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POPULATION REDISTRIBUTION AND PUBLIC POLICY

Brian J. L. Berry
and
Lester P. Silverman
Editors

Assembly of Behavioral and Social Sciences
National Research Council

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PREFACE

The Assembly of Behavioral and Social Sciences commissioned the papers in this volume to help fulfill a need on the part of policy makers and social scientists to understand better how the significant population redistribution trends of the 1970s will affect and be affected by areas of public policy. To provide a common base of information for the authors, the significant population redistribution trends of the 1970s were detailed by Brian J. L. Berry and Donald C. Dahmann. Their paper in this volume is an important starting point for the reader.

A workshop was held in June 1977, before the papers were written, to provide the authors with a broad overview of the policy and methodological issues that might be explored. The participants in each workshop session represented academia, research and other nonprofit institutions, and various levels of government. Discussion at the workshop focused on the Berry-Dahmann paper and on outlines of the other papers. The participants specifically discussed: the implications of population redistribution for various public policies; the effect that various alternative policies would have on contributing to or reversing the observed trends in population redistribution; and the particular implications of public policies for major age, racial, and income groups.

Following the workshop, the authors completed the papers in this volume. While there were efforts in the early stage to provide a common data base and guidance with regard to the general outline of the papers, the authors inevitably drew on sources unique to each topic. Furthermore, the different intellectual perspectives of the academic disciplines represented by the authors are evident. We have not attempted to reconcile conflicting viewpoints and conclusions or to remove the duplication from these papers.

INTRODUCTION

Brian J. L. Berry and Lester P. Silverman

Significant changes have taken place since 1970 in the composition and spatial distribution of the U.S. population. These changes reflect, in part, decades of public policy at all levels of government in all areas of our lives. Inevitably, these changes are placing new stresses on social institutions and the services they provide, hence providing the stimuli for further policy changes to try to solve new problems.

Each of the papers in this volume examines both the effects of population redistribution on public services, institutions, and policy, and the effect of potential policy changes on population redistribution. After summarizing the major demographic changes in the 1970s that are the starting point for and the focus of this volume, this introduction presents some observations about the role of public policy.

POPULATION REDISTRIBUTION IN THE 1970s

This volume focuses on changes occurring in the 1970s in the spatial distribution of the nation's population--among regions of the country and between metropolitan and non-metropolitan areas. This redistribution must be viewed, however, in the context of several other important changes in the composition of the U.S. population.

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Dominating all other national demographic trends in the 1970s is the continuation of a long-term decline in the rate of population increase. During the 1950s, the national population grew 19 percent; during the 1960s, it increased by 13 percent; and during the 1970s, it will likely have increased only by 8 percent. The long-term decline in population growth is expected to continue, although previous fluctuations in birthrates, e.g., the postwar baby boom, will continue to affect the nation's demographic profile. The aging of these cohorts, together with their greater life expectancies, will play a major role in increasing the median age of the nation's population.

These shifts in the age structure of the nation's population are occurring at the same time that fundamental changes in the structure of marital and household living arrangements are taking place. Since 1970, the largest increase in family groups has been among those headed by women who do not have husbands living with them; half of this increase was accounted for by women who were divorced. Other national trends, which are contributing to an overall decline in the number of persons per household, are increased numbers of people delaying marriage and both greater numbers and larger proportions of the elderly maintaining their own households.

Within the context of these fundamental compositional trends, this volume focuses on two major trends in the spatial distribution of U.S. population in the 1970s: the movement to the Sun Belt region and the movement out of metropolitan areas. The South is experiencing net migration gains from all other regions in numbers that are more than double the net gain to the West--the only other region now experiencing a net migration gain. The growth rate of the West continues to be the highest in the country, but the most rapid growth within that region has shifted from the coastal states to the Rocky Mountain states. The net flow of migrants from the Northeast and North Central regions during the first half of the 1970s was almost double that of the last half of the 1960s; this reflects both an increase in migration from the North to the South and a substantial decrease in migration from the South to the North. Significantly, the long-term trend of out-migration by blacks from the South to the North was reversed during the first half of the 1970s.

Since 1970, the metropolitan areas of the United States have grown more slowly than the nation as a whole and substantially less rapidly than nonmetropolitan America, a development that stands in sharp contrast to all preceding decades back to the early 19th century. The overall

decline in the rate of growth of metropolitan areas is largely accounted for by the largest metropolitan areas, particularly those located in the Northeast and North Central regions. While the populations of central cities of all the nation's metropolitan areas grew at an average annual rate of 0.6 percent between 1960 and 1970, they declined at an average annual rate of 0.4 percent since 1970 (annexations excluded).

There has been rapid growth in some smaller metropolitan areas (particularly in the South, Florida especially, and the West) and in exurban counties located immediately outside metropolitan areas that have substantial daily commuting to metropolitan areas. High growth rates also prevail in certain nonmetropolitan areas, especially those with manufacturing, centers of higher education, resources for recreational development, and retirement centers. The long-term shift away from agricultural employment has also tapered off, adding to rural population retention.

Although most developed countries of the world are experiencing declining birthrates and decentralization of their populations, the factors underlying these trends are varied and complex. We understand very little about how people make decisions about locational preference or household and family arrangements and about the role of public policies in affecting the costs and benefits--or the perceptions of those factors--that are weighed in making such decisions. The knowledge base that would allow better understanding of individuals' goals and expectations for social and economic improvement and the relationship of these to choice of life-style and geographic area is widely scattered among the behavioral and social science disciplines.

POPULATION REDISTRIBUTION AND PUBLIC POLICY

The national demographic trends--both compositional (lowered birthrates, increasing numbers of elderly persons, changes in family structure) and spatial (movements to the South and West, shifts from metropolitan to nonmetropolitan areas)--have already had, and will continue to have, important consequences for the nation into the 1980s and beyond. The papers in this volume document four major effects of these trends.

The first effect is on the demand for goods and services (primarily those that are provided predominantly by the public sector), since the groups being served have changed. Katzman notes that declining school enrollments are likely to continue

for metropolitan areas (central cities and suburbs), with stable or declining populations for some time to come. Fauth and Gomez-Ibanez argue that spatial population shifts contribute, along with other factors, to a sustained and continuing shift from public transportation to private automobile use, a trend that will be resistant to even large increases in the price of gasoline. Mills notes the effects of the shifts in continuing a trend toward greater per-capita land use.

The second effect concerns the cost of providing those public goods and services as the clientele groups have shifted. Perlman notes the tendency toward equalization of welfare and related benefits across regions of the country. Loftin documents the increased per-capita law enforcement expenditures in shrinking areas. The third effect results from the pressures placed on local governments as their resources, including financial, labor, and capital infrastructure (e.g., schools, transportation networks) become ill-suited to evolving demands for services. Peterson and Muller document the adjustment problems faced by local governments because of the lag with which fixed costs can be rendered variable. Greenwood discusses the employment-related pressures caused by the quite different characteristics of those who move and those who do not.

Finally, there is the effect of the redistribution of the nation's resources--including income, nonpecuniary amenities, and other aspects of social life (e.g., status, mobility)--that accompany the dramatic changes. Keyes documents that although regional shifts are not likely to have much effect on national air and water quality, they present the potential for significant savings in fossil fuel. Sampson explores some of the possible implications of population redistribution for racial-minority and low-income groups in society.

