b}$$

or in logarithmic form

$$\log y = \log a - b \log D$$

where y = frequency of moves, and
 D = distance
 a and b are parameters to be estimated statistically.

The equation for this data illustrated in [Figure 2.2](#) is

$$y = 5.9D^{-2.05}$$

or in logarithmic form:

$$\log y = .7709 - 2.05 \log D$$

TABLE 2.2
Adjusted Migration by Area for Omaha, Nebraska

<i>distance in miles</i>	<i>no migrating</i>		<i>white movers</i>
	<i>households</i>	<i>ring area</i>	<i>per square mile</i>
0.0-0.5	15	.79	18.99
0.5-1.0	12	2.35	5.12
1.0-1.5	13	3.93	3.31
1.5-2.0	23	5.50	4.18
2.0-2.5	16	7.06	2.27
2.5-3.0	10	8.64	1.12
3.0-3.5	11	10.21	1.08
3.5-4.0	6	11.78	.51
4.0-4.5	8	13.36	.60
4.5-5.0	3	14.91	.20
5.0-5.5	8	16.50	.24
5.5-6.0	2	18.07	.11
6.0-6.5	3	19.63	.15
6.5-7.0	2	21.21	.09
7.0-7.5	3	22.77	.13
7.5-8.0	3	24.35	.12
8.0-8.5	2	25.92	.07
8.5-9.0	1	27.49	.04
9.0-9.5	1	29.06	.03
9.5-10.0	1	30.63	.03
10.0-10.5	1	32.20	.03
10.5-11.0	1	33.77	.03

The correlation coefficient of association between migration and distance is greater than 0.9. In deciding which particular value of distance to use, the midpoint of each band is often utilized, but using the midpoint of the most central cell tends to overemphasize the fit for short-distance moves. Some have suggested using the point that divides the area in half (approximately 0.35) rather than the midpoint of distance. In any event, these decisions modify the level of fit but do not change the overall relationship, which is clearly established for migration within cities. For those interested in pursuing this topic at a more advanced level of statistics, Taylor (1971) has evaluated a number of different models for fitting the migration distance function, and Morrill and Pitts (1967) have also illustrated this at a regional level. However, even using

simple descriptive statistics one can, in a visual sense, evaluate the steepness of the plot of the frequency curves and thereby describe the *extent* to which short-distance moves predominate for differing groups.

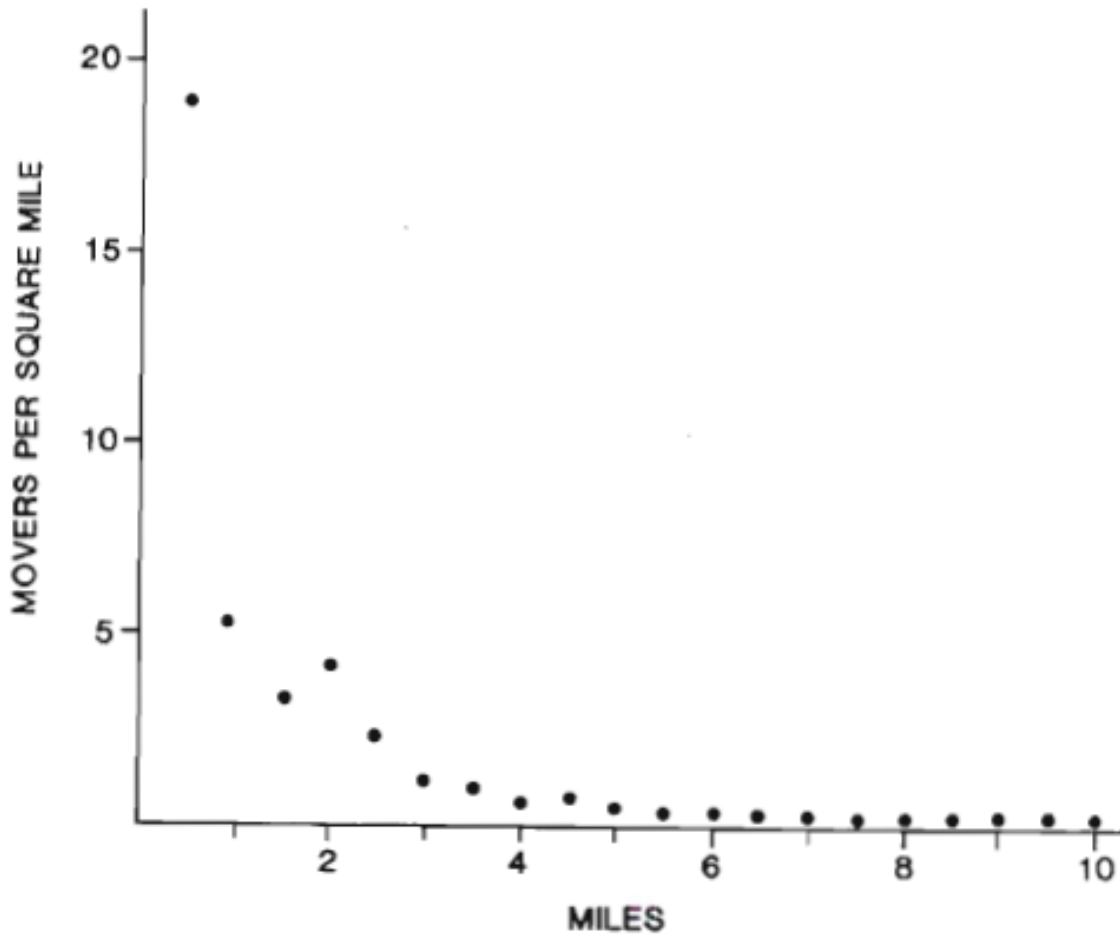


Figure 2.2 White Movers Per Square Mile Against Distance

2.2.3 Directional Bias

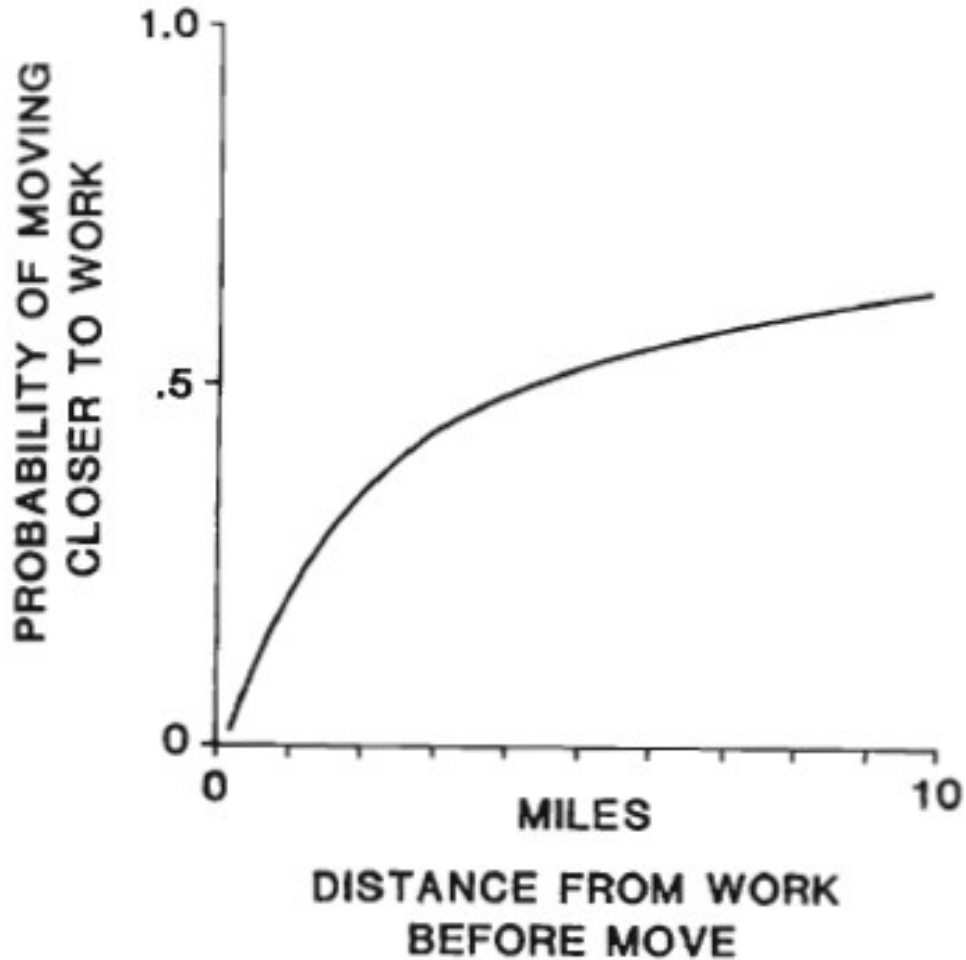
Migration involves not only distance but also directionality. Migration within the city reflects a general movement away from the center of the city, or toward particular socioeconomic or aesthetic valued areas of the city. Attempts to identify directionality in the city have generally focused either on the suburban-ward movement of the population or on moves in relationship to the downtown workplace. There is substantial evidence that the greatest proportion of individual moves tend to be away from the central city; this will be discussed as part of the suburbanization process.

One of the early suggestions of a directional bias in intraurban migration was made by Adams (1969). He noted that the downtown orientation of workplaces of many individuals contributed to people developing a sectorally biased perception of the city; individuals are more aware of the local area and of the paths between that area and the central city than the city as a whole. Adams supported this theory with evidence on directionality in movement in Minneapolis; relocation movement was generally toward the center of the city and away from the center of the city, rather than laterally outside of the sector. Further supporting evidence for the sectoral theory of movement has been provided by Clark (1972). The weight of the empirical literature is that the direction of movement is not random.

The role of the workplace as an influence on relocation behavior has received the greatest attention. The workplace contributes to movement having both distance- and direction-biased characteristics. There is some

evidence that as the distance from workplace increases, any move by a household is likely to reduce that distance rather than to increase it. That is, given that a household has decided to relocate, there is evidence that the journey to work is an important constraint on that relocation (Clark and Burt 1980).

There is a marked tendency to move closer to workplaces as separation between home and workplace increases (Figure 2.3). The support for distance bias per se is not as strong as the general notion of an upper limit on the distance people are willing to move. Nevertheless, they are an important element in understanding the observed behavior of households, and of fitting that observed behavior into the larger context of the urban structure.



SOURCE: Clark and Burt(1980, p.66). Reprinted by permission of the Association of American Geographers.

Figure 2.3 Probability of Moving Closer to Workplace (Given a Move) with Increasing Distance Between Home and Workplace

2.2.4 Suburban Bias

The third explicitly spatial element of the observed behavior of intraurban migration is that connected with the basic outflow from the centers of cities to suburban areas.

If we examine the mean directions of aggregates of moves for a number of cells in a metropolitan area, we find that there is a tendency for the moves to be biased away from the downtown. In the example of Milwaukee for moves in the 1950s and early 1960s, the mean vectors for all cells (except for some on the edge of the

metropolitan area) are pointed away from the center of the city (Figure 2.4). The vector mean is calculated

$$V_{\bar{X}} = \arctan \frac{\sum_{i=1}^n \sin X_i}{\sum_{i=1}^n \cos X_i}$$

where

n = total number of moves;

X_i = angle of move.

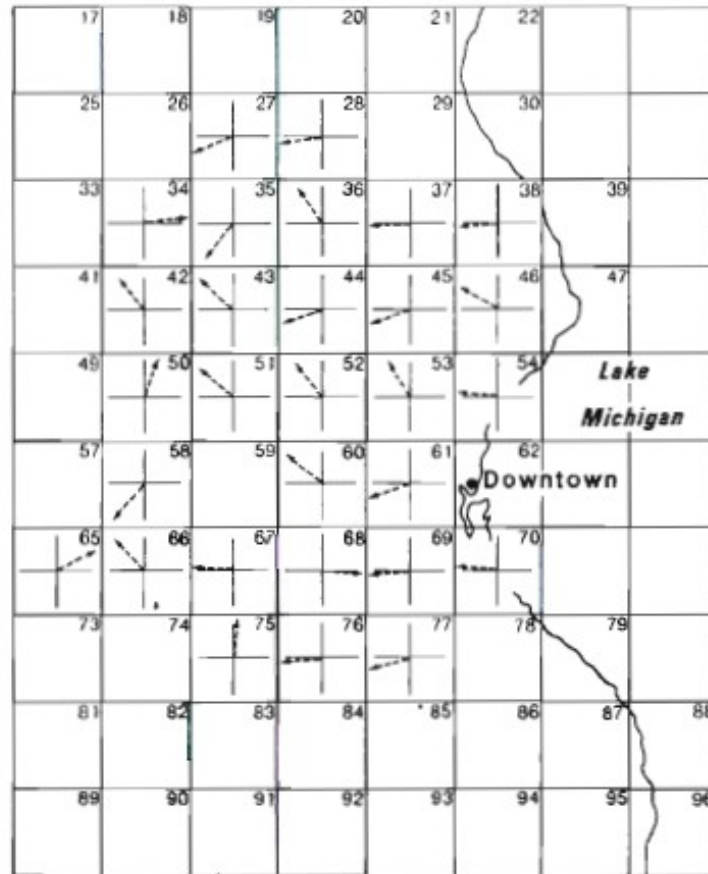


Figure 2.4 Mean Directions of Moves (1950-1963) for Subareas of Milwaukee

As an aside, it is important to note that the arithmetic mean of the angles of direction does not correctly measure the average direction of a set of moves (Gaile and Burt n.d.). The combination of short-distance and directionally outward moves is a partial explanation of the spatial process of suburbanization that has occurred, not just in the United States, but in Western Europe, Canada, Australia, and New Zealand. In addition, there has been a general trend for jobs to decentralize, thus providing employment opportunities further from the CBD and freeing households from their dependence on jobs in the downtown area.

Although there has been considerable interest in the possibility of return migration to the central city, usually associated with gentrification or housing renovation (Laska and Spain 1980), the actual numbers of households moving back to the city are small in comparison with the substantial and continuing flows to the suburbs.

The result of the long-term flow to the suburbs is a suburban population increase of ten times over the last eighty years (Figure 2.5). Although the central city has continued to grow, the suburban areas have captured most of the growth. The city at the turn of the century was centralized and focused, whereas the metropolitan area of the 1980s is diffused and suburbanized. Naturally, this distinction will depend somewhat on the definitions used, but the outward moves of households in the city and suburban selections by households

moving into the city have transformed urban society in Europe and North America. These explicitly spatial elements define the structure of intraurban migration, and if we add to this the demographics of section 1 (that young households and renters move more often), we have some understanding of who moves and where they move. We are now in a position to examine why people move.

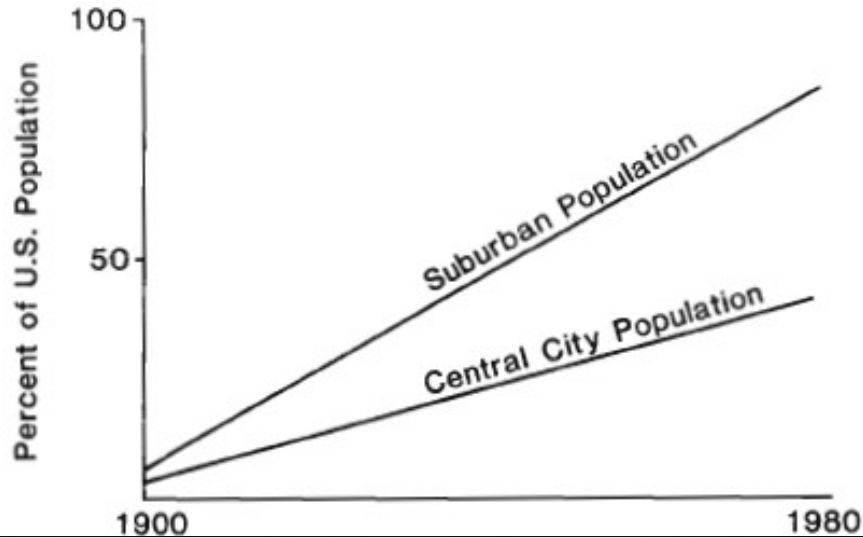


Figure 2.5 Relative Changes in Central City and Suburban Population in the Twentieth Century

2.3 Explanations of Residential Relocation

The initial attempts to explain why households move within the city utilized a variety of surveys, including Rossi's 1955 study of household mobility, in which questions on why families move were the central theme of the analysis. A succession of survey studies, including those by Butler et al. (1969), Clark (1970), Goodman (1978), and Spain (1979), using a variety of classification schemes, offered confirmatory evidence that most intraurban moves were associated with the process of aging. That is, the transition through life stages from young single to older married household necessitates a number of residential relocations. Rossi and others observed that this process is closely linked to changing housing needs. Rossi's major contribution, with extensions by Brown and Moore (1970) and Speare et al. (1975), was to argue that a household progresses through typical stages of the life cycle, and that demographic changes associated with this progression produce a mismatch between housing needs and current housing. Household movement is an attempt to adjust these mismatches.

2.3.1 Conceptualizing the Mobility Process

There seems to be general agreement that factors related to life cycle stages and critical changes in the life cycle account for a large number of the moves that individuals and households undergo during their lifetimes. A simple scale of age and possible moves can be used to show that for the first 15 to 18 years of an individual's life, he or she is probably a "tied" mover-moving with the household in its relocation behaviors (Figure 2.6). Beyond that point, the individual begins a number of moves that are related initially to decisions to leave home and take a job or to attend college. During these first few years, several relocations are generated as individuals seek one or more compatible residences. This is followed by either marriage or some living arrangement that necessitates a move, possibly related to space, but certainly a move by one or more of the partners into a different unit. The addition of children may create additional moves, again largely related to a need for greater amounts of space-this at a point in the middle years between 25 and 45, and may be followed by one or more moves related both to changes of tenure and to increasing status (that is, to more expensive housing). This will be followed by a long period of relative stability (or instability created by divorce and death and resultant moves).