As the effects of the demographic changes of the 1970s have become evident, the definition of the "problem" to which public policy has been addressed has shifted dramatically. Title VII of the Housing and Urban Development Act of 1970 (Public Law 91-609, 84 Stat. 1791; 42 U.S.C. 4501) states in Section 702:

. . . the rapid growth of urban population and uneven expansion of urban development in the United States, together with a decline in farm population, slower growth in rural areas, and migration to the cities, has created an imbalance between the Nation's needs and resources and seriously threatens

our physical environment . . . the economic and social development of the Nation, the proper conservation of our natural resources, and the achievement of satisfactory living standards depend upon the sound, orderly, and more balanced development of all areas of the Nation . . . The Congress . . . declares that the national urban growth policy should--(1) favor patterns of urbanization and economic development and stabilization which offer a range of alternative locations . . . (3) help reverse trends of migration and physical growth . . . (4) treat comprehensively the problems of poverty and employment . . . associated with disorderly urbanization and rural decline . . .

Only 8 years later, in March 1978, President Carter's Urban Policy Group issued a report, *A New Partnership to Conserve America's Communities: A National Urban Policy*, that declared:

Three major patterns of population change can be traced in the Nation today: migration from the northeastern and north central regions of the country to the south and west; the slower growth of metropolitan areas and the movement from them to small towns and rural areas; and movement from central cities to suburbs . . . Today's widespread population loss in the Nation's central cities is unprecedented . . . the thinning out process has left many people and places with severe economic and social problems, and without the resources to deal with them . . . Our policies must reflect a balanced concern for people and places . . . to achieve several broad goals: (to) preserve the heritage and values of our older cities; maintain the investment in our older cities and their neighborhoods; assist newer cities in confronting the challenges of growth and pockets of poverty . . . ; and provide improved housing, job opportunities and community services to the urban poor, minorities and women . . . If the Administration is to help cities revitalize neighborhoods, eliminate sprawl, support the return of the middle class to central cities, and improve the housing conditions of the urban poor it must increase the production of new housing and rehabilitation of existing housing for

the poor in cities and suburbs, and increase the production of new housing and rehabilitation of existing housing for middle class groups in cities . . . We should favor proposals supporting: (1) compact community development over scattered, fragmented development; and (2) revitalization over new development.

Reversals of demographic trends produced, in only half a decade, an apparent about-face in urban policy.

If urban growth and rural decline were the problems of 1970, and their obverse, urban decline and rural growth, are the problems today, what is left? Are all types of change problematic, calling for corrective policies? Or have urban policy makers somehow missed the boat? If so, what of policy makers elsewhere in the federal government? To begin to ask such questions is, ultimately, to begin to ask about the role of the government in a democratic country that is undergoing rapid changes.

In a market economy such as the United States, the key premise underlying policy development is that solutions to the nation's needs must be found, for the most part, in the private sector. Market processes are relied upon to allocate resources efficiently and to provide new jobs, rising incomes, and improving quality of life. An essential prerequisite is the necessary mobility of capital and labor to realize differential market opportunities. One role of government is thus to preserve, support, and enhance those opportunities: to provide information if it is lacking on the part of buyers or sellers; to prevent emergence of undue concentration of economic power, which results in higher prices and fewer services than if competition prevails; to reduce market fluctuations and uncertainty; and to facilitate mobility. In this sense, the government has a stake in change. Its other roles arise if public welfare is endangered by change and if adequate remedies are not available in the marketplace. The need for government intervention may arise (1) if market prices do not reflect the full social costs or benefits of development because of congestion or external costs such as pollution, noise, hazards, etc., so that too much or too little of a good or service will be provided unless corrected; (2) if there is an inability to determine or collect a proper price, as in the case of a public good whose consumption by one individual does not reduce the consumption of it by others; (3) if there are demonstrable advantages to society from maintaining minimum levels of service to population groups or communities

that otherwise would be unable to obtain it (frequently such minimum levels of service are characterized as basic rights); (4) if market fluctuations give rise to periodic problems or unemployed resources; or (5) if rapid changes in the market produce short-term hardships.

The roles of the government, therefore, are as regulator and facilitator in the interests of the mainstream; as social engineer pursuing related objectives of stability and growth; as arbiter of competing interests (as between polluter and pollutee); and as supplier of public goods and services. The question of the relationship between demographic change and public policy may be viewed, in light of these roles, on a different plane, for the government clearly has a stake both in change and in its consequences. Are demographic shifts an expression of market choices and resource mobility? If they are, should there be any intervention designed to enhance or retard them? Are there problems of short-term adjustment, of underutilized resources, or of social costs that require correction? If so, what are they, where are they, how best might they be addressed, and by which level of government?

The papers in this volume dramatically document the gaps in substantive research about the links between demography and public policy. To assert in a volume of this type that more work needs to be done may seem trite, but the reality of such a statement cannot be dismissed. Yet to conclude on such a note would be to downplay the contributions that the authors of these papers have made, notwithstanding their disagreements. Together, they provide a more comprehensive assessment of the implications of the post-1970 demographic changes than has been available so far--an assessment based on the relevant bodies of theory and focused on the role of and implications for public policy.

The papers in this volume will help provide a basis for the long, tedious, and painful process by which our nation will arrive at answers to these questions.

POPULATION REDISTRIBUTION IN THE UNITED STATES IN THE 1970s

Brian J. L. Berry and Donald C. Dahmann

INTRODUCTION

In 1975, the population of the United States was 215 million persons, 5 times greater than it had been a century before and 85 times greater than it had been in 1776. In 200 years, the nation's population density had increased from an average of 2 to more than 60 persons per square mile.

As the United States annexed territory from the Atlantic to the Pacific, new regions were settled and the geographical center of the nation's population shifted westward. At the time that the 13 colonies declared their independence, the center of population was located east of Baltimore; at the close of America's first century, the center was near Cincinnati; today, according to current calculations, which include Alaska and Hawaii, the center lies just southeast of St. Louis--750 miles west of its location in 1776--reflecting the fact that the central and western regions of the country have continually increased their proportion of the nation's total population relative to the Atlantic seaboard concentration.

Concurrently, as the economy shifted from one based on agricultural production to one dominated by industry and an increasingly important service sector, the levels of urban concentration increased. In 1800 the United States was 6 percent urbanized; today, more than 75 percent of the nation's population resides in urbanized areas.¹ Metropolitan

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¹The nation's urban population includes individuals residing either in places with 2,500 inhabitants or more or in the densely settled fringes of such places.

areas (defined below) have come to dominate the urbanization pattern: by the close of the 1960s, nearly 70 percent of all Americans resided in the nation's metropolitan areas. Today, 44 percent of the total population reside in the nation's 30 largest metropolitan areas (each of which contains 1 million or more residents), and 27 percent are concentrated in the eight largest metropolitan areas (each of which contains more than 3 million residents).

Since 1970, major changes in the nation's settlement pattern have been occurring. Although the West received the largest net flow of migrants in the country as recently as the latter half of the 1960s, since 1970 the volume of net migration to the South has increased to more than double that to the West. Thus, the South has now emerged as the region experiencing the largest population gains and the center of population has begun to move southward. During the first half of the 1970s, interregional migration alone produced a population increase in the South of more than 1.8 million.

Significant change has also occurred since 1970 in the overall growth rate of the nation's metropolitan areas. For the first time, the growth rate of metropolitan areas has dropped to below that of nonmetropolitan areas. More significantly, the long-term net inflow of persons from nonmetropolitan to metropolitan areas has been reversed; as recently as the 1960s, there was a net flow of migrants from nonmetropolitan areas. Since then, however, these areas have added residents largely as the result of increased outmigration from the nation's metropolitan places.

Organization

This paper examines changes in the nation's settlement patterns through 1975. First, current national population trends (including the declining growth rate for the nation as a whole, alteration of the population's age structure, and change in composition of households) are reviewed as an introduction to the documentation of changes now occurring in the patterns of settlement. Evidence relating to the current restructuring of settlement patterns is presented in the next three sections: the first presents patterns of decline and growth in central cities, nonmetropolitan areas, and the four major regions of the country; the second presents recent patterns of residential mobility and their effect on the structure of settlement; and the third reviews the changing character of central-city,

suburban, and nonmetropolitan residents. A summary of regional and metropolitan and nonmetropolitan changes concludes the textual presentation. The appendix presents 1977 data for the major tables (Tables 1-7) in the body of the report. The appendix also provides population figures and components of population change (natural increase and net migration) for individual metropolitan areas with populations over 1 million and for various categories of metropolitan and nonmetropolitan areas.

Definition of Terms

Throughout the paper, the definitions used are those of the U.S. Bureau of the Census. In the Bureau's classification, the United States is divided into four major geographical regions and nine divisions. A list of the regions, the divisions, and the states that comprise them follows. (For complete definitions and explanations of terms, see U.S. Bureau of the Census [1970].)

West Region

Pacific Division:	Washington, Oregon, California, Alaska, Hawaii
Mountain Division:	Idaho, Nevada, Utah, Arizona, Montana, Wyoming, Colorado, New Mexico

North Central Region

West North Central Division:	North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri
East North Central Division:	Wisconsin, Illinois, Michigan, Indiana, Ohio

South Region

West South Central Division:	Texas, Oklahoma, Arkansas, Louisiana
East South Central Division:	Kentucky, Tennessee, Alabama, Mississippi
South Atlantic Division:	West Virginia, Maryland, Delaware, District of Columbia, Virginia, North Carolina, South Carolina, Georgia, Florida

Northeast Region

New England Division: Vermont, New Hampshire, Maine, Massachusetts, Connecticut, Rhode Island

Middle Atlantic Division: Pennsylvania, New York, New Jersey

The Bureau also divides the United States in terms of two population concentrations: metropolitan and nonmetropolitan areas. A metropolitan area, briefly defined, is a Standard Metropolitan Statistical Area (SMSA), which consists of a county or group of contiguous counties that contains at least one city of 50,000 or more residents or two contiguous cities with a combined population of at least 50,000. Contiguous counties are included in an SMSA if they are economically and socially integrated with the base county. The nonmetropolitan area is all territory outside metropolitan areas.

Metropolitan areas are subdivided into two parts: the central city and the suburban area. The largest city in the metropolitan area is designated as the central city, although additional cities within the metropolitan area may be included as part of the central city if they are of sufficient size. The suburban area is all remaining territory within the metropolitan area.

NATIONAL DEMOGRAPHIC TRENDS

Dominating all other national demographic trends is the continuation of a long-term decline in the rate of population increase. The population of the United States continues to grow, but at a steadily decreasing rate. During the 1950s, the national population grew 19 percent; during the 1960s, 13 percent; and if current growth rates continue through the close of this decade, the nation's population during the 1970s will have increased 8 percent.

Each of the components of population change--birthrates, death rates, and immigration rates--contributes to the current low rate of population increase. The annual death rate, after falling continuously since 1900, stabilized during the 1950s at about 9.4 deaths per 1,000 and then dropped again to a level of 8.9 deaths per 1,000. The nation's birthrate has returned to its previous trend of long-term decline following the anomaly of the post-World War II baby boom. The birthrate stood at 19.4 births per 1,000 in 1940 and rose

to 24.9 births per 1,000 in 1955, but has declined continuously since then, dropping to 14.7 births per 1,000 by 1975, the lowest level in American history. The eventual number of births that women now moving into their child-bearing years expect to have averages 2.1, a figure barely at the replacement level for a stable population. Immigration rates are based on quotas that are fixed by law, and legal immigration currently averages 400,000 persons per year. Of the nation's total population increase of 1.7 million during 1975, 1.2 million resulted from natural increase (an excess of births over deaths), while immigration accounted for the remaining 0.5 million (including 130,000 Vietnamese refugees).

These declining rates of population growth have caused the Census Bureau to issue a new series of three population projections that adjust expected national population growth downward. Each of these current projections, Series I, II, and III, assumes that annual net immigration will continue at 400,000 per year and that a slight reduction will occur in future mortality rates. The three projections differ only in their assumptions about future fertility rates, ranging in their assumptions from a high of 2.7 lifetime births per woman in Series I to a low of 1.7 lifetime births per woman in Series III. These projections suggest that the nation's population by 2000 may total between 245 and 287 million (although totals outside these bounds cannot be ruled out).

Due to a lowering of expected lifetime fertility rates, these current population projections are significantly lower than ones made as recently as the latter half of the 1960s. At that time, projections of the nation's total population by 2000 ranged from a low of 283 million (Series D) to a high of 361 million (Series A), which exceed current projections by as much as 25 percent.²

The long-term decline in population growth is expected to continue, although previous fluctuations in birthrates (for example, the sharp rise in the number of births following World War II after which the birthrate dropped to an all-time low) will continue to affect current changes in the nation's demographic profile. The subpopulations of individuals aged 18 to 24 and 25 to 34, age-groups now consisting of members of the postwar-boom cohorts, have

²See U.S. Bureau of the Census (1975c) for comparisons between current and earlier projections and the assumptions underlying each series in the two sets of projections.

grown 13 and 23 percent, respectively, since 1970. The aging of these large cohorts, together with their greater life expectancies, will play a major role in increasing the median age of the nation's population.

Changes in the size of other age-groups during the first half of the 1970s include a decline in the number of youths and an increase in the number of elderly persons. The lower birthrates of the latter half of the 1960s have produced a decline of 8 percent in the number of children aged 13 and under, while the declining mortality rate and the increased size of the cohort of elderly persons have served to increase the size of the age-group of those 65 and over by 12 percent. Continued declines in the birthrate, along with either a constant or slightly dropping death rate, will produce a population that contains proportionately more elderly persons year by year. The median age of the total population, which dropped from 30.2 years in 1950 to a low of 27.9 years in 1970, has already begun to rise and, as of 1975, stood at 28.8 years.

These shifts in the demographic structure of the nation's population are occurring at the same time that fundamental changes in the overall structure of marital arrangements are emerging. As the large birth cohorts of the late 1940s and early 1950s are advancing through young adulthood, the nation's marriage rate is declining (having peaked in 1972); the median age at first marriage is increasing; the divorce rate is increasing (from 2.2 per 1,000 population in 1960 to 4.8 per 1,000 in 1975); more young unmarried adults are maintaining their own homes; and more children are living with a single parent. Since 1970, the largest increase in family groups has been among those headed by women who do not have husbands living with them; half of this increase was accounted for by women who were divorced. The combination of falling birthrates and changing household composition (especially the increase in one-person households) is reflected in the declining numbers of persons per household (Ross and Sawhill 1975).