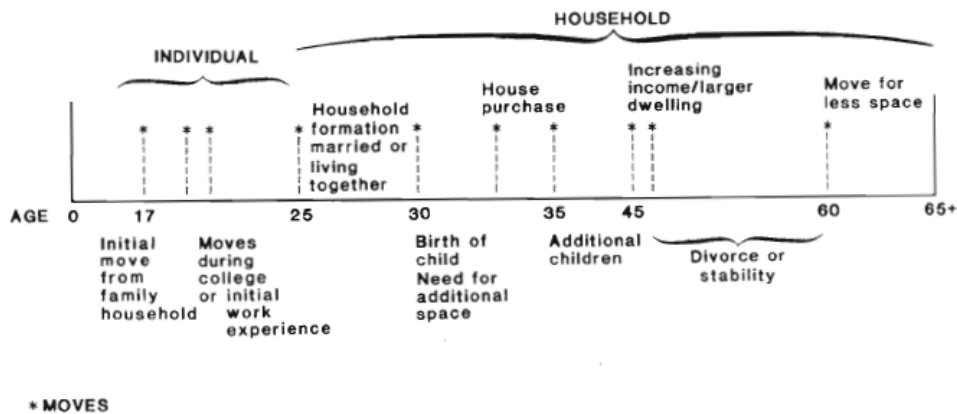
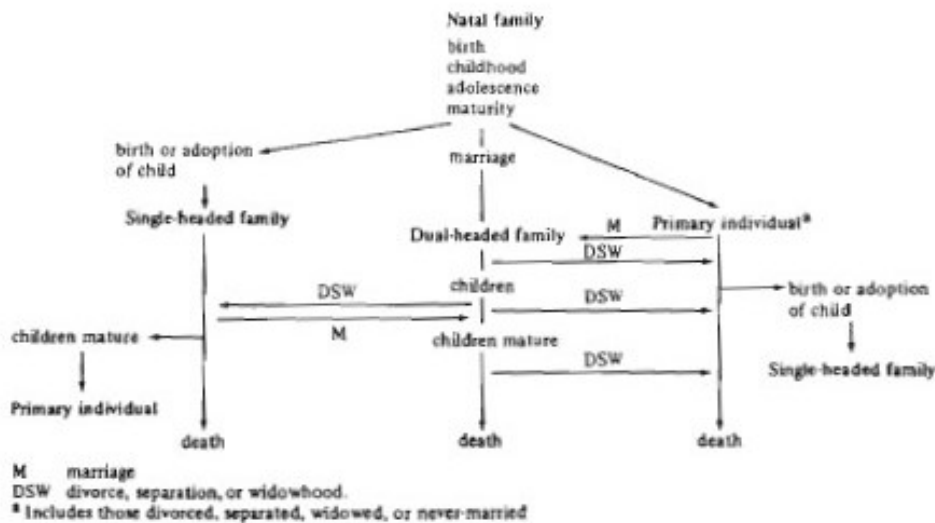


Figure 2.6 A Life Cycle Perspective on Mobility

The later periods, after the ages of 50 or 60, with reductions in family size, create the pattern opposite to that we had during family expansion. The children leaving the nest generate a downsizing of the space required, and so one or more moves are related to the need for less space. Finally, the deterioration of health may require some form of care and a move to a communal facility. This explanation of the aging of the family and the associated compositional changes of the family structure over time is a useful device for understanding how many moves arise simply from the normal life-cycle transitions. However, in the mid-1980s this standardized life-cycle view is somewhat less relevant. There is a greater instability in household structures (and, consequently, increased moves) both from divorce and from the recombinations of stepchildren within households. Thus, the modified diagram from Stapleton (1980) is an important recognition that although moves are still being generated by the changing life cycle, these changes are more complex than those suggested by the classic life-cycle approach (Figure 2.7). Although I recognize that the life cycle is an important generator of moves, and perhaps the critical element of understanding the mobility process, the life cycle alone is not a sufficient explanation of mobility decision making. It is true that households move to adjust housing needs, and that housing needs are strongly conditioned by stages of the family life cycle, but we need to recognize that moves occur without changes in the family life cycle. That is, housing dissatisfaction is not always generated by life-cycle changes.



SOURCE: Stapleton (1980, p. 1109) Reformulation of the family life cycle concept. Environment and Planning A 12. Reprinted by permission.

Figure 2.7 An Expanded Life-Cycle Model

Indeed, Quigley and Weinberg (1977), among others, focus exclusively on housing dissatisfaction and incorporate demographic variables only in determining the optimum or desired level of housing expenditure. The empirical results reported by Speare et al. (1975, pp. 207-231) indicate, however, that demographic or life-cycle variables are the primary determinants of subjectively reported levels of dissatisfaction and are significantly correlated with observed mobility behavior even when controlling housing dissatisfaction. Thus, we come back to the generating force of life-cycle changes.

The contrast between housing dissatisfaction and life cycle as immediate motives for residential relocation is reflected in the responses to surveys of reasons for moving. Some households report, for example, that lack of living space in the initial residence was the primary motivation, whereas others state that an increase in household size necessitated the move. Although it is clear that an increase in household size will reduce space per person, it would be misleading to assume that this reduction is in fact the motive for relocation. A change in household size may equally affect its requirements for a larger lot size or for a dwelling unit of specific tenure, or some combination of these factors may motivate a move. For a meaningful comparison of surveys of reasons for moving, therefore, it is necessary to differentiate moves with reasons that are related directly to housing adjustment (which we will call adjustment moves) from those with reasons that are ascribed to events or decisions affecting family circumstances outside housing considerations (induced moves).

There is a further motivation for separating reasons of adjustment from those of inducement. It is possible that the two types of reasons reflect varying lags in adjustment to changes in housing needs. Changes in family circumstances are stimuli that produce a mismatch between housing needs and current residence. If a household has moved quickly in response to a stimulus, the question, "Why did you move?" may reveal that stimulus. If, however, some time has elapsed between the occurrence of a stimulus and the move in response to it, the household may reply with the actual adjustment that was negotiated. Thus, reasons that we can classify as induced moves are likely to reflect significant and recent changes in housing needs, whereas adjustment reasons indicate long-standing, unmet housing needs or needs with sources that are not readily identifiable. If this is the case, comparison of the two types of reasons should indicate the importance of recent stimuli relative to prior housing dissatisfaction in the relocation decision.

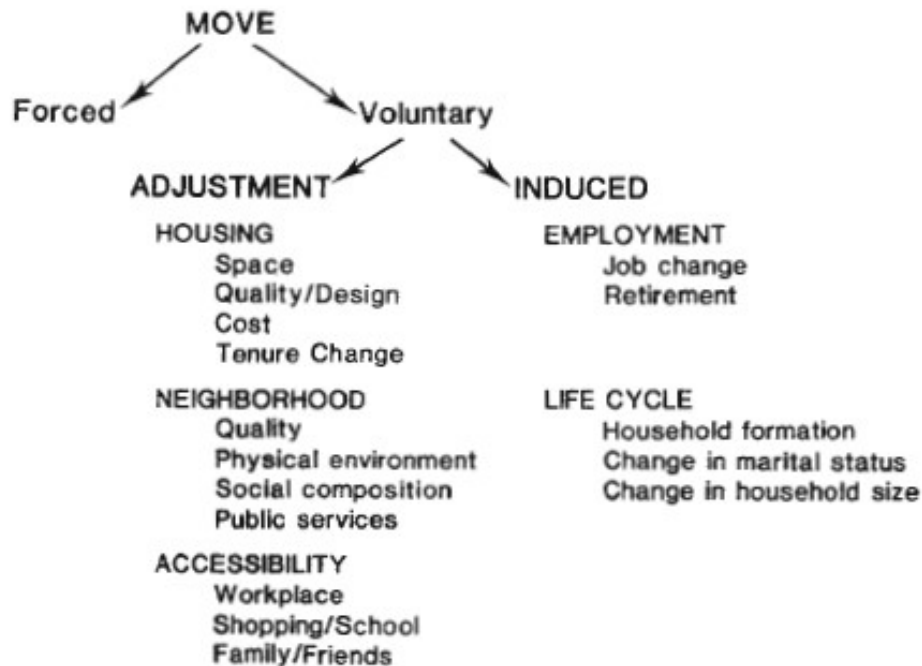
The distinction between adjustment and induced moves has been noted by others. Butler et al. (1969) separated the decision to adjust some aspect of one's residence from decisions to establish one's own household, to marry, or to change jobs. Butler and others regarded the former as *reversible* decisions. That is, attempts to acquire more space, to change tenure, or to change neighborhoods (adjustment moves) are decisions that are weighed against the existing supply of housing. The decision to move can be easily reversed when a search through the market does not yield desirable alternatives. However, although decisions to substantially alter family circumstances, such that a relocation is clearly implied as a consequence, may be influenced by market conditions, they are likely to be based in the final analysis on nonhousing considerations. Similarly, Goodman (1978) identified byproduct or derived moves, which naturally follow decisions affecting family circumstances, principally those related to household formation and dissolution.

In practice, not all moves are made voluntarily. Involuntary or forced moves are necessitated by events totally beyond the control of the household. Eviction by public or private action and destruction of the housing unit are the primary causes of involuntary moves. These three broad groups are the basis for a detailed classification (Figure 2.8).

2.4 A Classification of Reasons for Moves¹

Because adjustment moves are intended to alter the type and quantity of housing consumption, it is natural to classify the reasons for such moves by the generally accepted components of the bundle of housing services. There are three categories of such components: housing unit characteristics, neighborhood characteristics, and accessibility. Among housing unit characteristics, space is often the dominant factor in the decision to move. Quality or design aspects of the house include construction quality, style, and layout. Cost considerations include direct housing costs, costs of maintenance, and indirect costs such as taxes. Change in tenure by definition describes the movement of households from rental to owned units, or vice versa.

¹This section draws by permission from Clark and Onaka (1983)



SOURCE: Clark and Onaka (1983) Life cycle and housing adjustment as explanations of residential mobility. *Urban Studies* 20. Reprinted by permission.

Figure 2.8 Reasons for Household Relocation

In contrast to dwelling unit characteristics, there is less agreement on the components of neighborhood characteristics. It would appear that “neighborhood quality” is a summary index of neighborhood characteristics, but surveys that include neighborhood quality do so in addition to other components of neighborhood characteristics (Leven et al. 1976; Annual Housing Surveys, quoted in Spain 1979). Specific components of neighborhood characteristics include the physical environment (privacy, noise, climate, etc.), social and racial composition, and quality of public services, including schools. Accessibility is clearly a component of neighborhood characteristics, but it is listed separately because accessibility to workplace and to relatives and friends, which are some of the concerns expressed by moving households, are specific to individual households rather than to the neighborhood per se.

It is natural to classify induced moves according to categories of household characteristics that undergo change, since, by assumption, such moves are precipitated by changes in family circumstances. Among economic characteristics, changes in employment status or location can often lead to household relocation. Presumably, major changes in income could also lead to residential moves, although such changes may be byproducts of changes in employment. Among demographic characteristics, new household formation, change in marital status, and change in household size are most frequently mentioned. Temporary moves are also included among induced moves. For example, a household that has recently migrated from a different region may have temporarily selected a residence in anticipation of moving to a more permanent residence in the near future.

It is not always possible to make a definitive distinction between induced and adjustment moves. Among the many decisions that affect family circumstances, there are varying degrees of inducement to change residences as a complementary act. Inducement is strongest when new households are formed or when existing households are dissolved through merger with other households. Change in employment location such that the new commuting distance far exceeds what is customary will likely lead to relocation. Alternatively, some

changes in employment or family circumstances do not necessitate immediate relocation, although they may alter a family's housing needs. For example, a local change in employment in which commuting distance is not a critical issue, a marriage in which no independent household is dissolved as a result, a change in household size, or a moderate change in household income do not necessitate immediate relocation.

The empirical results that are reproduced here (Table 2.3) from a set of studies are consistent in the information they provide, although all of the studies reflect the particular biases and approaches taken by the individual investigators. The results in every case show that moves related to adjustment in the housing market are the major category of reasons expressed for moving, and those related to employment and life-cycle change are of lesser importance. Within those moves that we have identified as adjustment moves, moves related to housing needs make up the greatest proportion of the reasons. Where there is a detailed breakdown of housing characteristics, space and tenure change and cost are the largest components. Accessibility in general is not a major reason for movement, although it is clearly a part of the explanation for residential relocation.

TABLE 2.3
Reasons for Moving

<i>Reason for moving</i>	<i>Christchurch</i>	<i>Rhode</i>	<i>Brown</i>		
	<i>NZ</i>	<i>Island</i>	<i>Co.</i>	<i>U.S.</i>	<i>U.S.</i>
Adjustment Moves	56.5	50.9	63.9	54.0	52.1
Housing char.	29.0	45.0	49.6	45.0	41.1
space	18.8	13.6	23.6	15.0	12.8
quality design	–	9.4		12.0	10.6
cost	8.9	4.7	6.5	7.0	7.1
tenure changes	1.3	17.3	19.5	11.0	10.6
Neighborhood char.	16.6	5.9	9.6	5.0	6.9
neighborhood qual.	–	–	–	–	4.9
physical environ.	16.6	–	–	–	0.7
social composition	–	–	–	–	0.7
public services	–	–	–	–	0.6
Accessibility	9.3	–	4.7	4.0	4.1
workplace	6.7	–	–	4.0	3.2
shopping, school	1.3	–	–	–	–
family and friends	1.3	–	–	–	0.9
other	1.6	–	–	–	–
Induced Moves	25.6	34.5	26.8	21.0	30.2
Employment	–	4.4	–	–	4.4
Life-cycle change	14.4	30.1	–	21.0	25.9
household formation (split)	–	–	–	9.0	10.9
change in marital status	–	26.1	–	12.0	11.1
change in household size	–	–	–	–	1.2
other	–	4.0	–	–	2.7
Other	11.2	–	–	–	–
Forced Moves	12.5	10.5	9.3	5.0	5.2
Other Moves	5.5	4.1	–	12.6	3.7
Total	100.0	100.0	100.0	100.0	100.1

SOURCE: Adapted by permission from Clark and Onaka (1983).

NOTE: Data were gathered from the following sources: for Christchurch, NZ, Clark (1970); for Rhode Island, Spears et al. (1975); for Brown Co., McCarthy (1976); for the United States, Goodman (1978) and Spain (1979). Sample sizes were as follows: Christchurch, NZ, 313; Rhode Island, 2140; Brown Co., 2039; United States, 22,564. Move intervals were one year for all studies, except for Brown Co., which was five years.

Within the category of induced moves, most of the explanation is related to the life cycle, including household formation, change in marital status, and change in household size. There is considerable variation in the contribution of the life-cycle explanation, but it appears to be in the range of 15 to 30 percent of all of the reasons for moving. Forced moves average from 5 to 10 percent of the reasons for moving. In summary, adjustment of the housing unit characteristics shows up as the largest category of expressed reasons for relocation within the city. Changes in the life cycle and adjustment in neighborhood characteristics are the next most important reasons.

2.4.1 Explanations of Destination Selection

The life cycle-housing adjustment classification is useful in understanding the stimuli to moves but does not tell us a great deal about the reasons for particular residential selections. To get some understanding of why particular neighborhoods are chosen and the role of the neighborhood in that selection process, it is useful to introduce the notions of information and perception. Much of the information that people have of the city is limited by their area of familiarity. This perception space creates an area of familiarity and security and the information and the contacts for this limited area provide a structure within which much of their behavior occurs. The familiarity and know edge of a local area is an important force in generating mobility behavior within particular sections of the city.

The preceding comments are an explanation of the so-called neighborhood effect that we are familiar with areas that are closest to our present residences and this familiarity gives us a feeling of security for moves within that localized area (Gould and White 1974). To move outside of that requires additional increments of information. In addition, we note that income is a constraint on the houses and/or apartments that individuals can buy or rent. There is a high correlation between the economic status of the tract presently occupied and the economic status of the tract to which the household moves (Goldstein 1958; Clark 1976). Thus, income, expressed in either house value or rent, is a major constraint on the mobility behavior of households. Even though some households are moving up or down the socioeconomic scale, with consequent adjustments in housing and neighborhoods, the greatest probability is to move between similar economic areas.

This analysis of reasons for selection raises two important issues that are worth a brief evaluation. First, it emphasizes the distinction between what has sometimes been called the push-and-pull reasons for residential relocation and the reasons for leaving one location and choosing another destination. Second, it raises the issue of the role of accessibility in residential choice.

2.5 Push-Pull and Accessibility Explanations

In earlier studies of both migration and mobility there was much discussion of the relative importance of variables that push someone to leave an area and variables that attract someone to move to a particular area. It is also possible that there are attractions to remain and pushes to leave, but most of the literature that focused on push-pull factors emphasized the push from origins and the pull toward destinations. This push-pull discussion reiterates the distinction in the reasons for moving between those reasons that are specifically related to leaving an origin, a dwelling, or a neighborhood and those that are related to the selection of a destination. The decision to move and the selection of a destination are clearly interdependent and it may well be that the decisions occur in a hierarchical fashion with each decision having a different underlying explanation.

It is the distinction between the reason for leaving a dwelling and the reason for destination selection that is most useful in evaluating and understanding the debate about accessibility as a reason for moving. On one hand, theoretical analysis of the relationships between residence and workplace has emphasized the influence of transportation costs on urban structure, especially for mononodal (single-centered) cities. Residential location can be described as the result of a trade-off between an individual household's desire to be close to its place of work on one hand, and to have sufficient residential space and amenities on the other. Given that the cost of the journey to work increases with increasing distances, there is a tendency for the household to want to keep that cost within reason, and the price that a household will pay for residential space will be some function of its distance from the workplace. This approach to household location has been developed and

elaborated on by Wingo (1961), Alonso (1964), Kain (1975), and Thrall (1980); the focus of this literature is not on relocation per se but, rather, on location within the urban structure as a whole.

On the other hand, the empirical analyses of the reasons for movement, especially those studies referred to in [Table 2.3](#), indicate that accessibility represents only a small proportion of all the reasons for relocation behavior. Even though the survey literature is not unanimous, the results of surveys by Butler et al. (1969), Lansing and Mueller (1967), and others suggest that the journey to work is not a significant factor in intraurban residential relocation decision making.

To overcome the conflicting explanations, geographers have introduced the notion of an indifference zone—a region around workplaces within which distance does not act as a constraint on residential location choice. Getis (1970) identified the so-called critical isochrone (an isochrone is a line of equal accessibility) within which households do not consider the distance to workplace as an important variable in the decision-making process. Beyond that critical isochrone, households are specifically concerned with the impact of distance on their residential relocation behavior. We can view this as a discontinuity in which distance is unimportant to a certain level and then becomes increasingly important.