These national demographic trends--lowered birthrates, increasing numbers of elderly persons, changes in family structure--carry with them consequences for the nation in the 1970s as well as long-term consequences. Although current low birthrates imply lowered future levels of household formation, the 7.7 million new households formed since 1970 represent an increase of 12.2 percent over the number that existed at the beginning of the decade. Most households, in 1975 as well as earlier, were maintained by two or more related family members (primary family households); however,

a growing proportion was maintained by persons who lived alone or with nonrelatives only (primary individual households). Between 1970 and 1975, the number of primary family households increased 8 percent, and the number of primary individual households rose 30 percent. These different growth rates have reduced the proportion of households composed of related family members by 3 percent in just 5 years (U.S. Bureau of the Census 1976).

Although households headed by primary individuals still account for less than one-fourth of the total number of households, they have accounted for half of the increase in new household formations since 1970. Considering national trends of increased numbers of individuals delaying marriage, higher divorce rates, and both greater numbers and larger proportions of the elderly maintaining their own households, one may expect that the size of households will continue to decline and the demand for dwelling units will continue to rise at rates that are higher than the rate of total population growth.

PATTERNS OF DECLINE AND GROWTH

Signs of the shift away from the long-term trend of metropolitan growth exceeding that of nonmetropolitan areas first appeared during the 1960s. During this time, several nonmetropolitan regions experienced a reversal from population decline to modest increase, and it appeared that, in at least some of these areas, out-migration had peaked during the previous decade. The metropolitan population growth of 22 million during the 1960s resulted in part (one-third) from growth through the addition of new land area, but two-thirds was derived from population increases within the 1960 boundaries. Of the growth within the 1960 boundaries, three-fourths was due to natural increase; of the remaining one-fourth, a larger proportion resulted from immigration than from the in-migration of former nonmetropolitan-area residents. Thus, only a small proportion of the increase in America's metropolitan population during the 1960s can be attributed to out-migration from nonmetropolitan areas.

While the nation's total population increased 13.3 percent during the 1960s, the number of individuals residing in metropolitan areas increased 16.6 percent, a rate of increase that was 8.5 times the rate for nonmetropolitan areas. Since 1970, however, a reversal has occurred; as a result, the growth rates for nonmetropolitan areas have

exceeded those of metropolitan areas. Nationwide statistics for the first half of the 1970s indicate that population has increased 7.1 percent in nonmetropolitan areas and only 3.9 percent in metropolitan areas (see Table 1).

The Decline of Central Cities

When the nation's metropolitan areas are divided into their central-city and suburban areas, it is readily apparent that the current lower rate of growth of metropolitan areas has resulted from a combination of the depopulation of the central cities and the slackening growth boom in the suburbs. Between 1970 and 1975, central cities experienced an absolute population loss of nearly 2 million, or approximately 3 percent of the total number of their residents at the beginning of the decade. Net migration from central cities to suburbs and nonmetropolitan areas during this same period was more than 7 million persons (gains and losses for each residential category are presented in Table 1).

Although the current national trend of an absolute decline in central-city population is new, the proportion of metropolitan area residents living in central cities rather than the suburbs has declined continually since reaching a peak during the 1920s. In 1920, central-city residents accounted for 66 percent of America's metropolitan-area residents; by 1960, metropolitan-area residents were about equally divided between central cities and suburbs; and by 1975, central-city residents accounted for only 43 percent of the nation's metropolitan population.

Although absolute population declines in selected central cities occurred prior to 1970, gains in other central cities more than offset those losses, resulting in overall central-city growth. During the 1950s, absolute population declined in 56 central cities while the nation's total number of central-city residents increased 11.6 percent. During the 1960s, the number of central cities whose populations declined increased to 95 (39 percent of all central cities), while the national central-city population increased 6.5 percent. Altogether, there were 47 central cities whose populations declined continuously during the 20-year period from 1950 to 1970. Since the total central-city population declined by 2.7 percent between 1970 and 1975, it is likely

TABLE 1 Population of the United States, 1950-1975 (in thousands)^a

Residential Category	1975 ^b	1970	1960 ^c	1950	Percentage Change		
					1970-1975	1960-1970	1950-1960
Total U.S.	209,682	199,819	179,971	151,235	4.9	13.3	19.0
Metropolitan	142,461	137,058	119,595	94,579	3.9	16.6	26.4
Central-city	61,154	62,876	59,947	53,696	-2.7	6.5	11.6
Suburban	81,307	74,182	59,647	40,883	9.6	26.7	45.9
Nonmetropolitan	67,221	62,761	60,384	56,656	7.1	6.8	6.4

^aPopulation data for 1977 are presented in Table A-1 of the Appendix.

^bData for 1975 are April-centered averages from the Current Population Survey; 1970 data are also from the Current Population Survey and have been adjusted by excluding inmates of institutions and members of the Armed Forces residing in barracks for comparability with 1975 data.

^cData for 1960 and 1950 are total population counts from the two respective decennial censuses. The total population counts for 1970 were used to calculate the 1960-1970 percentage changes rather than the Current Population Survey figures shown.

SOURCES: U.S. Bureau of the Census (1972, 1975d).

that the number of central cities experiencing population losses has been increasing.³

While central-city population losses during the 1950s and 1960s occurred in a relatively large number of metropolitan areas, they were largely confined to the industrial heartland cities of the North Central and Northeast regions of the country. During the 1950s, 81 percent of the central cities that lost population were located in this northern area extending from the Midwest states through New England. During the 1960s, this concentration of declining central cities in the North lessened somewhat to 74 percent. Of the nation's central cities that lost population during both decades, 90 percent were located in this northern area. Large central cities in this area that lost population during both the 1950s and 1960s include Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Minneapolis, Philadelphia, Pittsburgh, and St. Louis.

In the 1970s, the greatest concentration of central cities that are losing population continues to lie within this northern industrial area. In the South, the central cities in metropolitan areas with more than 1 million residents have lost population, while the central cities of metropolitan areas with less than 1 million residents have gained population--resulting in only a slight decrease in the total number of southern central-city residents. In the West, the number of residents in metropolitan areas of all sizes has increased, with the largest gain occurring in the central cities of metropolitan areas with less than 1 million residents. Population changes during the 1970s for central cities, suburbs, and nonmetropolitan areas by size of metropolitan area for each region of the country are presented in Table 2.

The Growth of Nonmetropolitan Areas

Throughout the 1940s and 1950s, the nation's nonmetropolitan areas experienced high levels of out-migration. Some nonmetropolitan areas reached a turning point during the 1960s in that they were no longer losing residents, but since 1970 nonmetropolitan areas as a whole have not only retained

³Neither the Current Population Survey nor the Federal-State Cooperative Program for Local Population Estimates permits intercensal estimation of central-city population changes for individual cities that are strictly comparable.

TABLE 2 Population as of 1975 and Percentage Change in Population Between 1970 and 1975 for Selected Categories of Metropolitan and Nonmetropolitan Counties by Region of the United States

Region	Total	All Metropolitan Areas		1,000,000 or More		Less Than 1,000,000		Nonmetropolitan Areas ^a				
		Total	Central Cities	Suburbs	Central Cities	Suburbs	Central Cities	Suburbs	Total	Less Than 2,500	2,500-24,999	25,000 or More
1975 Population:												
Total U.S.	209,682	142,461	61,154	81,307	32,589	48,408	28,565	32,899	67,221	7,957	40,530	18,733
Northeast	48,184	37,986	15,858	22,128	10,975	13,931	4,883	8,197	10,198	101	4,098	5,999
North Central	56,714	37,464	15,718	21,746	8,591	13,518	7,127	8,229	19,250	2,471	12,523	3,855
South	67,047	37,829	17,810	20,019	5,626	8,975	12,184	11,044	29,217	4,641	18,263	6,313
West	37,737	29,181	11,768	17,413	7,397	11,984	4,371	5,429	8,556	744	5,246	2,566
Percentage change:												
1970-1975												
Total U.S.	4.9	3.9	-2.7	9.6	-5.0	7.2	0.0	13.4	7.1	10.7	2.0	18.2
Northeast	-0.3	-1.8	-7.0	2.3	-8.4	1.0	-3.5	4.6	5.6	-50.0	20.4	39.3
North Central	1.7	0.8	-16.7	7.1	-7.4	6.0	-6.0	8.9	3.4	11.4	5.0	-5.9
South	8.8	9.9	1.1	19.1	0.7	17.1	1.3	20.8	7.5	15.2	3.0	16.4
West	10.7	8.9	3.6	12.8	-1.0	9.4	12.3	21.2	17.2	0.4	15.6	27.1

^a Nonmetropolitan areas in this table are groups of counties with either no place of 2,500 or more residents (less than 2,500), counties with a place of between 2,500 and 25,000 residents (2,500-25,000), or counties with a place of more than 25,000 but less than 50,000 residents (25,000 or more).

SOURCE: U.S. Bureau of the Census (1975d).

residents but also have experienced a gain in population through migration from metropolitan areas.

The number of persons residing in the nation's nonmetropolitan areas during the 1960s grew by 6.8 percent, a rate of increase that was half the national average. During the first half of the 1970s, nonmetropolitan population increased 7.1 percent, compared to the national average of 4.9 percent and an increase of 3.9 percent for metropolitan areas.⁴

More significant for nonmetropolitan areas than their current relatively higher growth rate is the reversal that has occurred in migration between the nonmetropolitan and metropolitan areas of the nation. Increased mechanization of farming since World War II has led to a decrease in the size of the farm population and contributed to rural out-migration. During the 1950s, nonmetropolitan areas experienced a net loss of more than 5 million persons through out-migration. High levels of out-migration continued into the 1960s, when the nation's farm population declined at an annual rate of 4.8 percent; since 1970, however, the farm population has declined at an annual rate of only 1.8 percent. (Farm population is now at an all-time low of 8.9 million, 4.1 percent of the nation's total population.) With fewer out-migrants and increased numbers of in-migrants, nonmetropolitan areas have experienced net migration gains of approximately 2 million persons since 1970, thus reversing the trend of population loss that had existed since the 1940s.

Although not all nonmetropolitan areas are now sharing in this new pattern of growth, it is true that migration reversals have occurred in almost all nonmetropolitan areas of the country. Nonmetropolitan population increases in the four major regions vary from a low of 3.4 percent in the North Central region, to 5.6 and 7.4 percent, respectively, in the Northeast and South regions, and a high of 17.2 percent in the West. Increases are now being registered in all classes of nonmetropolitan counties--from the most sparsely settled counties (those with settlements of

⁴These changes are within metropolitan and nonmetropolitan areas as defined for the Census of 1970. Between 1970 and 1975, counties whose status changed from nonmetropolitan to metropolitan shifted 114,719 square miles of land area and 9.4 million persons to the metropolitan category. Population growth between 1970 and 1976 for nonmetropolitan and metropolitan areas is virtually equal when these territorial changes are included (U.S. Office of Management and Budget 1975).

2,500 persons or less) to those with a settlement of over 25,000 residents (see Table 2).

Generally, those areas located immediately adjacent to but outside metropolitan areas (which account for 52 percent of all nonmetropolitan residents) have experienced the highest nonmetropolitan growth rates: a 4.7 percent increase from 1970 through 1973 compared with a 3.7 percent increase for counties not adjacent to metropolitan areas (Beale 1975). In particular, nonmetropolitan areas whose residents are relatively more integrated into metropolitan labor markets have experienced higher rates of recent growth. Through 1975, population increased 10.1 percent in those nonmetropolitan counties in which 20 percent or more of the residents commute to a metropolitan area for work and dropped to 5.9 percent in those counties in which less than 3 percent of the residents commute to metropolitan areas (see Table 3). However, even this lowest nonmetropolitan growth figure of 5.9 percent is greater than the 3.9 percent growth experienced by metropolitan areas during the same time period (Forstall 1975).

The areas of nonmetropolitan America that have undergone reversals from population decline to growth in the 1960s and 1970s are both diverse and widespread (Beale and Fuguitt 1975). In the South, an area extending from the Ozarks through eastern Texas that contains a predominantly white population shifted from reliance on agricultural employment to development of manufacturing and new recreational areas. The Upper Great Lakes area, bordering the southern coast of Lake Superior, has also experienced growth primarily as the result of manufacturing decentralization and the development of recreational facilities and retirement communities. The nonmetropolitan areas of the Blue Ridge-Piedmont, Florida, the Southwest, and the northern Pacific Coast have all

TABLE 3 Growth of Nonmetropolitan Counties by Level of Commuting to Metropolitan Areas, 1960-1975

Level of Commuting ^a	Population			Percentage Change	
	1975	1970	1960	1970-1975	1960-1970
>19 percent commuters	4,407	4,009	3,655	10.1	9.7
10-19 percent commuters	10,011	9,349	8,705	7.1	7.4
3-9 percent commuters	14,338	13,497	12,805	5.9	5.4
<3 percent commuters	28,197	26,628	26,207	5.9	1.6

^aPercentage of counties' work force commuting to a metropolitan area for employment. Based on 1970 Census commuting data.

SOURCE: Forstall (1975).

experienced growth resulting from the decentralization of manufacturing, recreational and retirement developments, the opening up of new resources, or the expansion of improved transportation facilities (for example, the interstate highway system) that enable persons to live in rural areas and commute to metropolitan labor markets. (Since 1970, nonmetropolitan growth has not only exceeded its 1960s level but has also spread to a larger number of areas; for example, a new growth axis now cuts through central Maine along the route of the interstate highway.) While only the six nonmetropolitan areas mentioned above experienced net migration gains during the 1960s, only one of the nation's rural areas now continues to lose population through out-migration: the old Tobacco and Cotton Belt extending from the North Carolina Cape to the Delta area of the Mississippi River. This area, which contains a large rural black population, has not benefited significantly from the decentralization of manufacturing and continues to lose residents through out-migration to cities of both the North and the South.

Regional Growth

Figure 1 presents the population of the United States by residence in the four major regions for each year since 1940. The long-term faster growth trend of the West, the recently increasing growth rate of the South, and the declining growth rates of the Northeast and North Central regions are evident.

Figure 2 presents the percentage of each decade's population increase accounted for by the individual regions and divisions. This shows that the North Central region (the East and West North Central divisions combined) increased its share of the nation's population growth during the 1950s but has since seen its share decline relative to those of the West and the South. Population growth in each of the three divisions of the South during the 1960s and 1970s occurred at higher rates than in any of the other divisions of the country; since 1960, these three divisions have doubled their share of the nation's total population growth. Growth in the West, while continuing to account for a large share of the total population expansion, has shifted markedly from Pacific to Mountain divisions since the 1960s.