2.6 Modeling the Mobility Process

Most of the attempts to conceptualize the residential mobility process and to provide a model of that structure have revolved around attempts to relate the notions of dissatisfaction to the probability of moving. Wolpert (1965) and Brown and Moore (1970) attempted to utilize the notions of stress as an important component of understanding how mobility is generated, and then the notions of place utility or the usefulness of different places as an explanation for the likelihood of households moving to different locations. The diagram that Brown and Moore initially used and that has been repeated in many modified forms is still a useful way of understanding the overall notions that we are discussing. This diagram ([Figure 2.9](#)) suggests that individuals are balancing their needs and expectations within the context of their dwelling, their local neighborhood, and their overall relative location in urban space. This generates a certain utility or usefulness of their present location; evaluation of this usefulness (or utility) leads to varying levels of stress (depending on the level of dissatisfaction); and the stress, in turn, leads to the decision either to remain or to seek another residence. The first phase leads to the decision to move or stay, the second evaluates that move decision in terms of specific locations and the search process that is involved. If, after examining vacancies and considering the possibilities for a new residence, the household finds that its utility is improved, then the decision is to change residence. If not, it is to remain at the present location or to revise aspirations and continue searching. This simple model of a trade-off between satisfaction and dissatisfaction with the present location and the possibility of finding a better alternative elsewhere has become a central element of examining residential relocation behavior.

It is from this simple model that several different and somewhat more sophisticated approaches have been developed by sociologists, geographers, and economists in their attempts to evaluate the level of stress and satisfaction. Although these models in their quantitative applications become quite sophisticated, in the form of simple equations they are easy to comprehend and add to our understanding of a conceptual model of the relocation process.

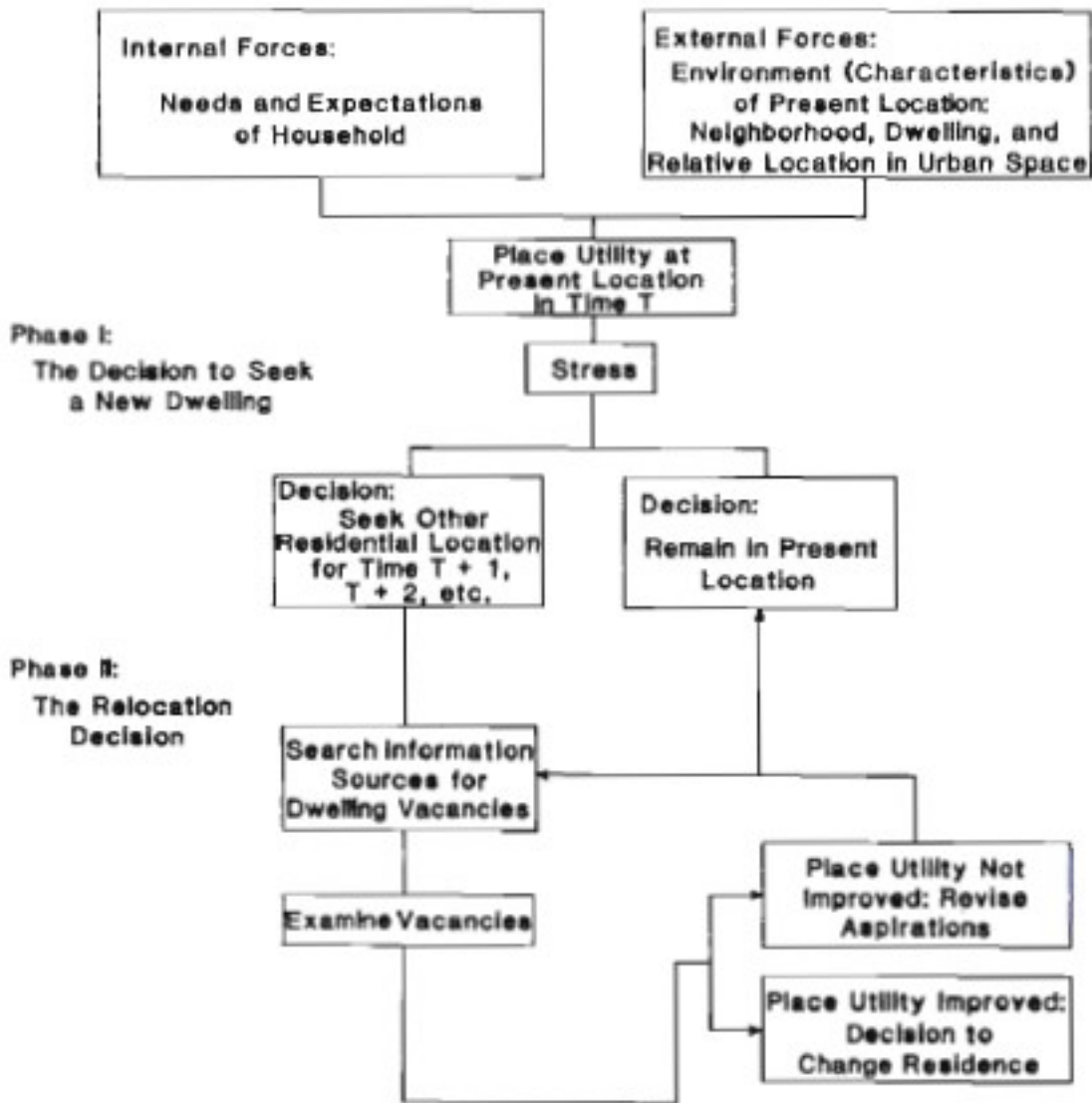
Many of these models share a common concern with the trade-off between the stress and pressure to move and the inertia or resistance to leaving a familiar location. Speare et al. (1975) expressed the probability of moving (P) as the trade-off of residential satisfaction (s') and c the cost of moving. Thus:

$$P = f(s' - c)$$

Huff and Clark (1978) viewed the probability of moving (P) as a trade-off of stress (S) and resistance (R). Thus:

$$P(t) = \begin{cases} k[S(t) - R(t)] \\ 0 \text{ if } S(t) \leq R(t) \end{cases}$$

where t is time and k a constant. No move occurs if stress is less than resistance. Similarly, Brummell (1979) viewed the probability of a move as a trade-off of aspiration place utility U_t and experienced place utility (U_t^o).



SOURCE: Adapted by permission from Brown and Moore (1970).

Figure 2.9 A Model of the Residential Location Decision Process

All of these models are variations of general benefit-cost models. A benefit-cost model of residential mobility assumes that a household will move if the expected benefits of moving outweigh the accompanying costs (Clark 1983). Future extensions of these models will be focused on problems of estimating households' utilities and stresses and costs of moving.

We now know a good deal about household relocation within the city. There are good empirical descriptions of the geographic patterns of moves and reasons for moves. The conceptual models that describe the mobility behavior of households draw upon the important notions of dissatisfaction (or stress) and the ways in which the stresses are generated and inertia or the unwillingness of households to break familiar neighborhood ties. Now the interest is more focused on the way in which the mobility behavior is interacting with the housing market, and the wider policy implications of household movement within the city.

3 Regional Migration

3.1 Introduction

After Ravenstein introduced his laws of migration in 1885, there were some sporadic investigations of regional migration, but it was not until the wide availability of census materials in the 1940s, 1950s, and 1960s that there were significant investigations of interregional migration. These first investigations were concerned with the aggregate description of interregional flows. There was less theorizing and more description than is now the case. Although demographers had long recognized the importance of migration in altering population structures within nations and across international boundaries, there were few detailed statistics available to provide analyses of these flows. Certainly, there was some information on the broad nature of the flows from Europe to North America and within Europe, but these international migrations were largely those of individuals who made a one-time move from one country to another.

Beginning with the 1940s and with the wider availability of statistics from the census, from the Survey of Current Population, from migration registers in Europe, and from the specific questions on migration in the United States, there was a greater interest in the aggregate flows of population. These aggregate flows have been analyzed in several different ways, including gravity models of aggregate flows; explanatory regression models with multiple independent variables; and, more recently, accounting and matrix interpretations of the aggregate flows.

This section examines first the general nature of gross migration flows, then the accounting and gravity interpretations of those flows, followed by a more detailed discussion of the explanations of flows via variables that measure employment and amenities. The section concludes with an examination of human capital explanations of migration.

3.2 Gross Migration Flows-Interregional Migration

The most basic investigation of migration at a descriptive level has been the enumeration of gross migration flows between sets of regions or sets of urban areas. These analyses have focused on the exchange of population, either the gross flows or the net migration. In any event, when applied to a particular geographical unit (country, state, or region) they give a good idea of the directionality of flows, the rates of movement, and the expected changes in population composition at the destination sites. These approaches are especially useful when they are taken over time so that it is possible to look at the shifts or changes in population flows.

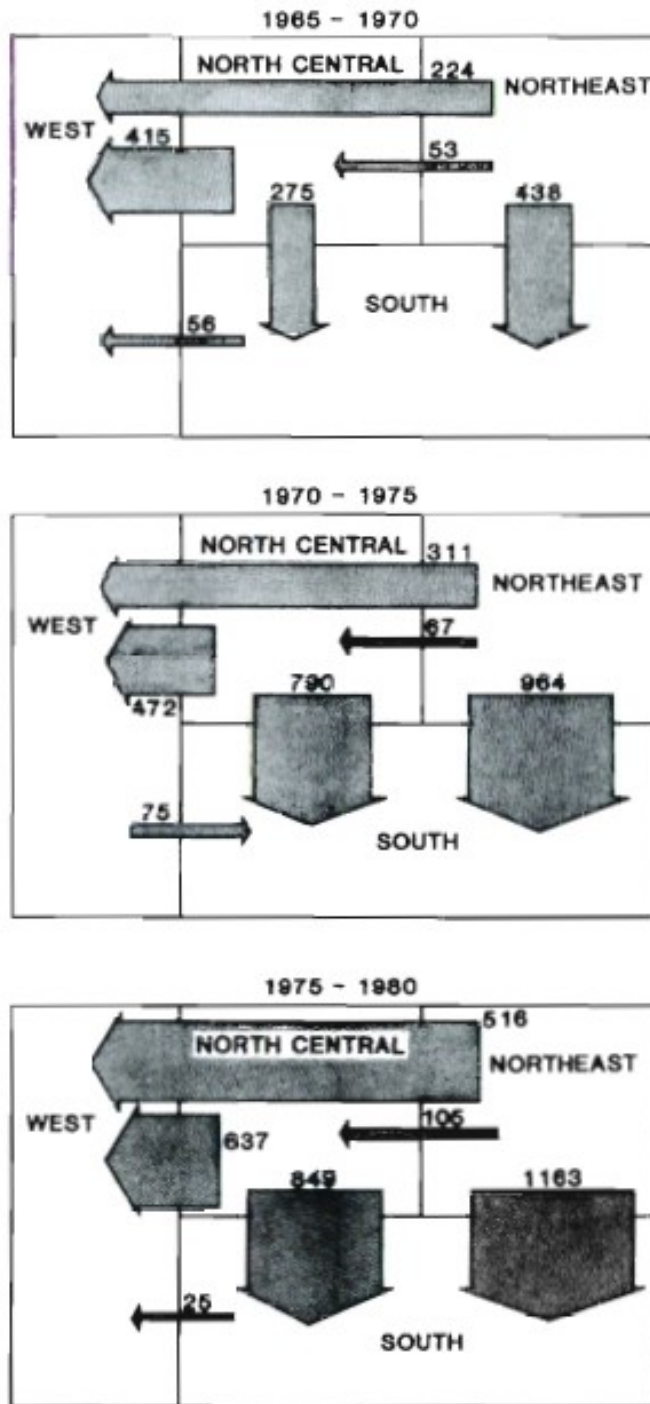
Recently, a major focus on migration within national systems has yielded specific studies of migration by country. This set of studies, under the auspices of the International Institute for Applied Systems Analysis (IIASA) is a particularly useful baseline analysis of the flows in national states during the 1970s. Studies have been completed for the United Kingdom, Finland, Sweden, the Netherlands, Canada, Hungary, the Soviet Union, East and West Germany, Austria, Poland, Bulgaria, and Japan (Rogers 1980).

The analysis of net migration flows, the number of people who end up in a particular region (subtracting the outflow from the inflow), yields a picture of changes over time in the tendency of population flows to focus on one or more regions. The net migration flows yield detailed information on the changing attractiveness of areas within a country; they are also the corollaries of the changing urban growth of different parts of the country. Maps or tables of both gross and net flows are useful ways of pictorially describing changes over time.

3.2.1 An Example from the United States

A set of cross-sectional presentations of net migration for the Census regions of the United States shows that while the overall structure is similar from period to period, there are important regional variations ([Figure 3.1](#)). The Northeast is continuing to lose population, the West is continuing to gain population, but there is a significant and increasing flow of population to the South from the North. The results of this can be seen in the simple table of the population increases in Phoenix, Tucson, Dallas, and Houston which are among the fastest-growing cities in the country ([Table 3.1](#)). The analyses of [Table 3.1](#) and [Figure 3.1](#) tell a dramatic

story of the flows of migration and their impacts. The growth of the so-called sun belt cities is due primarily to migration, not natural increase.



SOURCE: U.S. Bureau of the Census (1970, 1975, 1980).
 NOTE: Arrows are proportional to numbers of net interregional migrants. Figures indicate numbers of net migrants in 1000s.

Figure 3.1 Net Interregional Migration, 1965-1980, in 5-Year Intervals

TABLE 3.1
Population Growth of Selected Metropolitan Areas (SMSAs)
in the South and Southwest

<i>SMSA</i>	<i>1960</i>	<i>1970</i>	<i>1980</i>	<i>% Growth</i> <i>60-80</i>
Albuquerque	276,400	333,266	454,499	64.4
Dallas-Ft. Worth	1,737,960	2,377,623	2,974,805	71.2
Houston	1,430,394	1,999,316	2,905,353	103.1
Phoenix	663,510	971,228	1,509,052	127.4
San Antonio	736,012	888,179	1,071,954	45.6
Tucson	265,660	351,667	551,443	107.6

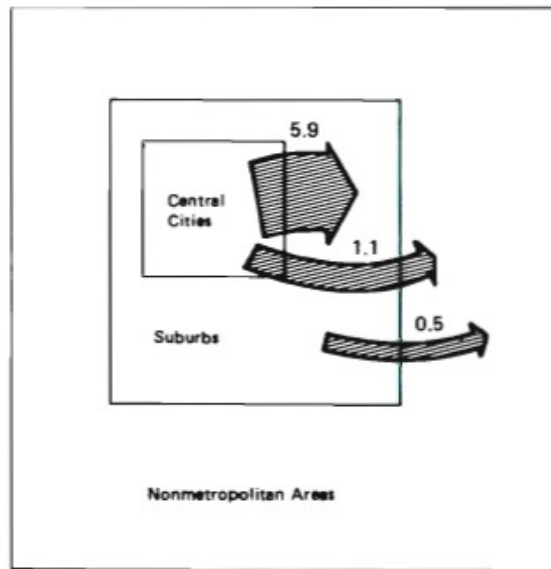
SOURCE: U.S. Bureau of the Census (1982, Table A).

Such graphic approaches can also be particularly rewarding for an analysis of changes at the metropolitan level. It is clear that the flows from central cities are much greater than the flows to central cities (Table 3.2). While there are significant numbers of flows within central cities and suburbs, there are almost three times as many migrations from the central city to the suburbs as there are from the suburbs to the central city. Significantly, there are increasing flows from both the central city and the suburbs to nonmetropolitan areas. Graphically, we have a situation in which the net flows are from central cities to suburbs, from central cities to nonmetropolitan areas, and from suburbs to nonmetropolitan areas (Figure 3.2).

TABLE 3.2
Residential Mobility Between Cities and Suburbs, 1975-1980
(in millions)

<i>1975</i>	<i>1980</i>		
	<i>Central City</i>	<i>Suburbs</i>	<i>Nonmetropolitan</i>
Central City	15.8	6.1	3.2
Suburbs	2.5	17.3	4.1
Nonmetropolitan	2.4	3.6	21.6

SOURCE: U.S. Bureau of the Census (1980, Table 1).



SOURCE: Berry and Dahmann (1980, p. 29)

NOTE: Width of arrows is proportional to volume of net flows among the three areas.

Figure 3.2 Net Residential Flows, 1970-1975 (in millions)

Finally, it is possible to examine the extent to which the flows of population are occurring to areas outside metropolitan areas. There has been a lengthy debate over the so-called population turn around, in which populations no longer move toward metropolitan areas, but rather the metropolitan areas lose population to surrounding towns and even nearby rural communities. While there has been a lively debate about the extent and significance of what has been called the deconcentration of population (the debate is between those who see this as a turn around and those who see it as a minor discontinuity in long-term population changes), only continuing longitudinal analyses will provide complete answers to the issues of population deconcentration. For the present, Beale (1975), Fuguitt and Beale (1978), and Long (1981) provide convincing arguments of the process as a major turnaround in the nature of population change.

Attempts to explain the patterns of flows and their changes over time have focused on either elements of a country's infrastructure or demographic changes. Changes in a country's infrastructure can affect distance as a friction to movement. The redistribution of economic opportunities (including the changing locations of industry), change in the interstate highway system, and low-cost air transportation (which has decreased effective distances between places) have all played important roles in influencing the redistribution of the population.

In addition to these structural forces, there have been substantial changes in fertility patterns, family composition, labor force participation (Table 3.3), and the aging of the population (Morrison and McCarthy 1982). At one extreme, the entry of the baby-boom cohort (born in the 1950s and early 1960s) into the labor market increased the potential for significantly increased flows. (Earlier in the book it was established that younger age groups move more often.) At the other extreme, there are increasing numbers of elderly retired population who are not constrained by job locations and who move to express their preferences for amenities (McCarthy 1983).

TABLE 3.3
Percentage of Women in the Workforce

<i>Female Labor Force as Percentage of Total Employed Population</i>				
<i>year</i>	<i>total</i>	<i>single</i>	<i>married</i>	<i>widowed/divorced</i>
1940	27.4	48.1	16.7	32.0
1950	31.4	50.5	24.8	36.0
1960	34.8	44.1	31.7	37.1
1970	42.6	53.0	41.4	36.2
1980	51.1	61.5	50.7	41.0

SOURCE: U.S. Bureau of the Census (1983, Table 639).

Methodological approaches to the patterns of aggregate flows have revolved around (1) gravity models of the flows, (2) regression models of the gross and net migration (especially the latter), and (3) accounting frameworks and Markov models of population change. Each of these three methodological approaches will be examined in turn.