Only three divisions of the country have exhibited significantly declining shares of the nation's new population

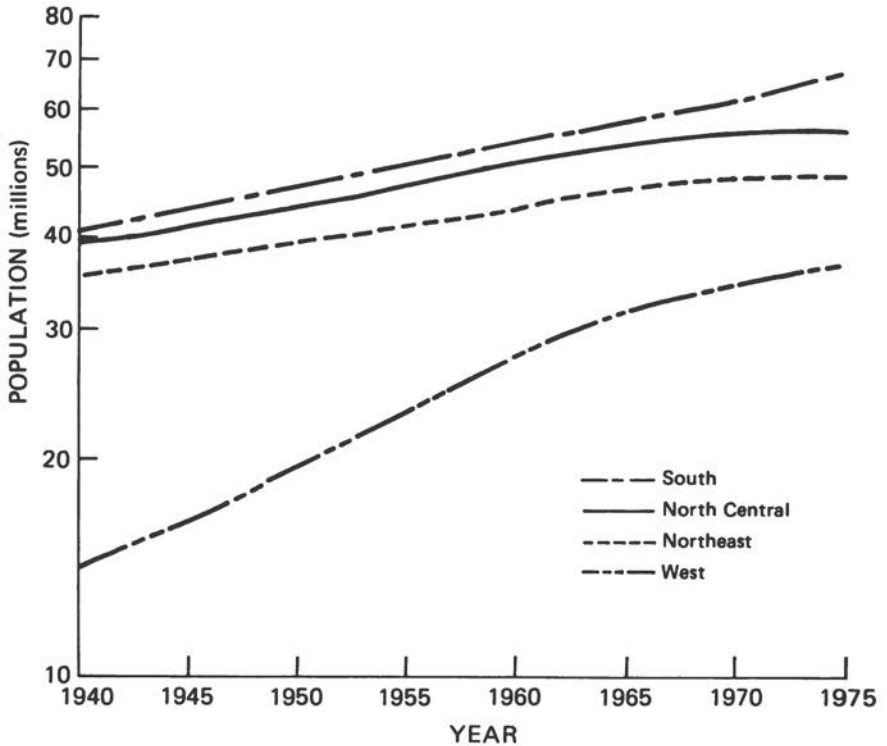
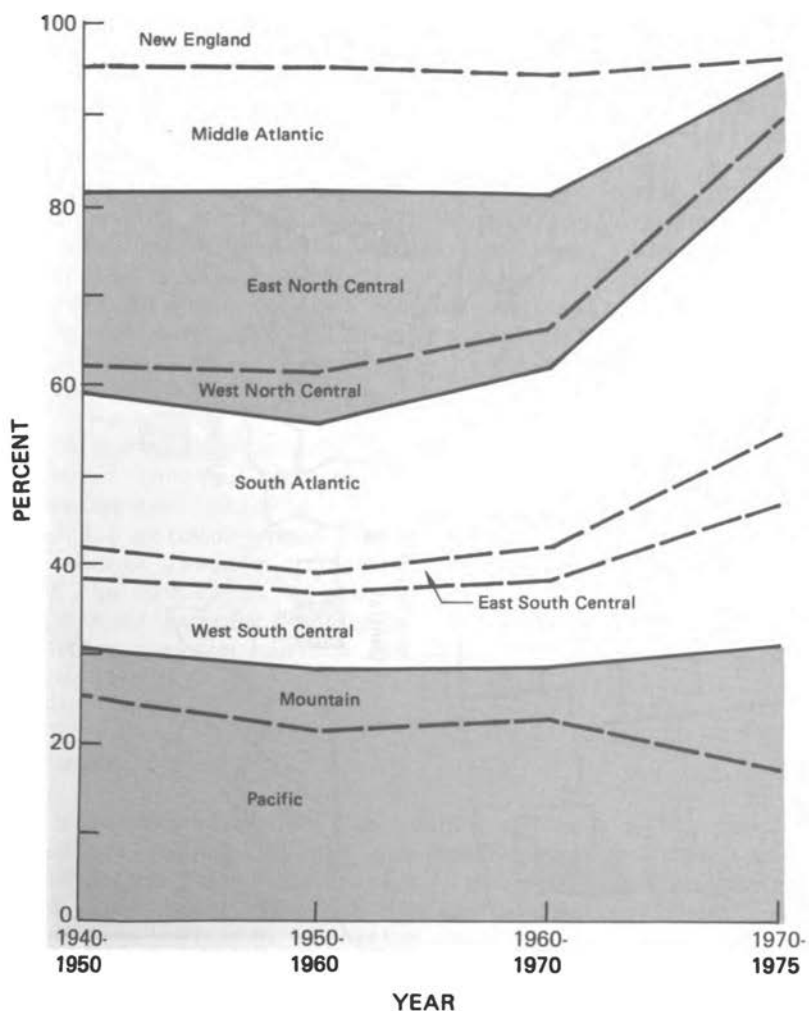


FIGURE 1 Total population of the United States by region, 1940-1975 (U.S. Bureau of the Census 1975a, 1976).

growth since the 1950s. The first is the East North Central division, which includes Ohio, Indiana, Illinois, Wisconsin, and Michigan. It first experienced a declining share of the nation's population growth during the 1960s and more recently its share has decreased even more. The second division to experience relatively slower growth has been the Middle Atlantic division (New York, New Jersey, and Pennsylvania), whose share of national growth has declined, especially recently. The New England division's share of national growth has also decreased during the 1970s. The area formed by these three divisions, extending from New England to the Mississippi River and north of the Ohio River, encompasses the nation's industrial core, whose urban centers, as was previously shown, have experienced



SOURCES: U.S. Bureau of the Census (1975) *Historical Statistics of the United States: Colonial Times to 1970*. Washington, D.C.: U.S. Department of Commerce. U.S. Bureau of the Census (1976) *Population profile of the United States: 1975. Series P-20, No. 292 in Current Population Reports*. Washington, D.C.: U.S. Department of Commerce.

FIGURE 2 Percentage of Total United States Population Growth, 1940-1950, 1950-1960, 1960-1970, 1970-1975.

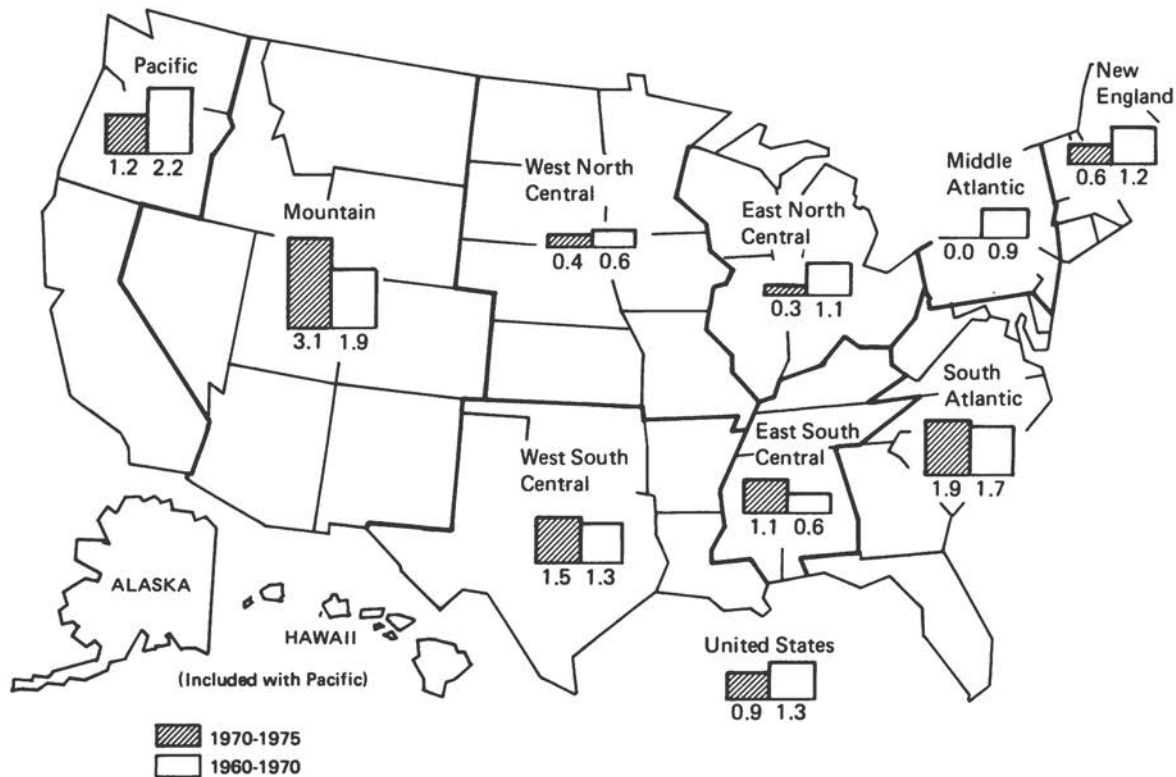


FIGURE 3 Average annual percentage change in population: 1960-1970 and 1970-1975 (U.S. Domestic Council 1976).

the slowest growth of any of the nation's metropolitan areas (see Table 2).

The average annual growth rates for the nine divisions of the country during the 1960s and the first half of the 1970s are shown in Figure 3. During the 1960s, the divisions covering the northern section of the country, extending from New England to the Rocky Mountains, experienced annual growth rates that were lower than the national average of 1.3 percent. Outside the North, only the East South Central division, composed of the four states of Kentucky, Tennessee, Mississippi, and Alabama, experienced growth at a rate lower than the national average. Since 1970, the average annual growth rates of the northern section of the country have accounted for an even smaller percentage of the national population increase. The Middle Atlantic division has in fact experienced zero population growth since 1970.

Meanwhile, 1970s' growth rates across the South and in the Rocky Mountain states have all increased above their 1960s' levels. The Rocky Mountain states are now experiencing the nation's fastest growth, an average annual rate of 3.1 percent--more than three times greater than the national average. Growth rates during the 1970s for each of the divisions in the South and West have exceeded the national average, and only in the Pacific division of this entire section has the annual growth rate diminished since the 1960s.

Interregional Migration

Population change is the result of three major processes: natural change (births and deaths), interregional migration, and international migration. Because regional variability in natural increase has diminished over the past 3 decades and international migration (although it does not add equally to the population of each region) totals only about 400,000 immigrants and is relatively stable, neither seriously affects differential regional growth. The truly dynamic component of regional population change thus lies in interregional migration. Interregional migration rates (measured as a percentage of all residential moves) have remained approximately the same in the 1970s as they were in the 1960s, but the volume of interregional flows, especially those to the South, has changed dramatically in the 1970s. Interregional migration flows between the four regions for both 1965-1970 and 1970-1975 are shown in Table 4.

TABLE 4 Interregional Migration: 1965-1970 and 1970-1975 (in thousands)^a

Residence in 1965	Residence in 1970			
	Northeast	North Central	South	West
Northeast	--	450	1,064	474
North Central	397	--	1,282	982
South	626	1,007	--	853
West	250	567	796	--
Residence in 1970	Residence in 1975			
	Northeast	North Central	South	West
Northeast	--	380	1,508	511
North Central	313	--	1,638	975
South	544	848	--	861
West	200	503	936	--

^a Interregional migration data for 1975-1977 are presented in Table A-2 of the Appendix.

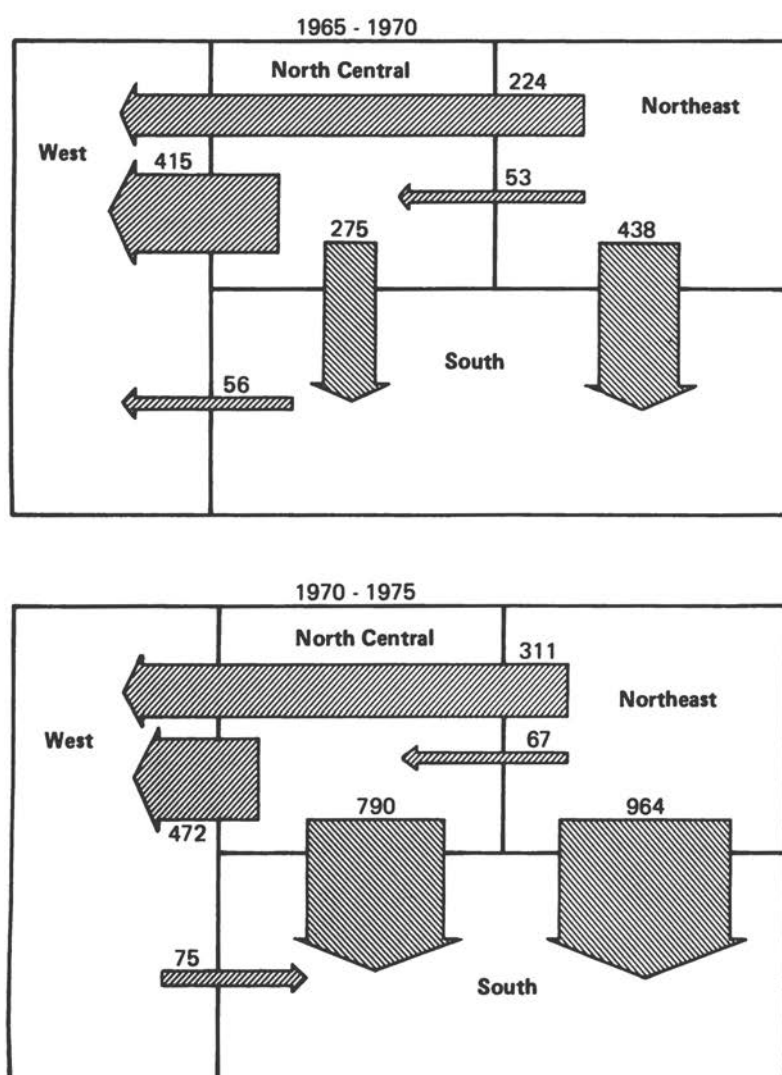
SOURCES: U.S. Bureau of the Census (1972, 1975b).

While the volume of interregional migration demonstrates the scale of long-distance mobility in the United States (the volume in and out of the South during the period, for example, exceeded 4 million in-migrants and 2 million out-migrants), the regional effects can be seen in the net differences in the volume of interregional migration, shown in Figure 4. During both 5-year periods, 1965-1970 and 1970-1975, the Northeast region experienced net migration losses to each of the three other regions; the North Central region experienced net migration losses to the South and the West; and the South and the West showed net migration gains. Since 1970, the small net residual flow between the South and West has reversed itself. In the 1970s, the South has become the only region of the country with net migration gains from all other regions. Furthermore, the flow of persons into the South from both the North Central and Northeast regions (which represents the largest in-migration streams) has increased over 1960s' levels.

RESIDENTIAL MOBILITY

Residential Decentralization

In 1975, 44 percent of the nation's civilian noninstitutional population over 4 years of age resided at a different



NOTE: Width of arrows is proportional to volume of net interregional migration flows. Figures accompanying arrows indicate numbers of net interregional migrants (in thousands). Total numbers of interregional migrants for both periods appear in Table 4.