3.3 Gravity Models of Migration

Perhaps because of Ravenstein's emphasis on the notion of distance, or perhaps because of the involvement of social scientists with a background in physics, the use of and emphasis on the gravity model has been one of the more enduring approaches to understanding migration. The broader area of inquiry of which the gravity model investigations are a part is generally known as social physics, a term derived from the physical analog of the gravitational attraction of physical bodies translated into the attraction of areas or towns to individuals. Under the assumption that the physical analogs can be translated into social contexts, the law of gravity and the concept of potential force are utilized to examine population interaction and distributions. (Haynes and Fotheringham 1984, review the gravity model in general as well as its application to migration.)

Any two places, which we will designate i and j by convention, will have an interaction (I) in proportion to their mass, usually designated as their population size (P), and inversely proportional to the distance separating them (D). We can write an equation

$$I_{ij} = k \frac{P_i P_j}{D_{ij}^b} \quad (1)$$

in which k and bare constants to be estimated from observed data. The model can be transformed into a simple linear equation in which the log of the interaction is regressed against the logs of the population and distance as in equation 2.

$$\log \frac{I_{ij}}{P_i P_j} = \log k - b \log D_{ij} \quad (2)$$

This equation states that the interaction between the two places can be expected to be related to their size and inversely related to their intervening distance. The model is derived quite directly from the original ideas of Ravenstein (1885) and Young (1924). But it was only in the 1940s, when Zipf (1946) formalized the foundation for the gravity model, that there was much real development of this approach in studying migration. In addition, as we noted earlier, the gravity model could only be estimated when there were very detailed data on the actual flows of populations. Many modifications have been suggested for the gravity model (Stouffer 1940), and there has been a great deal of debate in the literature over the estimating procedures for the coefficients and the extent to which the models are good causal explanations for population relocation. The gravity approach may provide a good fit to a set of data, but the reliance on distance alone is not a true explanation for the migrant behavior.

However, although it may be a good descriptive device for estimating the amount of flows between places and a useful technique for emphasizing the role of distance in these flows, it says nothing about the causes of migration or about the many variables that go into the decision-making process that individuals use in their relocation behavior. The simple criticism of the gravity model is that it is little more than a mathematical description of the flows of population. Nevertheless, there have been efforts to reconcile the model with utility theory (Niedercorn and Bechdolt 1969).

The data in Table 3.4 are used to illustrate the usefulness of the gravity model in replicating the flows of population between large cities. Assuming $b = 1$ and $k = 0.000001$, it is possible to derive the predicted migration between Los Angeles and ten other California SMSAs. A graph of the relationship indicates that there is a close association or that we are able, using population size and distance alone, to calculate fairly accurately the flows between cities (Figure 3.3). The same approach can be used for counties, states, and other geographic regions. The closeness of the association is measured by a correlation coefficient of 0.92. Remembering that $r = 0$ indicates a lack of relationship and $r = 1.0$ indicates a perfect relationship, we have some confidence in our prediction.

TABLE 3.4
Migration Between Los Angeles and Ten Other California SMSAs

<i>SMSA</i>	<i>Population</i> <i>(1980)</i> <i>000's</i>	<i>Airline</i> <i>Distance</i> <i>from L.A.</i> <i>(miles)</i>	<i>Migration</i> <i>from and</i> <i>to L.A.</i> <i>1960-1970</i>	<i>Predicted</i> <i>Migration</i> <i>(I_{ij})</i>
Los Angeles	7,477			
Bakersfield	403	101	25,707	29,834
Fresno	514	201	17,198	19,120
Oxnard/Ventura	529	60	67,014	65,922
Sacramento	1,104	365	22,552	22,615
San Bernardino/Riverside	1,558	65	160,196	179,218
San Diego	1,861	111	105,213	125,358
San Francisco/Oakland	3,250	340	102,102	71,471
San Jose	1,295	302	39,104	32,062
Santa Barbara	298	87	29,020	25,610
Stockton	347	310	7,388	8,369

NOTE: Migration data for 1970-1980 have not as yet been released by the Census Bureau. The data for 1960-1970 are used for illustrative purposes, although estimates from the State of California Budget Office suggest the relative nature of the flows will remain the same.

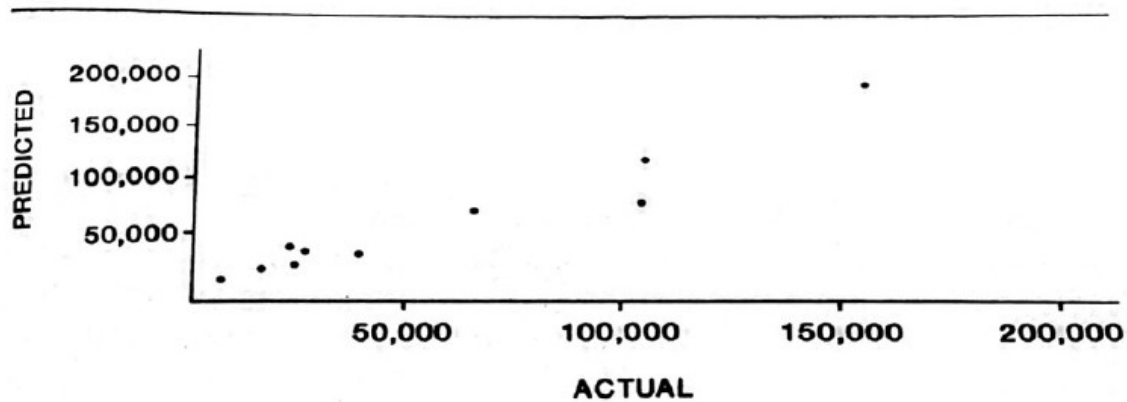


Figure 3.3 Actual Migration and Predicted Migration

The real value of the gravity model is not so much the emphasis on distance as an explanatory variable, but rather on the deviations from the gross flows that might be expected between regions or towns. The residuals can be examined for other possible explanations of the flows and are a useful device for understanding the overall pattern of flows.

Most recently, Wilson (1970) showed that the gravity model can be derived from entropy maximizing concepts. Thus, it is not necessary to invoke social physics analogs. While a discussion of the entropy maximizing approach to spatial interaction is beyond the intent of this introduction, it is outlined pedagogically by Gould (1971) and applied to the flows of migration within a city by Clark and Avery (1976.)

3.4 Regression Models of Migration

It is a natural extension to add other variables to distance in an attempt to improve the explanation of the level of migration between places. A commonly accepted approach to the role of independent variables in explaining the migration of the labor force and, in particular, the importance of employment opportunity in terms of job availability and wage rates was stimulated by Lowry's 1966 study of migration. The Lowry model attempts to deal with some of the shortcomings of the Zipf-Stouffer formulations by specifically including employment opportunities. The basic assumption of the Lowry model is that the labor force will move from low- to high-wage areas, from areas of surplus labor to areas with labor shortages.

The Lowry model required estimates of hourly manufacturing wages (which were not available in the 1960s when the model was proposed) and Rogers suggested and tested a modified model (Rogers 1968). The Lowry-Rogers model, equation 3, was estimated for population flows between metropolitan areas in California.

$$\ln M_{ij} = \beta_0 + \beta_1 \ln U_i + \beta_2 \ln U_j + \beta_3 \ln WS_i + \beta_4 \ln WS_j + \beta_5 \ln LF_i + \beta_6 \ln LF_j + \beta_7 \ln D_{ij} + \epsilon_{ij} \quad (3)$$

where:

- M_{ij} = number of migrants from i to j ;
- U_i, U_j = civilian unemployment rate at i and j , respectively;
- LF_i, LF_j = labor force eligibles at i and j , respectively;
- WS_i, WS_j = per capita wages and salaries at i and j , respectively;
- D_{ij} = shortest highway mileage between the major county seats at i and j , respectively; and
- ϵ_{ij} = error term

Rogers showed that over 90 percent of the variation in the migration flows was accounted for by the seven variables, but distance and labor force eligibles (size of the labor force) were the most important variables (Table 3.5).

TABLE 3.5
Regression Statistics for the Lowry-Rogers Model

<i>Variable</i>	<i>Coefficient</i>	<i>Partial correlation coefficient</i>
Constant	-10.8427	
log LF_i	0.88427*	0.84628
log LF_j	0.74402*	0.80071
log D_{ij}	-0.73903*	-0.82692
log U_j	1.15472*	0.46413
log WS_i	0.66320	0.20751
log WS_j	-0.56814	-0.17879
log U_i	-0.26044	-0.11737
R^2		0.92306

SOURCE: Rogers (1980).

*Significant at the 0.1% level.

Because distance is not a truly explanatory variable, there was some concern to develop alternative regression approaches that placed more emphasis on economic variables. The most complete example of these is the extensive series of papers by Greenwood, including his review of this literature in 1975 and, most recently, his volume (1981) on migration in the United States. The initial models postulated by Greenwood regressed the rate of migration (that is, the number of people moving between i and j (places) over the population of i) on a function of distance, income (in the origin and destination regions), a measure of population size of the origin region, and a dummy variable to differentiate region. The major interest in these models was in the impact of income as a surrogate measure for the differential wealth of places and as a predictor of flows of population between them.

Muth (1968) argued that the migration-employment relationship is not a unidirectional one, but rather that there is a mutually dependent relationship between employment growth and migration. To account for their mutual interdependence, Muth introduced a simultaneous equations approach. This is, several equations are utilized to explain part of the interaction. The simultaneous model, although it requires some statistical understanding, can be outlined in the following manner. The model is designed to deal in a disaggregate form with both immigration and out-migration as separate models and to identify two kinds of variables, exogenous and endogenous. Variables that are exogenous are outside the system (that is, they have an independent effect on the system).

Greenwood applies the simultaneous equations approach to several different migration models. Multiple stage regression is used as the statistical technique for estimating the parameters of a series of equations. Although this technique is beyond the scope of this book, it is useful to note that the literature has confirmed that ordinary least squares approaches have problems of bias and the parameter estimations from such models are not likely to yield interpretable coefficients. The coefficients of the multiple stage regression models are interpreted in the same manner as in the ordinary least squares (OLS) model. The models indicate that in-migration to SMSAs is directly related to high rates of employment growth; in turn, out-migration is inversely related to high rates of employment growth. Multiple stage regression models, however, have tended to produce coefficients with signs that, although significant, are opposite to what would be expected. Thus, we would expect that high levels of income growth would discourage out-migration, but this is not so.

The lack of expected relationships between unemployment and migration may be explained by the way in which we have measured such variables. Fields (1976) suggests that because unemployment is a measure for an entire labor force, it is not the appropriate measure of whether or not migration will be stimulated or retarded. An unemployment rate that is defined for an entire group of workers and includes employed workers who are secure in their jobs is an inadequate measure of the tightness or looseness of the labor market. Rather, he suggests that labor turnover is a better measure of the availability of jobs. In any event, there is still evidence that there are gains to income from migration (Bartel 1979; Grant and Vanderkamp 1980). The initial Lowry contention that areas of high in-migration (out-migration) should be areas of low out-migration (in-migration) is now seen as a considerable oversimplification. Some areas of high out-migration also have

high in-migration and vice versa (Clark and Ballard 1980). Both Clark (1983) and Gleave and Cordey-Hayes (1977) earlier have emphasized the role of local employment conditions on out-migration and that there is considerable “stickiness” in the response of individuals to changed labor market conditions. People do not just get up and leave. Their past mobility behavior and knowledge of opportunities outside their regions have important effects.

3.5 Accounting Approaches to Migration

In an attempt to provide a better statistical portrayal of the amount of migration, Rogers (1968) and others turned to demographic accounting models, which, like the gravity model, are descriptions of the processes of change. They are cross-sectional descriptions of migration flows. However, with some assumptions about demographic processes it is possible to predict changes in the migration flows over time. Much of this work was initiated by Rogers’ matrix analyses of migration transitions between California and the rest of the United States (Rogers 1968). In that analysis he used Markov techniques to estimate transition matrices and equilibrium distributions for California in various time periods. Rogers concluded that a matrix formulation of intraregional population growth and distribution leads to a compact expression of an empirical relationship between the spatial patterns of population and employment. He goes on to argue that a matrix formulation can be used to evaluate the spatial implication of changes in the size of the labor force, in labor participation rates, and in accessibility to employment centers (Rogers 1968, p. 115). He extended those matrix approaches to a full-scale multistate demographic analysis in which he incorporated analyses of fertility and mortality and life changes to multistate population projections. To gain some background to the approach, let us examine the interregional distribution of population for the United States from 1975-1980 to the year 2000.

Table 3.6a shows the population who changed residences between 1975 and 1980 and their regions of origin and destination. Table 3.6b lists the population who did not move. From these tables it is possible to prepare a summary table (Table 3.6c) that lists the resident population by region (the diagonal values) and the movements between regions (from Table 3.6a). This table can be used to prepare a transition probability matrix (Table 3.6d) in which the values represent the probability of staying in the state of origin or of moving to some other region. Thus, there is a $1029/67414 = 0.0153$ probability (about a 1.5 percent chance) that an individual in the South will have moved to the Northcentral region by 1980. The probabilities for any origin-destination move are derived by reading down the columns. Each value is calculated by dividing the values of Table 3.6c by the column total. Thus, for the South to the Northcentral move, the value is $1029 / 67414 = 0.0153$. Naturally, the highest probabilities are for staying in the region of origin, even if the individual does move. Already, it is possible to note the lower probabilities of staying in the Northeast and the Northcentral than in the South and West.

TABLE 3.6a
Interregional Population Movements (000s) in the United States
1975-1980

	<i>1975</i>			
	<i>Northeast</i>	<i>North central</i>	<i>South</i>	<i>West</i>
<i>1 Northeast</i>	16385	360	654	261
<i>9 North central</i>	465	23405	1029	630
<i>8 South</i>	1817	1878	31138	1044
<i>0 West</i>	777	1267	1069	20218

TABLE 3.6b
Population 5 Years Old Who Did Not Move (000s)
1975-1980

Northeast	28214
South	29582
North central	33524
West	15937

TABLE 3.6c
Resident Populatn 1975-1980 (Diagonal) and
Movements Between Regions 1975-1980

	1975				<i>Total</i> (1980 pop.)
	<i>Northwest</i>	<i>North Central</i>	<i>South</i>	<i>West</i>	
<i>Northwest</i>	44599	360	654	261	45874
<i>North central</i>	465	52987	1029	630	55111
<i>South</i>	1817	1878	64662	1044	69401
<i>West</i>	777	1267	1069	36155	39268
<i>Total</i> (1975 pop.)	47658	56492	67414	38090	

TABLE 3.6d
Transition Probabilities for Regional Population Shifts

	1975				
	<i>Northwest</i>	<i>North Central</i>	<i>South</i>	<i>West</i>	<i>Total</i>
<i>1 Northwest</i>	.9358	.0064	.0097	.0069	.2188
<i>9 North central</i>	.0098	.9380	.0153	.0165	.2629
<i>8 South</i>	.0381	.0332	.9592	.0274	.3310
<i>0 West</i>	.0163	.0224	.0159	.9492	.1873
<i>Total</i>	.2273	.2695	.3215	.1817	1.0000

The question, “What will the distribution of population (across the four regions) be like if individuals move in the future as they did between 1975 and 1980?” can be answered with an extrapolation of the data we have developed thus far. The following equation can be used to estimate the distribution of the population across the four regions:

$$P^{1985} = M \cdot P^{1980}$$

or generally,

$$P^{t+1} = M \cdot P^t$$

where

- M is a square transition matrix, the elements of which are the probabilities of moving between discrete states (regions in our cases).
- P^t is an initial column probability vector, the elements of which represent the probability of being in each of the states at the beginning of the period.
- P^{t+1} the derived probability vector, the elements of which represent the probability of being in each of the states at the end of the period.

Table 3.7 gives the results for 1985 derived from the transition matrix (Table 3.6d) and the vector for 1980. To illustrate, the value for the Northeast for 1985 is calculated by multiplying

$$(.9358 \times .2188) + (.0064 \times .2629) + (.0097 \times .3310) + (.0069 \times .1873) = .2110$$

TABLE 3.7
Derivation of the 1985 Vector of Population Distribution

1985						1980
P	=	M				$\cdot P$
.2110		.9358	.0064	.0097	.0069	.2188
.2569		.0098	.9380	.0153	.0165	.2629
.3397		.0381	.0332	.9592	.0274	.3310
.1925		.0163	.0224	.0159	.9492	.1875

SOURCE: U.S. Bureau of the Census (1980).

NOTE: Moves from abroad not included.

The other values are similarly derived by matrix multiplication--the second row times the 1980 vector and so on. By using the matrix M with the newly derived vector, it is possible to derive additional vectors. The vectors up to the year 2000 are shown in Table 3.8. The vectors show the continuing gains of the South and West. The number of states (regions, countries, census tracts) can be enlarged, but this requires machine calculation as the number of multiplications quickly becomes tedious.

TABLE 3.8
Probability Vectors of the Distribution of the Population
Across the Four Census Regions, 1985-2000

	<i>1985</i>	<i>1990</i>	<i>1995</i>	<i>2000</i>
Northwest	.2110	.2037	.1970	.1908
North central	.2569	.2514	.2464	.2416
South	.3397	.3477	.3550	.3617
West	.1925	.1973	.2018	.2059

Although there are a number of assumptions in the use of matrix approaches, especially those that involve the estimation of equilibrium distributions, they are still useful methods to understand migration. However, among the criticisms are that the migration rates are not stationary. The chance of moving from i to j does not remain the same over time. Stationarity is especially unlikely because of the changing age composition of the population and the varying mobility rates for different age groups. However, if for the purposes of simple models of migration we do make the assumption of stationarity, then we can say something useful about the changing distribution of population over regions over time. The other assumption is the process be a first-order stochastic process. This assumption requires that the transition from one state to another not be dependent on anything but the previous state--that is, that there is no life history built into the migration process. Again, this is unlikely, but the earlier comments apply here too.

3.5.1 Multiregional Population Analysis

The full extension of the Markov analysis to multiregional demographic analysis involves somewhat more sophisticated concepts than those outlined in the simple example above. However, it is possible to give a flavor of the multiregional life table approach. It requires three elements or measures: (1) life tables by regions--that is, the probability of people surviving to certain ages or for certain lengths of time; (2) measures of fertility; and (3) estimates of mobility. In a multiregional life table, each region is given an initial hypothetical cohort of 100,000 babies, and these cohorts are then subject to rates of mortality and out-migration compiled from observed schedules for any set of spatial units. The questions that can be asked are, to what extent will individuals born in one region redistribute themselves across other regions and at what stage in their life cycle will this take place? Tables can be computed of the probability of surviving in a particular region of birth and remaining in that region or moving from that region to another region. Long and Frey (1982) provide a detailed application of this methodology to the United States.

Such multiregional life analyses give important information on the differential growth rates across regions over time. These approaches have become part of the demographer's set of tools for analyzing the changing patterns of population distribution. To explain the motivations that underlie these flows requires a discussion of the reasons for migrant behavior.

3.6 Explanations of the Patterns of Migration

We have already discussed models of aggregate flows that incorporate explanatory variables such as unemployment rates at origins and destinations; economists have used similar approaches with microlevel data in an attempt to understand individual migration decision making. In the regression analyses of such micro-data, the debate has centered on two important independent variables: the effect of income and the effect of unemployment. It is not surprising that these two variables have been of major concern. A fundamental notion of the economic hypothesis of migration is that unemployment at the place of origin stimulates out-migration, increasing employment opportunities at destination sites increases in-migration, and at the same time deters out-migration. Considerable evidence for this thesis at an aggregate level was provided from

earlier research. However, although unemployment at the origin was significantly related to out-migration, employment at the place of destination was not significantly related to the rate of in-migration.

As we noted in the section on regression approaches, the debate over the role of income and unemployment has reached a somewhat greater consensus. Results from survey data by Da Vanzo (1976, 1978) and Bartel (1979) indicate that the unemployed are more likely to migrate, and Grant and Vandecamp (1980) show that long-distance moves generated significant gains in income. DaVanzo (1981) also shows that local economic conditions also affect out-migration. It was in part the dissatisfaction with such discussions of the employment relationship that led to attempts to examine the employment and income effects on migration via a more complete theoretical specification.

3.6.1 The Human Capital Model of Migration

Sjaastad (1962) was the first to suggest a theoretical structure for the notion that an individual migrates in the expectation of being better off. Sjaastad suggested that the individual or the household moves to add to its human capital, that is, to its ability to generate an income stream over its lifetime as a result of a migration decision. More simply, an individual moves if he or she believes that the benefits will exceed the costs. As Da Vanzo (1981) notes, it can apply to a wide range of circumstances in which people are motivated by a desire for the best for themselves. Because the gains or benefits from migration do not occur immediately, but take place over a period of time, this suggests that migration is an investment. Migration is an activity with costs that occur immediately; these costs are balanced against a future expected return on that investment. Because it is an investment in increasing the potential of the human being, we refer to it as an investment in human capital, that is, an investment in increasing the productivity of human resources (Sjaastad 1962, p. 83). Micro-economic models that use this perspective are referred to as human capital models.

There are several explicit features of the human capital approach that seem to have advantages over alternative approaches to understanding migration decision making. First, the human capital model explicitly recognizes that benefits from migration occur over a period of time, and this is a partial explanation for why migration rates decline over time for individuals. The length of the period in which the returns from migration can be gained decreases with age. At the same time, a person may move even if no immediate return is expected from the migration. Second, the human capital model does not just focus on economic costs and benefits. It is true that most contributions to the economic literature have narrowly focused on monetary factors; however, the costs and benefits of migration can also be measured in terms of many nonpecuniary measures: psychic costs, such as leaving friends and relatives, the expenses of maintaining relationships with those left behind, and the loss of various locationally specific assets. Benefits include a possible increase in the level of amenities, such as climate and cultural facilities, nearness to friends and relatives, and access to relatively superior public goods. The public good component is especially important in choosing the destination city among several alternatives in the same region. Tiebout (1956) hypothesized that people vote with their feet and choose communities where the government is likely to provide services that best satisfy their personal preferences. Hence, many components, both pecuniary and nonpecuniary, contribute to a person's change in welfare resulting from migration.

The basic human capital model involves a simple trade-off: The present value or net gain of moving from i to j is a function of the difference between expected utility or real income, in the origin and destination areas, minus the costs of making the move adjusted by a discount factor. The discount factor is a method to take into account that individuals attach less value to occurrences some time in the future relative to occurrences at the present. The present value (PV) model can be more formally expressed as

$$PV_{ij} = \sum_{t=1}^T \frac{U_j^t - U_i^t - C_{ij}^t}{(1+r)^t} > 0 \text{ for at least one area } (j \neq i)$$

An individual will choose that destination j where PV_{ij} is greatest, where

PV_{ij}	= present value of net gain of moving from i to j ;
$U_{i \text{ or } j}^t$	= expected utility in area i or j at time t ;
j	= potential destination;
i	= origin;
r	= discount rate ($0 \leq r \leq 1$);
T	= expected length of remaining lifetime; and
C_{ij}^t	= cost incurred in time period t of moving from i to j .

Even though the model allows for alternative measures of costs and benefits, the model clearly emphasizes the economics of mobility and places it squarely within an individual household framework.

Although multiple regression estimations have had relatively low levels of fit, they have confirmed the overall usefulness of this theoretical formulation in understanding migration. Full tests of the human capital approach have involved not just the analysis of single workers, but the analysis of household migration as well. In this latter case it was obvious that the notion of the human capital model of migration is biased in the sense that it needs to take into account not just the migration of an individual and his or her characteristics, but the characteristics of the household as a whole.

3.6.2 Family Migration Theory²

Aside from the increasing number of two-worker families, the development of new theories of family behavior has encouraged viewing migration from a family perspective (Mincer 1978, p. 749). Until recently, however, the data necessary to analyze the causes and effects of family migration were almost nonexistent. In the past few years, data sources that are more useful in the study of the migration of families have been made available, notably the National Longitudinal Surveys or “Parnes” data and the University of Michigan’s Income Dynamics Panel (see Da Vanzo 1976, p. 13). Both of these studies contain household-level, longitudinal data that have been collected for over a decade.

The first tenet of the family migration model is a straight translation of the individual perspective—“net family gain rather than net personal gain ... motivates migration of households” (Mincer 1978, p. 750). Migration is seen as a family investment in human capital and is undertaken if *family* benefits exceed family costs (DaVanzo 1976, p. 7). This is a natural view, as families do tend to move as units. However, as we shall see, even with this basic assumption the secondary earner’s effect on migration may still be downplayed.

If only one spouse works and the other never plans to, then the costs and benefits of migration to the family (from an earnings standpoint) would approximate those of the working spouse. This assumes that real income consists only of earned income, and that family utility is maximized mainly through the utility of an individual spouse (Da Vanzo 1976; p. 9). The model becomes more complex if nonearned income is considered and when nonmonetary aspects of utility are included.

It was the growing number of families with two working spouses that necessitated the enlargement of the human capital model of migration. Two family members in the labor force adds new elements to the costs and benefits of migration for a family. If *net* family gain is the determinant of whether a family moves, there is the possibility for one spouse to incur a loss (in income or utility terms) from migration. Certainly, with two spouses working there is less chance that any one location will give both a maximum return on their migration investment, although larger cities will improve the chances of a two-worker household. A compromise location may mean that neither person’s benefit is maximized, or, as shall be discussed later, that migration does not take place at all. As Mincer (1978, p. 755) notes, locational conflict is greatest when the motivation for a move is job related alone. Any job-related gain for one spouse must be weighed against the cost of reduced income or work opportunity for the other. While one spouse may net a large income gain from a move, the loss in terms of distance from friends and family may be prohibitive to the other spouse. The cost of moving children away from a familiar school and their friends is also important. Clearly, there are myriad combinations of monetary and nonmonetary costs and benefits for families, with or without both spouses in the labor force.

²This section draws on Pickle (1980)

Mincer (1978) introduced the concept of migration ties to provide a structure for the conflicts between spouses in making the migration decision. Migration occurs if the net family gain from moving is positive. However, if the return from migration is positive for one family member but negative for the other, the member with a negative gain from migration will be “tied” in the move/nonmove decision. For instance, if there is a net family benefit in migration to a particular destination, but the wife will incur a personal loss of utility in the move, when migration takes place she will be a tied mover. On the other hand, if she would gain from migration to another location, but the family as a whole would incur a loss if such a move was undertaken (and does not move), then she is a tied stayer.

There are several implications for a two-worker family model. Among the more important are these: (1) Marital status has a deterrent effect on migration, especially if both spouses work; (2) the consideration of the wife’s market earning power is important in the family migration decision; (3) migration and family stability have effects on each other; (4) migration ties have an effect on the employment of husbands and wives at origins and destinations; and (5) family and employment ties have an effect on the distance of migration (Mincer 1978, p. 758). These implications are generally accepted in the literature, but not without controversy. Most (but not all) studies of family migration conclude that families migrate less than individuals. Mincer (1978, p. 750) has asserted that the returns from migration increase less than costs with increasing family size. The labor force participation rate for married women has increased rapidly in recent years, but the fact that working wives generally earn less than their husbands makes it far more likely that females will be tied movers or stayers. Thus, the employment of the wife is usually seen to have a dampening effect on migration, raising the probability that a given destination will not be the optimal one for both spouses.

Sandell (1977) and Sandell and Koenig (1978) specifically tested the hypothesis that two-worker families will migrate less than those with only one worker. Using data from the National Longitudinal Surveys cohort of older women for 1967-1972 and controlling for age and the presence of school-age children, Sandell (1977, p. 410) found that families with two workers do have reduced migration. In addition, women’s lower labor force participation and greater family mobility are associated with high levels of the husband’s education (which has a positive effect on migration). Similarly, examining the NLS cohort of young women for 1968-1973, Sandell and Koenig found that the employment of the wife and her job tenure have significant negative effects on family migration (Sandell and Koenig 1978, pp. 183-185). Sandell also discovered that in the period 1966-1971, migrant husbands and families as a whole had faster earnings growth than nonmigrants, but nonmigrant wives had an earnings advantage over migrant wives. He concluded that family migration may well be costly for the wife.

Mincer (1978) confirms Sandell’s finding that the earnings of married women are usually hurt by migration, both through reduced employment and low wage growth. However, Mincer also finds married men gain more than other men from migration. He infers from this that family ties (and working wives) raise the level of benefit the husband must get from a move if he is to migrate. Thus, the effect of the wife working is to lower the probability of a move, but to raise the gain of the purposeful job seeker (Mincer 1978, p. 768).

Sandell, Mincer and Sandell, and Koenig all find a negative relationship between wife’s labor force participation and family migration. Da Vanzo measures the *degree* of the wife’s labor force attachment by the number of hours the wife worked in 1970 and the share of family wage income earned by the wife, and finds that “Holding constant the wife’s wage and hours, the husband’s wage, the expected family earnings increase, and family income ... families in which the wife contributes to family earnings are more likely to move than otherwise similar families without working wives” (DaVanzo 1976, p. 62). She explains this by asserting that two-worker families can better share the risks of migration. With two potential workers the family has a better chance of at least one spouse getting a good job.

The most recent analysis of the role of the wife’s share of income on migration basically corroborates the Sandell and Mincer findings (Pickle 1980). Using the Michigan Income Dynamics Panel data, Pickle shows that the effect of the wife earning some share of the family’s wage is always negative. In addition, Pickle shows that when the wife’s share is very high or very low, there is a higher probability of migration than when the share is more equal. But there are positive effects of two working members in a household. If both spouses have labor force qualifications, there is a better chance that at least one can get a good job within a shorter span of time than might be possible for a single person (DaVanzo 1976, p. 61).

3.7 The Role of Amenities in Migration

Even though the human capital model is a significant advance on aggregate flows analyses because it brings us closer to understanding the decision making that goes on within households who are contemplating migration, the model still emphasizes economic variables. It is important to recognize that there has been a parallel concern to investigate the role of amenities in influencing migration. An increasing elderly population who have completed their working lives and are retired will have migration patterns that are less likely to be influenced by investments in human capital at least of an economic nature. Their investments in human capital, if any, will be related to noneconomic factors. While most of the studies of the role of amenities on migration (employing such variables as mean temperature and days of sunshine) have utilized a human capital formulation, they have tested their models with extensions of the macro-regression models that we discussed earlier. Studies by Cebula (1979) and Graves (1980) show that there are quality of life elements involved in the migration patterns; also, there is no doubt in the popular mind that the growth in the sunbelt cities, at a time of population decline in northeastern SMSAs, is a testimony to the choices of individual households, especially the elderly, who desire to leave harsher climates for more pleasant climates (McCarthy 1983). The explosive growth of retirement communities in Arizona and New Mexico is a direct testimony to the influence of these amenity forces in migration.

However, at an individual household level the inclusion of amenity measures is still ambiguous. Do individuals really evaluate “degree days” (the number of days with certain temperature levels), or do they respond to general levels of information on “good” places to live? In addition, the family links and dependency of older persons on their children are less important, or separation is easily overcome with less expensive travel. In the long run, the inclusiveness of clearly defined amenity measures in the human capital model will be an important element of understanding their roles in the migration of individual households.

3.8 Expectations as a Force in Migration

As Da Vanzo notes, the models of migration in Third World contexts, especially those by Todaro (1976) and Harris and Todaro (1970), can be seen as special cases of the human capital model. The Todaro model, in fact, is concerned with the migration of individuals and households from rural to urban areas in developing countries. Todaro postulates that much of the rural to urban migration is attributable to the *expected* benefits to be derived from this migration. Both the Todaro and the Harris-Todaro model postulate that migration proceeds in response to urban/ rural differences in *expected* rather than actual earnings (Todaro 1976). That is, migrants as decision makers look at various labor market opportunities, say the differences between the urban and rural sectors, and choose the location that maximizes their expected gains from migration. These expected gains are influenced by both the differences in incomes and the migrant’s chance of getting a job.

But the essential point about the chance of getting a job is that there is a time horizon in which that can occur. In other words, the migrant to an urban setting is unlikely to get a job immediately because in developing countries underemployment and unemployment are generally chronic; the migrant’s *actual probability of getting a higher paying job* in the urban sector rather than in the rural sector will influence the permanent income calculation, and thus the likelihood of moving (Todaro 1976, p. 31). Thus, it is insufficient just to evaluate wage differentials (Casetti 1980) because these in and of themselves are not the total explanation for the behavior; that is, the unemployment measures may all be very high in the urban area, but employment is still possible. It is the possibility of employment or the expectation of employment that has important implications for the likelihood of moving.

It was to explain the continuing mobility in the face of high unemployment that Todaro introduced the notion both of the expectation of employment and of the time horizon over which the job seeker is likely to secure employment. The human capital structure is quite apparent. First, the individuals or households are migrating to improve their investment in human capital. Second, they are migrating in relationship to their expectations of securing employment and are not specifically concerned with the levels of employment to unemployment within these settings. However, some survey studies suggest that levels of unemployment are not much greater for recent migrants (Kols, 1983, p. 109). Now, clearly, it is much more difficult to estimate such a model for a developing country than it is for a developed country. The detailed individual data are rarely available and the estimates of unemployment, income, education, age, and other demographic variables

are likely to be less precise than those of more developed data-collecting systems. Even so, the importance of the Todaro and the Harris-Todaro approaches is to emphasize the overall applicability of a human capital approach to understanding migration in both developed and lesser developed contexts.

3.9 Concluding Remarks

Although much of the discussion in this section has emphasized a distinction between aggregate analyses of flows and a detailed modeling of individual decision making, both of these approaches have paid little attention to some of the more cultural events that influence migration. Neither approach has recognized the important role of information and information flows in influencing migration. Information and uncertainty are critical dimensions in understanding the decision-making behavior of individual households (Goodman 1981). From a qualitative consideration of information, it is clear that individuals evaluate only a few alternatives, that they often rely closely on friends and relatives (which, in fact, explains some of the channelized migration that occurs; Ritchey 1976) and the lack of information about distant places often biases the moves to closer locations. Earlier migrants, because of the flow of information they send back, influence later streams of movers. The impact of perfect versus imperfect information on mobility is not yet clear; but it is certain that high levels of information increase the number of people moving (Goodman 1981, p. 16). High levels of information also lead to more concentration of the moves that do occur, and thus to spatial biases in the pattern of moves. The impact of information and its relationship to job search and the way in which this influences migration streams is one of the important current research topics.

4 International Migration

4.1 Introduction

International migration has a two-part structure: On one hand, it is composed of the labor streams seeking jobs in foreign countries; on the other, it is composed of the increasing flows of refugees from war and political disruption. However, neither of these flows takes place in a vacuum. The labor streams are inextricably woven together with changing urban development and there are increasingly dramatic social and economic impacts from global refugee migrations.

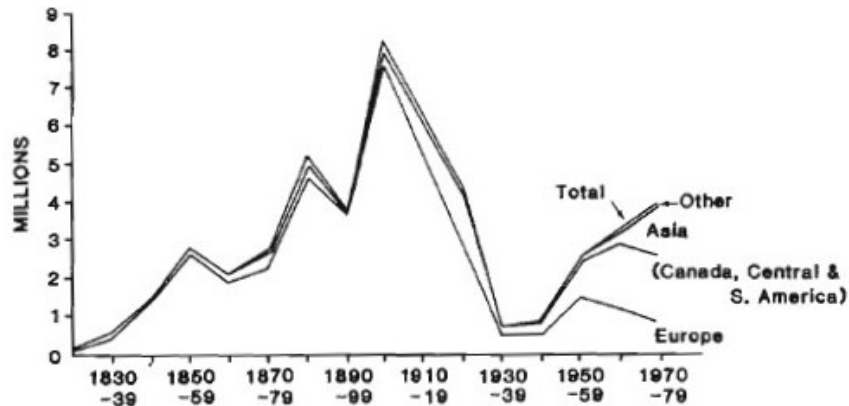
4.2 The Historical Context of International Migration

The present patterns of major population shifts are only a continuation of those that we are familiar with from the late nineteenth and early twentieth centuries, and they in turn are a continuation of many earlier historical migrations. It is important not to see these moves as something new or different, but rather to see them in their historical context. In fact, the distinction between regional and international migration reflects as much as anything the division of the modern world into a set of nation-states, and thus what we discuss as international migration includes many of the issues that have been raised in discussions of regional migration.

Historical analysis of international migration has emphasized the expansion of European nations in the eighteenth century. After the explorations of the sixteenth and seventeenth centuries and the establishment of initial colonies by the major European powers, there began a significant redistribution of the European population to North America, Australia, New Zealand, South Africa, and South America. This migration was stimulated by both economic opportunities in the colonies and population pressures and religious persecution within the original countries.

The United States was one of the major destinations for the overseas expansion of the European population, and the total number of immigrants into the United States until the Great Depression (1929) was greater than 35 million. Initially, the origin of migrants to the United States was Western Europe, especially from the United Kingdom (1.5 million between 1820 and 1880), Ireland (2.4 million between 1820 and 1870) and Germany (4.2 million between 1840 and 1890). Since 1900, increasing numbers came from Russia (3.1 million between 1890 and 1920) and Italy (3.8 million between 1890 and 1920). In the past two decades the sources of migration have been South and Latin America and Asia (Figure 4.1). The history is well told in a number of different economic histories and historical geographies (see, for example, Ward 1971). The focus here,

however, is on recent patterns of international flows of labor and population in the context of the determinants of those flows by changes in employment opportunities and political unrest.



SOURCE: McCarthy(1984). Reprinted by permission of the Rand Corporation.

Figure 4.1 Source of Immigrants to the United States by Year

4.3 Migrant Labor and Regional Labor Markets

The numbers involved in international labor migration are not as large as the numbers of people moving within countries and the rural to urban migration in developing nations. The total estimates of cumulative foreign immigrant movements were 14 million by 1975 and more than 20 million by 1980. With the addition of dependents, it is a sizable immigrant population. But it is more than simply the number that is significant in international labor migration. In some countries, including Arab oil-producing states, the number of foreign workers contribute to as much as 50 percent of the labor force; in other countries, such as the Caribbean nations, 50 percent of the young males have worked outside their region at one time or another.

In the past twenty years the major flows of labor have not changed much. The map (Figure 4.2) indicates that significant flows are occurring to the United States, much of Western Europe, the Middle East, Africa, and South America. The lack of data prevents estimates of actual flows, but the patterns are identifiable. The origins are Mexico, the Caribbean, Southeast Asia, and North Africa. The proportion of the workforce made up of foreign workers varies from 30 percent in Middle countries to only 3 to 4 percent for South Africa (Table 4. 1).



SOURCE: *Population Reports* (1983, p. 249) M-7, Population Information Program, Johns Hopkins University. Reprinted by permission.

NOTE: All flows are continuing at substantial levels except flows into Europe, Ghana, and Nigeria.

Figure 4.2 Major International Labor Migration Flows of the Past Twenty Years

Table 4.1
Estimated Number of Foreign Workers and Percentage of Work Force
That Is Foreign in Major Labor-Receiving Countries and Regions

<i>Labor-receiving countries and regions</i>	<i>Year</i>	<i>Number of foreign workers (1000s)</i>	<i>% of work force</i>
Argentina	1974	1,370	14
Ivory Coast	1975	719	25
Middle East*	1980	2,800	30
Nigeria	1982	1-2,000	3-6
Singapore	1978	100	12
South Africa	1977-1983	240-400	3-4
United States	1980	3-6,000**	3-6
Venezuela	1981-1983	1-2,000**	20-40
Western Europe***	1974	5,928	9

SOURCE: *Population Reports*(1983), M-7, Population Information Program, Johns Hopkins University, Reprinted by permission.

*Bahrain, Kuwait, Libya, Oman, Qatar, Saudi Arabia, and United Arab Emirates.

**Ranges are approximate estimates because of large volume of illegal immigration.

***Austria, Belgium, France, Federal Republic of Germany, Netherlands, Sweden, and Switzerland.

4.3.1 Guest Worker Movements

The clearest statistics and data for migrant workers are available for Western Europe. In the seven countries of Western Europe, immigrant workers from southern Europe and North Africa totaled almost 6 million in 1974, accounting for 10 percent of the workforce; 4.5 million of these workers were from Mediterranean countries. By the late 1970s it has been estimated that immigrants and dependents to Western Europe grew to over 10 million. The relative contribution to the workforce by guest workers is largest in small countries such as Luxembourg, with 30 percent, and smallest in large countries such as France, with 7 percent. The in-migration to Western Europe is attributable in part to a population growth rate close to zero coupled with a relatively strong economy. Furthermore, in the 1950s and 1960s there was a shortage of working-age population due to the large numbers of persons killed in World War II. The guest laborer (*Gastarbeiter*) in West Germany, the Netherlands, France, and, to a lesser extent, in Sweden is a major means of providing a pool of workers for industrial expansion. The fact that this program did not develop earlier is probably due to the fact that the East German border remained open until 1961, and the labor demand for the rapidly expanding West German economy was met by the supply of incoming guest worker refugees from Eastern Europe and East Germany. It is estimated that by 1961, West Germany had received close to 10 million persons from formerly East German territories, and 3.5 million from East Germany alone (Hoffmann-Nowotny 1978). While many of the in-migrants from Western Europe in the late 1950s and early 1960s were from similar cultural heritages, and were often refugees, the migrants in the later 1960s and 1970s were from the Mediterranean countries: at first from Italy, and later from Yugoslavia, Greece, Turkey, Spain, and Portugal.

A solution mutually beneficial for the labor hungry industries of West Germany and labor surplus regions of Eastern Europe and the Eastern Mediterranean was to encourage labor migration. By the mid-1970s, after the system had been in operation for nearly fifteen years, there were over 4 million guest workers and their families in West Germany. Guest workers became a permanent part of the societal and industrial infrastructure of West Germany, the Netherlands, and France. Although many of the children of these guest workers did become citizens, the workers in the program were expected to return at some undefined time to their origin country. Strict rules with respect to nationalization and citizenship made it difficult for guest workers to become citizens.

Unlike other members of the European economic community the United Kingdom does not have a formal guest

worker program. In part due to relatively lower growth rate in the home industry and greater restrictions on immigration to and from the Commonwealth, Britain has smaller inflows and outflows of population. Britain's outflow has been principally to Commonwealth countries, and to a lesser extent to the United States. The inflow has been from Britain's former colonies and the periphery of the European labor market in Ireland, Malta, and Cyprus. Immigrants from the West Indies, India, and Pakistan have taken on the service tasks no longer desired by the indigenous population. Britain's resentment of the migrants resulted in the 1962 Commonwealth Immigrants Act; the law, designed to restrict the movement from Pakistan and India, restricted immigration from all former British colonies. Work permits and annual quotas have further restricted the number of nonwhite immigrants in recent years.

By 1980 there were almost 3 million immigrant workers in the oil producing Persian Gulf states. About 30 percent of the immigrant workers come from Pakistan and India, as well as other Southeast Asian countries. The impact on the population is quite significant, because the receiving states are relatively small in their total populations.

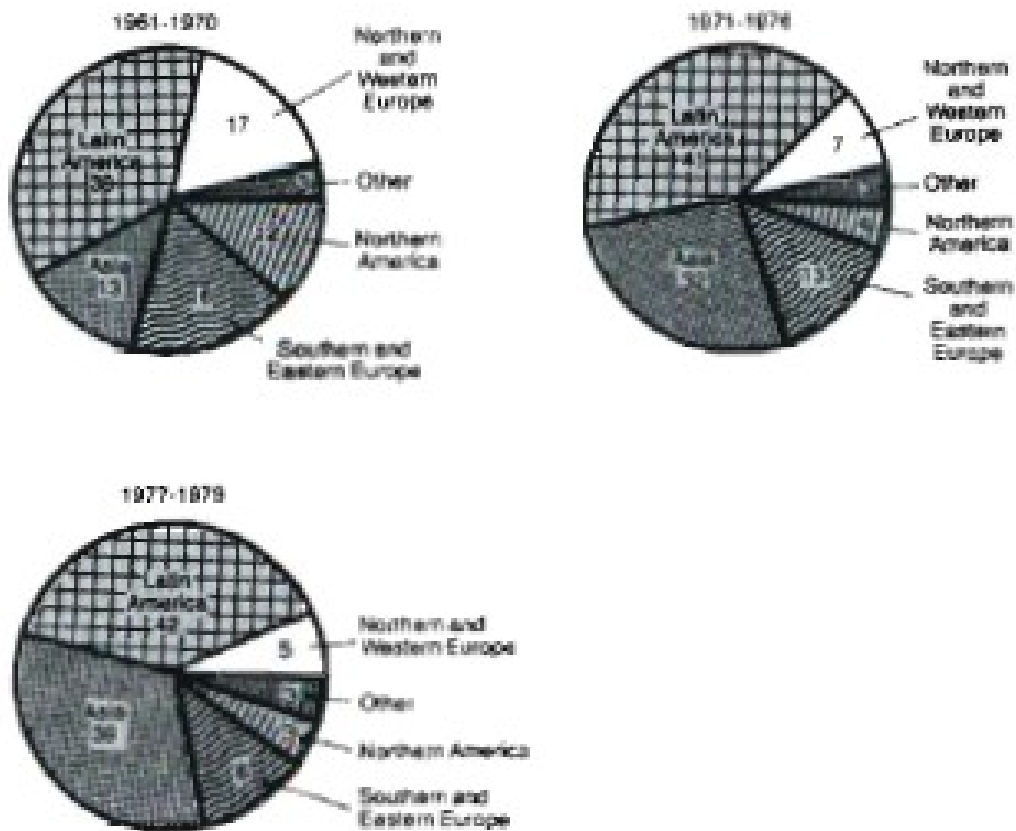
Long-distance migration has long been a part of the historical development of the African continent. Much of that long-distance migration was to avoid famine, war, persecution, or was forced, as in the case of the movement of blacks from Dutch South Africa. Contemporary long-distance migration is attributable to the economic opportunities associated with rural to urban movement; however, in Africa rural to urban migration also results in drawing immigrants across international boundaries. Many immigrants come from landlocked countries such as Upper Volta and Chad and move to countries on the coast. In 1975, approximately 17 percent of the population of Upper Volta was living elsewhere (Zachariah and Conte 1981). Unlike the somewhat more stable migration situations of the Middle East and Europe, the migrations in Africa are subject to the less stable political situations that often exist. For example, in 1969, the Ghanaian government expelled all aliens without residence permits; Nigeria did the same in 1983.

4.3.2 Regional Migration to the United States

As noted earlier, the United States was a major receptor for significant numbers of migrants during the late nineteenth and early twentieth centuries. Even after immigration was restricted following World War I, the United States still received more immigrants for permanent settlement than any other country. In the 1970s, for example, legal immigrants to the United States averaged almost 500,000 annually. Political refugees, who were allowed permanent settlement, are added to this figure. In addition, there is a significant number of illegal immigrants currently living in the United States. It has been estimated that 100,000-300,000 illegal immigrants come from Mexico and Central America each year to the United States (Jones 1984).

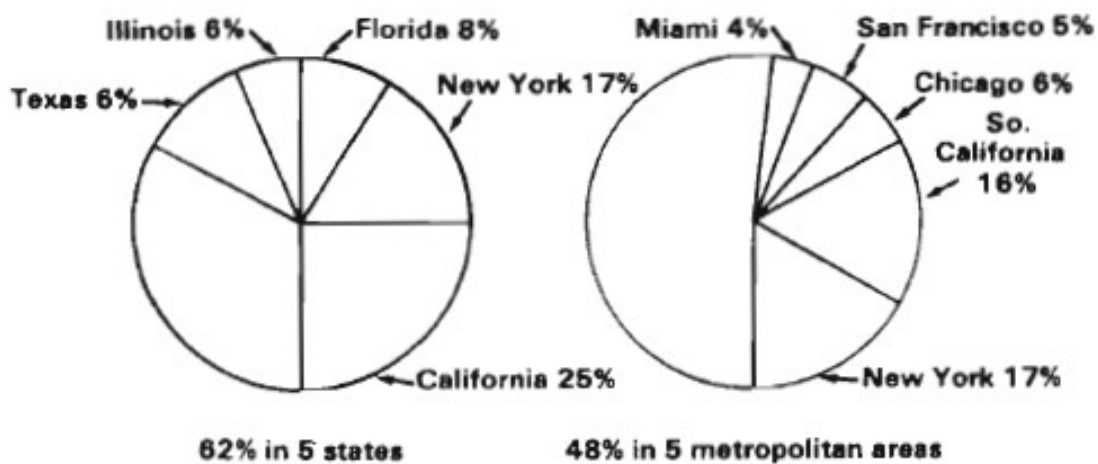
In the last twenty years there have been significant changes in the nature of the migrants into the United States. Most immigrants at present are from Southeast Asia and the Americas, especially Canada, Mexico, and Central America. The migration from Asia initially stimulated by the Vietnam War is the most significant change in in-migration into the United States (Figure 4.3). Moreover, this migration is geographically concentrated. California is by far the favorite state of residence for Asians. Latin Americans also prefer California followed by New York (from Puerto Rico), Texas, and Florida (Figure 4.4). Some estimates predict that by the year 2000, the population of California will be more than 50% Asian and Latin American (Bouvier 1981).

Beginning some time in the mid-1970s, almost all countries that were destinations for international migrants imposed significant restrictions on future immigration; that this came at the same time as world recession is not coincidental. The rate of increase in jobs could not accommodate both the immigrant populations and the large numbers of the baby-boom population who were joining the workforce in the latter half of the 1970s. The guest worker program was originally designed for the flow of population in and out of employer nation states; but guest workers have increasingly sought permanent or quasi-permanent settlement. Wage differentials between immigrant and domestic labor have been reduced and increasing costs of providing the social infrastructure especially in the provision of education and health have reduced the value of the guest worker program from the host nation perspective. Increasing dissatisfaction about working and living conditions in host countries have created even greater tensions. It is clear that the migration of labor, as we will examine from a theoretical perspective, is not an unmixed blessing.



SOURCE: Bouvier (1977). Reprinted by permission of the Population Reference Bureau. 1977-1979 data supplied by the Statistics Branch, U.S. Immigration and Naturalization Service.

Figure 4.3 Immigrants to the United States by National Origin



SOURCE: McCarthy (1984). Reprinted by permission of the Rand Corporation.

Figure 4.4 Immigrants Are Geographically Concentrated

4.4 The Determinants of International Migration

Just as in our discussion of the regional shifts in population, the main reason people undertook voluntary international migration (not refugee moves) was to find a more satisfying lifestyle and, more specifically, better jobs and higher wages. The economic interpretation of migration as embodied in the human capital concept emphasizes, as noted earlier, the investment in increasing the productivity of human resources. Thus, individuals who are considering whether or not to migrate weigh the costs of investment in their future productivity against its returns. To reiterate, the costs are what the individual actually pays to move and what he or she gives up by moving. The returns consist of the migrant's future earnings. Recall that in studies of regional migration, there is conflicting evidence about the role of employment and unemployment in origin and destination areas, but migration surveys at the international level of migrants who have actually moved in a variety of developing regions confirm that it is the search for a better job which is the critical reason for movement to the city (Table 4.2). Between 47 and 72 percent of male migrants indicate that work was the major reason for their shift.

TABLE 4.2
Major Reason for Migration Cited by Internal Migrants,
by Sex, in Selected Countries, 1966-1982

<i>Region, Country</i>	<i>% of Male Migrants Citing Reason</i>			
	<i>Work</i>	<i>Education</i>	<i>Family</i>	<i>Other</i>
Africa				
Ghana	52	11	28	9
Nigeria	54	18	27	—
Sierra Leone	48	17	30	5
Asia				
Bangladesh	72	—	15	12
Indonesia	69	20	6	5
Korea, Rep. of	67	15	9	9
Thailand	63	17	19	1
Latin America				
Chile	62	10	8	21
Costa Rica	47	4	12	36
Mexico	58	20	23	—
Venezuela	55	11	19	15
Middle East and North Africa				
Algeria	74	3	5	18
Egypt	58	23	2	17

SOURCE: *Population Reports* (1983), M-7, Population Information Program,
Johns Hopkins University. Reprinted by permission.

The movement of populations from developing countries, particularly across international borders, indicates that some of the same patterns as for regional migration can be observed. Migrants tend to be young and better educated, perhaps in part because of a desire to establish their independence, or in part because it is the better educated younger people who can take advantage of the opportunities that accrue from migration.

4.5 The Consequences of International Migration

Although the redistribution of workers in the 1960s and 1970s all but eliminated unemployment in some countries and aided the industrial growth in developed nations, there are corollaries that are less clearly understood. Immigration away from developing countries creates shortages of skilled workers, especially in the professions, and in the long run creates problems for economic development in countries such as Bangladesh, Pakistan, and even countries within Western Europe, such as Greece.

A more direct impact is related to redistribution of income as a result of migration. One of the major reasons for both rural to urban migration and international migration (which often involves rural to urban moves) is for the migrants to be able to send money to their families who remain at home. The higher wages obtained

in foreign centers are important as a source of income in countries where these remittances form a significant portion of family support, and indeed of the total gross national products. In some countries, the remittance money may amount to one-third or one-half of total other imports. It is estimated in 1978 that total international remittances amounted to \$24 billion. As a percentage of an individual country's GNP, it varies from 23 percent for Jordan to less than 1 percent for India and Korea. But even for India, the remittances amounted to 645 million dollars (U.S.) in 1976 (Kols, 1983). Financial exchange is significant in terms of economic expansion and development as it stimulates domestic industries and hence economic development of the less developed country. The trade-off between exchange and the cost of foregone production from the migrants who have moved away is more difficult to estimate.

4.6 The Global Labor Market and Political Perspectives on International Migration

Theories based on the economic incentive to migrate often ignore the dynamics of the contemporary world economic and political systems. Critics point out that not all populations can leave their countries of origin, even if they wish to, and that large proportions of the world's population face "virtually insurmountable barriers against exit" (Zolberg 1981, p. 4). Thus, while the classical free market approach to migration has emphasized the notion that individuals express their preferences by staying or leaving, the Tiebout (1956) approach does not recognize that exit and entry are controlled both by the internal states of origin and by the areas of destination. It has been argued (Petras 1981) that much of the control on migration is directly related to the role of capitalism and its effect on global economic and political changes.

The classical view of recent international as well as regional labor migration is that it exists to restore equilibrium between locations; labor flows from regions of lesser opportunities to regions with greater opportunities. Migration provides for the needs of labor in regions that are growing, while decreasing population pressure in areas that are not developing. Such classical views consider migration as a self-regulating process through which locational differences in labor demand and labor supply adjust themselves. Higher wages in urban areas stimulate outmigration from the subsistence rural sector; the resulting new abundance of workers contributes to a shift in urban industry toward labor-intensive methods. Thus, the first waves of migrants can find employment. Continuation of the process results in an overabundance of labor. Unfettered migration eventually leads to a reduction in real wages and thereby decreases the attractiveness of the location to later migrants. The rate of in-migration then is dampened.

In contrast to the view of migrants making individual decisions that in turn lead to aggregate flows of population from one country to another, Marxist economists view national states as controlled by power structures in which states consider opening their borders if land or capital are not utilized to their potential. These concepts are used to explain why Western Europe opened its borders to the influx of large numbers of migrants to work in the developing industrial plants, and why the southwestern United States, with its needs for labor in agricultural productivity, opened its borders to migrants from Mexico. The Petras (1981) argument is that the world is, in fact, an interconnected framework in which there is a core, semiperiphery, and periphery, and the movements of capital, commodities, and labor are the processes that bind the core, semiperiphery, and periphery together.

One of the major criticisms of those who have adopted a political perspective on international migration is that the search for causes of migration has focused specifically on individualistic factors and individual decision making; this perspective obscures the structural context within which migration is taking place. In addition, such a perspective does not explain the way in which the structural factors lead to a patterned movement of known size and direction over a long period of time (Portes 1978, p. 5). Other criticisms, most notably those by Portes (1978), argue that the division of studies of migration into local, regional, and international moves obscures the similarities of apparently diverse movements. Thus, research that focuses on legal *versus* illegal immigration, internal and international migration, the brain drain and refugee migrations, has obscured the structural underpinnings of these migrations.

The Marxist contribution to date has been the recognition of the global interconnected nature of migrations, that labor migration does not occur merely through migrants' external comparisons of the economic advantage between countries and regions, but requires an in-depth analysis of economic, social, and political institutions.

Portes considers the influence and control of major global forces in developing regions to be critical components of labor flows. This explanation emphasizes two interrelated characteristics. First, migration is the source of labor critical for the continued expansion of the developed capitalist system. Second, migration is the process by which populations of less developed countries cope with lower wages and poorer social and environmental conditions in their own nations.

The criticisms are well taken, but until the current theories at the local and regional levels are replaced with umbrella-like theories of migration that include movements at the local, regional, and international levels, it is most fruitful to retain the housing market explanations of local movers and the job seeking-human capital explanation for regional moves.

It becomes increasingly apparent from considering both self-equilibrating and Marxist themes that to understand the processes of international labor flows we require both an understanding of individual migration behavior and the actions of economic and political institutions. Migration is an important force in the changing economic and social structure of world populations.

The extent that decisions by nation states influence the flows of population can be illustrated both by the movement of migrants from Mexico to the United States, especially the movement of illegal migrants, and by the inflow of Asian populations into the United States as a result of major political conflict. These two examples, seemingly independent, are indicators of the underlying changes occurring at an international level that significantly affect the redistribution of population at a world scale.

4.7 Undocumented Migration

Illegal immigrants, or undocumented migrants, are present in all developed countries. There may be as many as a million undocumented migrants in Western European countries, one to two million in Venezuela, and three to six million in the United States (United Nations 1982; Siegel et al. 1981). Illegal immigrants are tolerated as long as their labor is needed and the economy is prosperous. Economic recession and a less favorable employment situation may lead to expulsion and repression. One example of a political response to economic pressures is the 1982-1984 forced exodus of migrants from Nigeria. Deportations of previously tolerated undocumented aliens for both economic and political reasons have been occurring in Africa for more than two decades (Addo 1982).

In Europe there have been less dramatic measures used against illegal immigrants. There are extensive policies to ensure that guest workers will return home at the end of their employment. Work and resident permits are carefully controlled and strictly enforced, and workers are usually forbidden to bring dependents. In some cases the labor importing countries prefer to use Asian guest workers because they can be more easily segregated from European society than Arab and Turkish workers. Especially in the Middle East, the immigrants are often without political rights, social benefits, freedom to change jobs, and the opportunity to become citizens. Work permits are used to keep track of legal immigrants as well; they are used in Europe, in northern and central African countries, and in the United States. Most notorious is the use of work permits in South Africa to disenfranchise the nonwhite population. However, forged documents and the general inability of governments to keep track of millions of workers either reduce the success of such approaches in dealing with illegal immigration or make the maintenance of such schemes so costly as to severely tax the population.

4.7.1 Undocumented Migration to the United States

There has been a great deal of attention in the past decade to the nature and level of illegal or undocumented migration to the United States. Much of this discussion has focused on undocumented Mexican immigration, although Mexico is only one of several countries providing large numbers of migrants who enter the United States without the necessary formal papers (Jones 1984). Discussions of this population flow have often escalated to crisis tones, especially in those counties and states that border Mexico. The usual method for discussing the level of undocumented migration in the United States is through some analysis of the proportion of illegal Mexican aliens who are apprehended during border crossing (Table 4.3). Clearly, this number is significant, and the possibility that the number apprehended is only one in four or five of all potential migrants suggests that the numbers of illegal immigrants are immense. More careful attempts to document the extent of actual flows, that is of *net immigration* rather than gross flows, have yielded

much lower figures. Recent analyses of the growth of the Mexican population in the U.S. border states, utilizing a variety of estimates made from the growth of the population of Mexican origin, suggest that the annual net flow is somewhere between 82,000 and 232,000 persons (Heer 1979). This is a significant net flow of immigrants to the United States, but far less than that suggested by the statistics published by the Immigration and Naturalization Survey. Estimates of the true level of illegal immigrants are within the range of 82,000 to 232,000 people; the upper level of those figures implies a net flow of 1 million migrants into the states bordering Mexico over a five-year period. Total undocumented Hispanic migrants are estimated to be between 3.5 and 6 million (Davis et al. 1983, p. 27). If these figures are accurate, then the illegal flow of persons from Mexico to the United States is one of the major undocumented migration shifts that has occurred during the early 1980s.

TABLE 4.3
Illegal Aliens Apprehended on the Mexican Border

<i>Fiscal year</i>	<i>Illegal Mexican aliens apprehended</i>		<i>Authorized border patrol agents</i>	
	<i>Total</i>	<i>Change from Previous Year</i>	<i>Total</i>	<i>Change from Previous Year</i>
1974	604,829	28%	2,136	5%
1975	563,635	-6	2,221	4
1976*	795,202	18	2,422	9
1977	779,007	-.02	2,427	0
1978	826,505	6	2,480	2
1979	849,362	3	2,731	10
1980	723,602	-15	2,915	7
1981	783,987	8	2,872	-.01
1982	778,869	0.5	2,890	0.5
1983	1,078,469	38	2,890	0

SOURCE: Immigration and Naturalization Service, as reported in *The Los Angeles Times*, April 1, 1984, Part I.

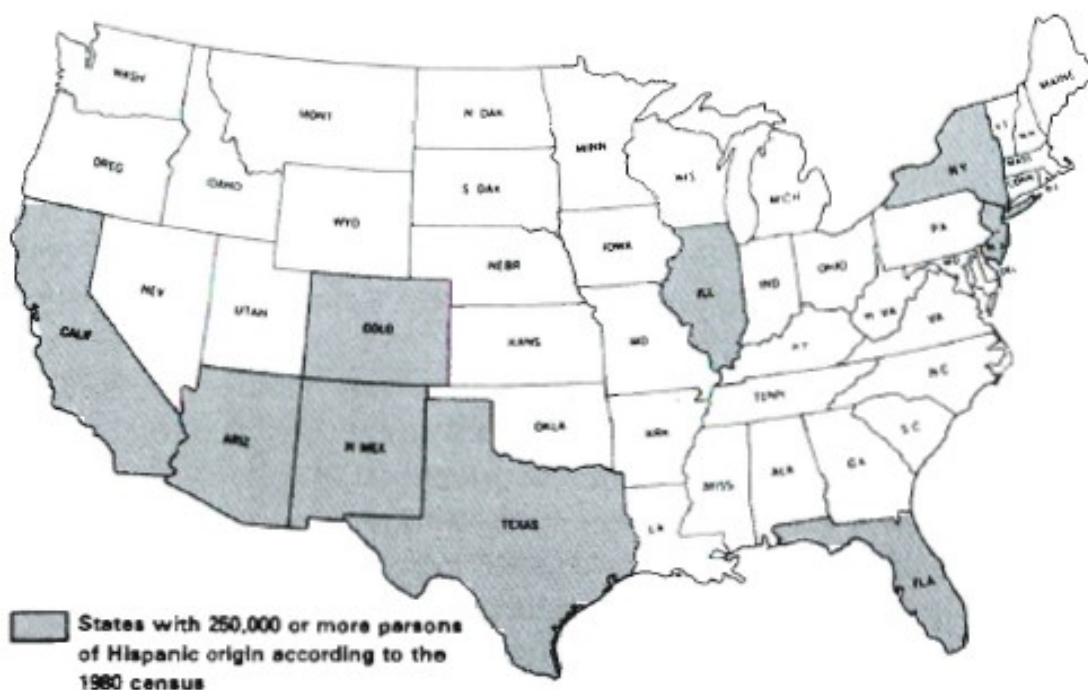
*Included additional three months due to change in fiscal year.

On the supply side, illegal immigration from Mexico to the United States is an attempt by migrants to achieve a better economic status; on the demand side, it may be that the flow of illegal workers into the United States is covertly permitted to fulfill the needs of a large number of rural and urban employers (Portes 1978, p. 35). Initially, Mexican migrant workers were thought to flow into rural activities, especially intensive agriculture; however, there is increasing evidence that illegal workers neither are limited to agriculture nor are primarily Mexican. Large numbers of Guatemalans, El Salvadorans, and Nicaraguans enter the United States. The Immigration and Naturalization Service estimates that two-thirds of the illegal immigrants are not in agricultural activities. It has been essential for many sectors of American industry to procure labor at lower costs to compete on the international market. Small firms, likely to be overlooked by unions and government, have been regular employers of illegal migrants; the illegal migrants' lack of unionization and fear of deportation by the government place heavy downward pressures on wages.

Until 1984, there was no attempt by the U.S. Congress to enforce heavy sanctions against employers who utilize illegal immigrants in factories, on farms, and in-service occupations. In spite of attempts by some members of Congress to penalize businesses that hire illegal immigrants (the 1984 Simpson-Mazzoli proposed legislation), support for passage of such measures has been lacking; it is also not clear if passage of such bills would have any impact. Fewer than 3,000 border patrol workers enforce the border of 1,800 miles; there is also the Canadian border of 3,000 miles to patrol. The border patrol must also deal with illegal immigrants in the rest of the country. It is not necessary to argue that the illegal immigration is sanctioned or favored by government; it is only necessary to see the lack of enforcement as the outcome of a series of funding decisions in budget negotiations that have simply maintained the Immigration and Naturalization Services at levels that were inadequate even before the recent political turmoil in Central America and economic downturn in Mexico.

4.8 Impacts of Illegal Immigration

The Hispanic population, which is variously defined as individuals of Spanish origin, of Spanish surname, or who speak the Spanish language, is the most rapidly growing segment of the United States population. A large number of states now have more than a quarter of a million peoples of Hispanic origins, according to the 1980 Census (Figure 4.5). If patterns of fertility and immigration continue, Hispanics could number some 47 million people in the United States by the year 2020 and will displace blacks as the country's largest ethnic minority (Davis et al. 1983). Thirty years ago Spanish Americans were only a few million people living along the Mexican-United States border. The increase in Spanish-speaking persons is attributable to flows of Cubans into Florida, Puerto Ricans into New York, and Mexicans into the southwestern United States. Regardless of how the Hispanic population is defined (see Davis et al. 1983 for a discussion), these persons will have increasing impact on society in the United States through the year 2000.



Some 85 percent of the 14.6 million Hispanics counted in the 1980 U.S. census lived in these nine states. Mexican Americans, the largest Hispanic group, are concentrated in the Southwest, particularly California and Texas. Most Puerto Ricans live in New York and New Jersey. Cubans are headquartered in Florida. The largest numbers of the fourth, more scattered "Other Hispanic" group are found in California and New York.

SOURCE: Davis et al. (1983). Reprinted by permission of the Population Reference Bureau.

Figure 4.5 States with 250,000 or More Persons of Hispanic Origin According to the 1980 Census

Hispanics on the whole are younger and have higher fertility rates than the general population in the United States. Moreover, Hispanics are concentrated in eight states, thereby increasing their distinctive impact on a few locations. The legal immigration of Hispanics is also high; in the late 1970s Hispanics and Asians were the two largest groups of migrants entering the United States: 42 percent and 39 percent versus only 13 percent from Europe.

At the same time as the in-migration to the United States, there has been a return flow also. Recently, though, with the levels of unemployment in Mexico and the high fertility levels of Mexicans and other Latin American populations, there may be an increasingly large one-way flow of both legal and illegal immigrants across the borders to the United States. It is certainly one of the more significant policy concerns to states that share borders in common with Mexico.

4.9 Refugees

Refugee migrations are forced migrations. Although there have been significant flows of population prior to this century, it was World Wars I and II that set up much of the pattern of refugee migration in the early decades of this century, and this pattern is being continued by political conflicts in the past two decades.

A refugee has been defined by the United Nations as “an individual, who owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion is outside the country of his nationality, and is unable or (owing to such fears) unwilling to avail himself of the protection of that country” (quoted by Gould 1974, p. 413). These migrations are forced migrations in which individuals and households do not move through the normal process of individual choice and selectivity, but in many cases are caught up in the movement of whole communities or ethnic groups within a society. There are many examples. More than 1 million refugees left Germany in the 1930s to escape the German political repression. In the three years following World War II, Kozinski (1970), among others, has reported that as many as 18 million in Central and Eastern Europe crossed international frontiers as a result of political and social upheaval. Among the other significant refugee movements are those that were created by the 1947 partition of India and Pakistan, in which some 6 million Muslims left India for Pakistan and perhaps the same number of Hindus and Sikhs moved in the opposite direction. Additionally, the creation of the state of Israel led to significant Palestinian refugees and, more recently, the political changes in Southeast Asia have led to significant movements of Indo-Chinese, Thais, and Vietnamese. In the middle 1970s Davis (1974) estimated that the total number of refugee movements between 1913 and the late 1960s amounted to perhaps 71 million, and this number continues to grow with movements from Cuba, Vietnam, Thailand, and other southeast Asian countries.

Good estimates of refugee migration are quite difficult to obtain, but the number of presently *unsettled* refugees in the world is thought to be over 10 million (Intercom 1981). The largest current groups of refugees are the more than 2 million Afghan refugees in camps in Pakistan and the large number of Salvadoran refugees in Central America. The latest estimates (Newland 1981) suggest that there are currently 16 million refugees.

Newland argues that actions within a country that cause its people to become refugees are no longer purely internal affairs; they in fact affect the sovereignty of other countries by flooding them with homeless people and generally destabilizing their political systems (Newland 1981, p. 12). It is significant that much of the migration of refugees is within Third World countries. Huge refugee concentrations exist on the Horn of Africa, where perhaps 2 million people fled from Ethiopia in 1982-1983 alone. There may be as many as 7 million Vietnamese, Kampuchians, and Laotians who fled from war and political upheaval in their home countries. It is estimated that 90 percent of this population of Third World refugees move within or between Third World countries. Developed countries accepted fewer than 2 million refugees in 1980 (Intercom 1981). It is not possible to place the refugee migration in any coherent migrational context other than noting its association with political destabilization in these societies. Rather, the refugee migrations that may be among the most important in affecting the patterns of population in the long run are seen as outside the normal structures of migration and population distribution.

In a recent paper, Bouvier (1981) set out three assumptions: (1) The fertility of the immigrant groups is approximately the same as the resident ethnic groups; (2) there will be little intermarriage between the ethnic groups; and (3) the regional distribution of future immigrant populations will be similar to that of those entering in 1978. Given these assumptions, he projects the composition of immigrant groups for the years 2000, 2030, and 2080. The remarkable conclusion for California is that 100 years from now almost half of the state's population will consist of post-1980 immigrants and their descendants. Clearly, these recent refugee migrations have significant long-term impacts that have not yet been fully articulated.

4.10 Conclusion

In summing up the flows of international migrants it is important to recognize that we are dealing with an interconnected global structure. To examine the flows of migrants outside of the larger social and economic structure does not provide a sufficiently coherent theoretical perspective. Whether it is the perspective of a micro-behavioral response on the part of individual migrants or manipulation by global multinational

corporations, the levels of the international migrations presently occurring are likely to continue for the final decades of this century and will have long-term impacts on Western developed society.

5 Concluding Remarks

This introductory survey of human migration is designed to introduce students to the basic elements of population shifts at local, regional, and international scales. The emphasis has been on our substantive understanding of migration and some of the tools that are used to analyze population flows. In a brief introduction it is not possible either to explore in detail the debates that are occurring about migration or to provide the technical material that a professional would use to document and analyze the nature of migration between countries.

It is clear from the discussions even at this elementary level that migration has moved into its own as an important field of study in population geography and demography. A large number of professionals are involved in calculating rates, estimating flows, and examining the impacts of population shifts at all the scales we discuss in this monograph. Most recently, there are two important themes that have been emerging in migration studies. One is the debate about the relative importance of individual decision making and migration versus structural and contextual impacts on the individual's decision and ability to change residences in the city, move between regions in the country, or across international borders. This is part of the larger debate about the role of societal contexts on specific behaviors within cities and regions. From the brief discussion in this book it is clear that a perspective solely on individual decision making will not adequately represent the complexity of population shifts.

The other important debate has been about the interface between policy and migration. Policymakers, especially politicians, develop policies and institute programs that have significant impacts on the abilities of individuals to change residences. Some of these programs have quite direct effects on mobility, such as the provision of subsidized housing. Others, such as rent control, have more indirect effects. These debates reemphasize that mobility and migration are critical elements of the way in which individuals interact with the wider structural context. As individuals attempt to change their statuses in the long run, they affect the urban and social systems. An understanding of migration and mobility is an important aspect of understanding social change.

REFERENCES

- Adams, J. 1969. Directional bias in intra-urban migration. *Economic Geography* 45: 302-323.
- Addo, N. O. 1982. Government induced transfers of foreign nationals. In *Redistribution of population in Africa*, eds. J. I. Clarke and L.A. Kozinski, pp. 31-38. London: Heinemann.
- Alonso, W. 1964. *Location and land use*. Cambridge, MA: Harvard University Press.
- Bartel, A. 1979. The migration decision: what role does job mobility play? *American Economic Review* 69: 775-786.
- Beale, C. L. 1975. *The revival of population growth in non-metropolitan America*. Washington, DC: U.S. Dept. of Agriculture, ERS-60-S.
- Bedford, R. D. 1973. *New Hebridean mobility: a study of circular migration*. Canberra: Australian National University, Research School of Pacific Studies, Publication HG-9.
- Berry, B. J. L. and Dahmann, D. C. 1980. Population redistribution in the United States in the 1970s. In *Population redistribution and public policy*, eds. B. J. L.
- Berry and L. P. Silverman, pp. 8-49. Washington DC: National Academy of Sciences.
- Bouvier, L. F. 1981. Immigration and its impacts on US society. *Population Trends in Public Policy* 2. Washington, DC: Population Reference Bureau.
- Bouvier, L. F., with Shyrock, H. S. and Henderson, H. H. 1977. International migration: yesterday, today, and tomorrow. *Population Bulletin* 32. Washington, DC: Population Reference Bureau.
- Brown, L. A. and Moore, E. G. 1970. The intra-urban migration process: a perspective. *Geografiska Annaler B* 25.
- Brummell, A. 1970. A model of intraurban mobility. *Economic Geography* 55: 338-352.
- Butler, E. W., Chapin, F. S., Jr., Emmons, G. C., Kaiser, E. J., Stegman, M. A., and Weiss, S. F. 1969. *Moving behavior and residential choice: a national survey*. National Cooperative Highway Research Program Report No. 81. Washington DC: Government Printing Office.
- Caselli, E. 1980. Equilibrium population partition between urban and agricultural occupations. *Geographical Analysis* 12: 47-54.
- Cavalli-Sforza, H. 1962. The distribution of migration distances: models and applications to genetics. In *Human displacement*, ed. J. Sutter. Monaco: Hachette.
- Cebula, R. J. 1979. *The determinants of human migration*. Lexington, MA: Lexington Books.
- Clark, G. L. 1983. *Interregional migration, national policy and social justice*. Totowa, NJ: Rowan & Allanheld.
- and Ballard, K. 1980. Modelling out-migration from depressed regions: the significance of origin and destination characteristics. *Environment and Planning* 12: 799-812.
- Clark, W. A. V. 1970. Measurement and explanation in intraurban residential mobility. *Tijdschrift voor Econ. en Soc. Geografie* 61: 49-57.
- . 1972. Behavior and the constraints of spatial structure. *New Zealand Geographer* 28: 171-180.
- . 1976. Migration in Milwaukee. *Economic Geography* 52: 48-60.
- . 1980. Residential mobility and neighborhood change: some implications for racial residential segregation. *Urban Geography* 1: 95-117.
- . 1982. Recent research on migration and mobility: a review and interpretation. *Progress in Planning* 18: 1-56.
- . 1983. Structures for research on the dynamics of residential mobility. In *Evolving geographical structures*. eds. D. Griffith and A. Lea, pp. 327-357. The Hague: Martinus Nijhoff.

- . and Burt, J. E. 1980. The impact of workplace on residential relocation. *Annals of the Association of American Geographers* 70: 59-67.
- Clark, W. A. V. and Avery, K. 1978. Patterns of migration: a macro analytic case study. In *Geography and the urban environment*, eds. D. T. Herbert and R. J. Johnston, pp.135-196. New York: John Wiley.
- Clark, W. A. V. and Onaka, J. 1983. Life cycle and housing adjustment as explanations of residential mobility. *Urban Studies* 20: 47-57.
- Da Vanzo, J. 1976. *Why families move: a model of the geographic mobility of married couples*. Santa Monica, CA: Rand Corporation, R-1972-DOL.
- . 1978. Does unemployment affect migration? Evidence from micro data. *Review of Economics and Statistics* 60: 504-514.
- . 1981. Microeconomic approaches to studying migration decisions. In *migration decision making*, eds. G. F. DeJong and R. W. Gardner, pp. 90-129. New York: Pergamon.
- Davis, C., Haub, C., and Willette, J. 1983. U.S. Hispanics: changing the face of America. *Population Bulletin* 38. Washington, DC: Population Reference Bureau.
- Davis, K. 1974. *The migrations of human populations*. Scientific American 237: 93-105.
- Fields, G. S. 1976. Labor force migration, unemployment, and job turnover. *Review of Economics and Statistics* 50: 407-415.
- Findlay, A. and Findlay, A. 1980. *Migration Studies in Tunisia and Morocco*. Geography Occasional Paper 3. Glasgow: University of Glasgow.
- Fuguitt, G. V. and Beale, C. L. 1978. Population trends of nonmetropolitan cities and villages in sub-regions of the United States. *Demography* 15: 605-620.
- Gaile, G. and Burt, J. n.d. *Directional statistics*. CATMOG. Geo Abstracts. Norwich: University of East Anglia.
- Getis, A. 1969. Residential location and the journey to work. *Proceedings. Association of American Geographers* 1: 55-59.
- Goldstein, S. 1958. *Patterns of mobility*. Philadelphia: University of Pennsylvania Press.
- Goodman, J. 1978. *Urban residential mobility: places, people, and policy*. Washington, DC: Urban Institute.
- . 1981. Information, uncertainty, and the microeconomic model of migration decision making. In *Migration decision making*, eds. G. DeLong and R. Gardner, pp. 130-148. London: Pergamon.
- Gould, P. and White, R. 1974, *Mental maps*. Harmondsworth: Penguin.
- Gould, W. T. 1972. Pedagogic review. *Annals of the Association of American Geographers* 62: 689-700.
- Grant, K. E. and Vanderkamp, J. 1980. The effects of migration on income: a macro study with Canadian data, 1965- 1971. *Canadian Journal of Economics* 13: 381-406.
- Graves, P. E. 1978. A re-examination of migration, economic opportunity and the quality of life. *Journal of Regional Science* 16: 107-112.
- . 1980. Migration and climate. *Journal of Regional Science* 20: 227-237.
- Greenwood, M. J. 1981. *Migration and economic growth in the United States*. New York: Academic Press.
- Harris, J. and Todaro, M. 1970. Migration, unemployment, and development: a two-sector analysis. *American Economic Review* 60: 139- 149.
- Haynes, K. E. and Fotheringham, A. S. 1984. *Gravity and spatial interaction models*. Beverly Hills Sage.
- Heer, D. 1970. What is the annual net flow of undocumented Mexican immigrants to the United States? *Demography* 16: 417-423.

- Hoffmann-Nowotny, H. J. 1978. European migration after World War II. In *Human migration*, eds. W.H. McNeil and R. S. Adams. Bloomington: Indiana University Press.
- House, J. W. and Knight, E. 1965. *Migrants of north east England 1951-61: character, age and sex*. Dept. of Geography, Papers on Migration and Mobility 2. Newcastle: University of Newcastle on Tyne.
- Huff, J. O. and Clark, W. A. V. 1978. Cumulative stress and cumulative inertia: a behavioral model of the decision to move. *Environment and Planning A* 10: 1101-1119.
- Intercom, 1981a. *World refugee levels continue unabated*. 9: 14-15.
- Intercom, 1981b. *Refugees: from one Third World country to another*. 9: 14.
- Jones, R. C. (ed.) 1984. *Patterns of undocumented migration*. Totowa, NJ: Rowan and Allanheld.
- Jones, H. U. W. 1981. *A population geography*. New York: Harper & Row.
- Kain, J. 1975. The journey to work as a determinant of residential location. In *Essays on urban spatial structure*, ed. J. Kain, pp. 29-64. Cambridge, MA: Ballinger.
- Kois, A. 1983. *Migration, population growth, and development*. Population Information Program: *Population Reports*, Series M, 7. Volume 11, 4 Special Topics. Baltimore: The Johns Hopkins University.
- Kozinski, L. 1970. *The population of Europe*. Longman: London.
- Lansing, J. and Mueller, E. 1967. *The geographical mobility of labor*. Ann Arbor: University of Michigan, Survey Research Center.
- Laska, S. and Spain, D. 1980. *Back to the city: issues in neighborhood renovation*. Elmsford, NY: Pergamon Press
- Leven, C. et al. 1976. *Neighborhood change: lessons in the dynamics of neighborhood decay*. Cambridge, MA: Ballinger.
- Long, J. A. F. 1971. *Population deconcentration in the United States*. U.S. Dept. of Commerce Bureau of the Census, Special Demographic Analyses, EDS 81-5. Washington, DC: Government Printing Office.
- Long, L. H. and Boertlein, C. G. 1978. Urban residential mobility in comparative perspective. Paper presented at the International Sociological Association, Upsala, Sweden.
- . *The geographical mobility of Americans: an international comparison*. U.S. Dept. of Commerce, Bureau of the Census, *Population Reports*, Special Studies Series, P-23, 64.
- Long, L. H. and Frey, W. H. 1982. *Migration and settlement: 14 United States*. Laxenberg, Austria: International Institute for Applied Systems Analysis.
- Lowry, I. S. 1966. *Migration and metropolitan growth: two analytic models*. San Francisco: Chandler.
- Maher, C. 1982. Residential mobility and neighborhood change in Melbourne, Australia. *Urban Geography* 3, 3.
- McCarthy, K. F. 1976. *The household life cycle and housing choices*. Santa Monica, CA: Rand Corporation P-5565.
- . 1983. The elderly population's changing spatial distribution. *Rand Note* R2916-NIA.
- . 1984. *Qs and As about the future of the three Rs: a demographer's perspective*. Santa Monica, CA: Rand Corporation, P-6972.
- Michelson, W. 1977. *Environmental choice, human behavior, and residential satisfaction*. New York: Oxford University Press.
- Mincer, J. 1978. Family migration decisions. *Journal of Political Economy* 86: 749-773.
- Moore, E. G. 1972. Residential mobility in the city. Commission on College Geography Resource Paper 13. Washington, DC: Association of American Geographers.

- and Clark, W. A. V. 1978. Data structures and analytical strategies in migration research. In *Population mobility and residential change*, ed. W. A. V. Clark, pp. 267-279. Evanston, IL: Northwestern University.
- Morrill, R. and Pitts, F. R. 1967. Marriage, migration and the mean information field, a study in generality. *Annals of the Association of American Geographers* 57: 401-422.
- Morrison, P. A. and McCarthy, K. F. 1982. *Demographic forces reshaping small communities in the 1980s*. Rand Corporation, N-1887-NICHD.
- Muth, R. F. 1969. *Cities and housing*. Chicago: University of Chicago Press.
- Newland, K. 1981. Refugees: The new international politics of displacement. World Watch Paper 43, Washington, DC: Population Reference Bureau.
- Niedercon, J. and Bechdolt, B. V. 1969. An economic derivation of the gravity law of spatial interaction. *Journal of Regional Science* 9: 273-282.
- Petrus, E. 1981. The global labor market in the modern world economy. In *Global trends in migration*, eds. M. M. Kritz, C. B. Heeley, and S. M. Tomasi. New York: Center for Migration Studies.
- Pickle, J. E. 1980. The migration of two worker families. Unpublished master's thesis. Los Angeles: University of California.
- Plane, D. 1984. Migration space: doubly constrained gravity model mapping of relative interstate separation. *Annals, Association of American Geographers* 74: 244-256.
- Population Reports*, 1983. Series M, 7, Baltimore: The Johns Hopkins University.
- Portes, A. 1978. Migration and underdevelopment. *Politics and Society* 8: 1-48.
- . 1981. Modes of structural incorporation and present theories of labor immigration. In *Global trends in migration: theory and research on international population movements*, eds. M. M. Kritz, C. B. Heeley, and S. M. Tomasi. New York: Center for Migration Studies.
- Quigley, J. and Weinberg, D. 1977. Intra-urban residential mobility: a review and synthesis. *International Regional Science Review* 2: 41-66.
- Ravenstein, E. G. 1885. The laws of migration. *Journal of the Royal Statistical Society* 48: 167-227.
- Rees, P. H. and Wilson, A. G. 1977. *Spatial population analysis*. London: Edward Arnold.
- Richmond, A. H. 1969. Sociology of migration in industrial and postindustrial societies. In *Migration*, ed. J. Jackson, pp. 238-281. Cambridge: Cambridge University Press.
- Ritchey, P. 1976. Explanations of migration. *Annual Review of Sociology* 2: 363-404.
- Rogers, A. 1968. *Matrix analysis of interregional population growth and distribution*. Berkeley: University of California Press.
- . 1980. Introduction to multistate mathematical geography. *Environment and Planning A* 12: 489-498.
- Roseman, C. C. 1971. Migration as a spatial and temporal process. *Annals of the Association of American Geographers* 61: 589-598.
- . 1977. Changing migration patterns within the United States. AAG Resource Paper 77-2. Washington, DC: Association of American Geographers.
- Rossi P. H. 1955. *Why families move*. New York: Free Press.
- Sandell, S. H. 1977. Women and the economics of family migration. *Review of Economics and Statistics* 59: 406-414.
- and Koenig, P. J. 1978. Geographic mobility of young women and their families in years of decision. *U.S. Manpower Policy and Evaluation Research Monograph 24*. Washington, DC.
- Schnell, G. A. and Monmonier, M. S. 1983. *The study of population*. Columbus, OH: Merrill.

- Shaw, R. P. 1975. *Migration, theory and fact*. Philadelphia: Regional Science Research Institute.
- Siegel, J. S. et al. 1981. *Preliminary review of existing studies of illegal residents in the U.S.* Washington, DC: Bureau of the Census.
- Sjaastad, L. A. 1962. The costs and returns of human migration. *The Journal of Political Economy* 70: 80-93.
- Spain, D. 1979. Reasons for intrametropolitan mobility: are schools a key issue? Paper prepared for distribution at the Annual Meeting of the Population Association of America, Philadelphia.
- Speare, A., Goldstein, S., and Frey, W. 1975. *Residential mobility, migration and metropolitan change*. Cambridge, MA: Ballinger.
- Stapleton, C. 1980. Reformulation of the family life cycle concept. *Environment and Planning A* 12: 1103-1118.
- Steward, C. T. 1960. Migration as a function of population and distance. *American Sociological Review* 25: 347-356.
- Stouffer, S. A. 1940. Intervening opportunities: a theory relating mobility and distance. *American Sociological Review* 5: 845-867.
- Taylor, P. 1971. Distances within shapes: an introduction to a family of finite frequency distributions. *Geografiska Annaler B* 53: 40-54.
- Thrall, G. I. 1980. The consumption theory of land rent. *Urban Geography* 1: 350-370.
- Tiebout, 1956. A pure theory of local expenditures. *Journal of Political Economy* 64: 416-424.
- Todaro, M. P. I 1976. *Internal migration in developing countries*. Geneva: International Labor Office.
- United Nations, 1982. *International migration policies and programs, a world survey*. Population Studies No. 80. Department of International Economic and Social Affairs.
- U.S. Bureau of the Census, 1980. *Current Population Reports*. Population characteristics, geographical mobility: March 1975 to March 1980. Series P20, 368. Washington, DC: Government Printing Office.
- . 1982. *State and metropolitan data book*. Washington, DC: Government Printing Office.
- . 1983. *Statistical abstracts of the United States. 103rd ed, 1982-1983*. Washington, DC: Government Printing Office.
- Ward, D. 1971. *Cities and immigrants: a geography of change in nineteenth century America*. New York: Oxford University Press.
- Wilson, A. 1970. *Entropy in urban and regional modelling*. London: Pion Limited.
- Wingo, L. 1961. *Transportation and urban land*. Baltimore: Johns Hopkins University Press.
- Wolpert, J. 1965. Behavioral aspects of the decision to migrate. *Papers, Regional Science Association* 15: 159-169.
- Young, E. C. 1924. *The movement of farm population*. Cornell Agricultural Experimental Station Bulletin 426. Ithaca: Cornell University.
- Zachariah, K. C. and Conte, J. 1981. *Migration in West Africa, demographic aspects*. New York: Oxford University Press.
- Zelinski, W. 1971. The hypothesis of mobility transition. *Geographical Review* 61: 219-249.
- Zipf, G. K. 1946. The $P - 1 P_2 / D$ hypothesis on the intercity movement of persons. *American Sociological Review* 11: 677-686.
- Zolberg, A. R. 1981. International migrations in political perspective. In *Global trends in migration: Theory and research on international population movements*, eds. M. M. Kritz, C. B. Heeley, and S. M. Tomasi. New York: Center for Migration Studies.

ABOUT THE AUTHOR

W.A.V. CLARK, himself a migrant to the United States from New Zealand, is Professor of Geography at the University of California, Los Angeles. He received his Ph.D. in Geography from the University of Illinois in 1964, and has taught at the University of Canterbury in New Zealand and the University of Wisconsin. He has been a Visiting Professor of Geography in New Zealand at the University of Auckland, and in the Netherlands at the Free University of Amsterdam and the State University of Utrecht. Professor Clark has contributed significantly to the literature on intraurban migration and neighborhood change. He is coeditor of *Population Mobility and Residential Change* (1978), *Residential Mobility and Public Policy* (1980), and editor of *Modelling Housing Market Search* (1982). He is currently editor of *Geographical Analysis: An International Journal of Theoretical Geography*.

SCIENTIFIC GEOGRAPHY SERIES

This series presents the contributions of scientific geography in small books or modules. Introductory modules are designed to reduce learning barriers; successive volumes gradually increase in complexity, preparing the reader for contemporary developments in this exciting field. Emphasizing practical utility and real-world examples, this series of modules is intended for use as classroom texts and as reference books for researchers and professionals.

Volume 1

CENTRAL PLACE THEORY *by Leslie J King*

Volume 2

GRAVITY AND SPATIAL INTERACTION MODELS *by Kingsley E. Haynes & A. Stewart Fotheringham*

Volume 3

INDUSTRIAL LOCATION *by Michael J Webber*

Volume 4

REGIONAL POPULATION PROJECTION MODELS *by Andrei Rogers*

Volume 5

SPATIAL TRANSPORTATION MODELING *by Christian Werner*

Volume 6

REGIONAL INPUT-OUTPUT ANALYSIS *by Geoffrey J. D. Hewings*

Volume 7

HUMAN MIGRATION *by W.A.V. Clark*

Volume 8

POINT PATTERN ANALYSIS *by Barry N. Boots & Arthur Getis*

Volume 9

SPATIAL AUTOCORRELATION *by John Odland*

Volume 10

SPATIAL DIFFUSION *by Richard Morrill, Gary L. Gaile & Grant Ian Thrall*

SAGE PUBLICATIONS

The Publishers of Professional Social Science
Newbury Park Beverly Hills London New Delhi