FIGURE 4 Net interregional migration: 1965-1970 and 1970-1975 (U.S. Bureau of the Census 1970, 1975b).

dwelling than in 1970.⁵ In Table 5, these movers are divided into the three residential categories of central city, suburb, and nonmetropolitan area according to the locations of their 1970 and 1975 residences. Of all moves, 85 percent were within the same residential category, for example, moves from one suburban area to another suburban area or moves within the same suburban area. Of the 15 percent who relocated to a different residential category, the pronounced trend consists of a centrifugal shift from the central city to the suburbs, and, on a larger scale, from metropolitan areas to nonmetropolitan areas (see Figure 5). Between 1970 and 1975, a total of 13 million persons moved out of central cities, three-fourths of them to the suburbs and one-fourth to nonmetropolitan areas. At the same time, only 6 million persons moved into the central cities--a net loss of 7 million residents through migration.

During this same 5-year period, the suburbs experienced a net migration gain of 5.4 million persons. This net gain resulted from the in-migration of 12.7 million and the out-migration of 7.3 million persons. Of those who moved to the suburbs, 77 percent were former central-city residents; and of those who left the suburbs, about equal numbers moved to

TABLE 5 Residential Mobility, 1970-1975 (in millions)^a

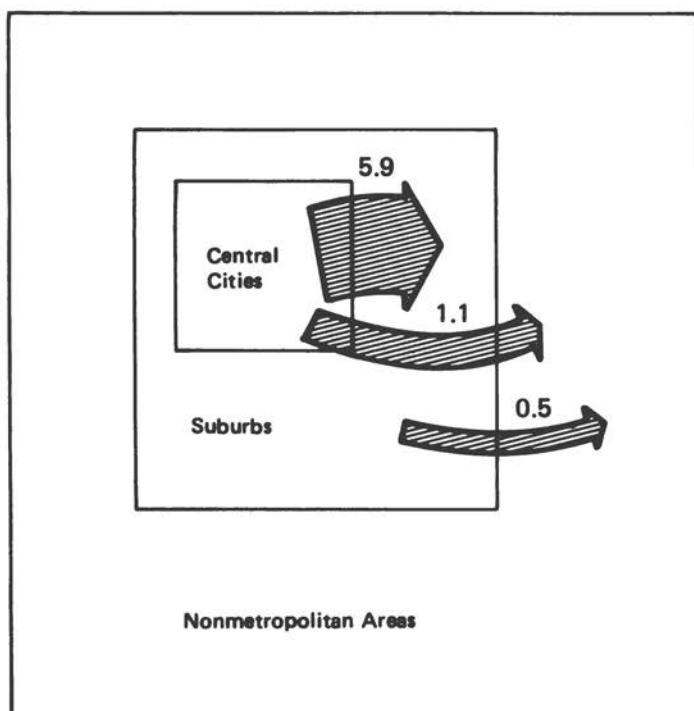
Residential Category in 1970	Residential Category in 1975		
	Central City	Suburb	Nonmetropolitan Area
Central City	[17.1] ^b	9.8	3.2
Suburb	3.8	[18.2] ^b	3.5
Nonmetropolitan area	2.1	3.0	[19.0] ^b

^aData on residential mobility for 1975-1977 are presented in Table A-3 of the Appendix.

^bFigures in brackets are movers who remained in same residential category during relocation.

SOURCE: U.S. Bureau of the Census (1975b).

⁵Estimates of residential mobility reported in this section are derived from the Census Bureau's annual Current Population Survey (U.S. Bureau of the Census 1975b).



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

FIGURE 5 Net residential flows, 1970-1975 (in millions) (U.S. Bureau of the Census 1975b).

central cities and nonmetropolitan areas. The net migration gain of 1.6 million persons to nonmetropolitan areas (the result of out-migration by 5.1 million and in-migration by 6.7 million) consisted of approximately the same number of individuals from both central cities and suburban areas. Of all individuals who changed their residential category between 1970 and 1975, 26 percent moved from metropolitan to nonmetropolitan areas, 20 percent moved from nonmetropolitan to metropolitan areas, 38 percent moved from central cities to suburbs, and 16 percent moved from suburbs to central cities. Relocations outward from the urban center outnumbered relocations inward by a margin of 2 to 1.

Labor Force Migration

Residential decentralization in the United States has been accompanied by similar shifts in the work place of the labor force (see Figure 6). Comparing the national work-force migration patterns of 1960-1963 with those of 1970-1973 reveals a dramatic reversal: in the earlier period, the central counties⁶ of metropolitan areas gained 104,000 workers and nonmetropolitan counties (areas) lost 106,000 workers; in the more recent period, central counties lost 84,000 workers and nonmetropolitan counties gained 19,000 (see Table 6).

This reversal in labor-force migration between the central counties of metropolitan areas and nonmetropolitan areas has been most dramatic in the nation's largest cities. During the 1960-1963 period, the work force in central counties of metropolitan areas with populations of 2 million or more was increased by 25,000 workers who moved there from nonmetropolitan areas. In the 1970-1973 period, however, these same central counties lost 54,000 workers who shifted their work place to nonmetropolitan areas, plus an additional 76,000 who relocated to jobs in the suburbs (see Table 7). These work-force migration patterns reflect the accelerated decentralization of manufacturing and related activities out of central cities--especially out of

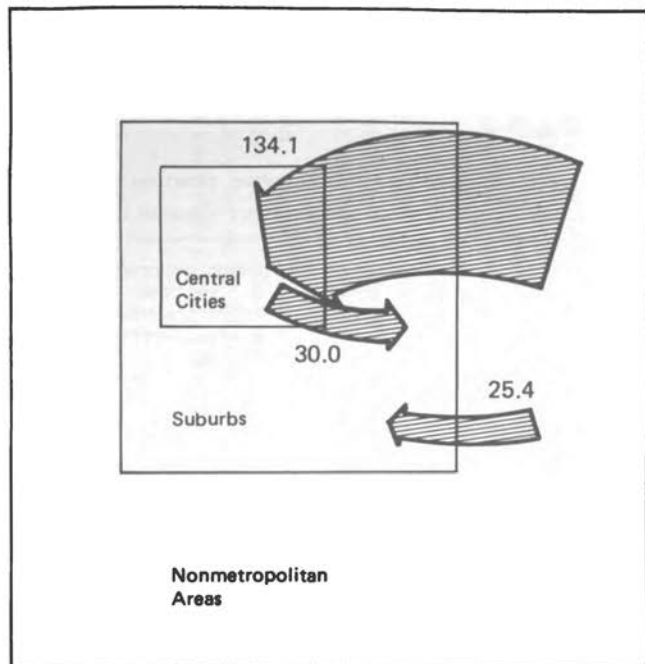
TABLE 6 Net Migration of Work Force for Metropolitan and Nonmetropolitan Counties: 1960-1963 and 1970-1973 (in thousands)^a

Years	Metropolitan Counties					Nonmetropolitan Counties
	Central Counties of SMSAs with Populations of:				Suburban Counties	
	2 Million or More	1 Million-1,999,999	0.5 Million-999,999	Less Than 0.5 Million		
1960-1963	-27.1	71.9	28.0	31.3	55.4	-159.5
1970-1973	-270.8	46.8	85.8	54.5	64.4	19.3

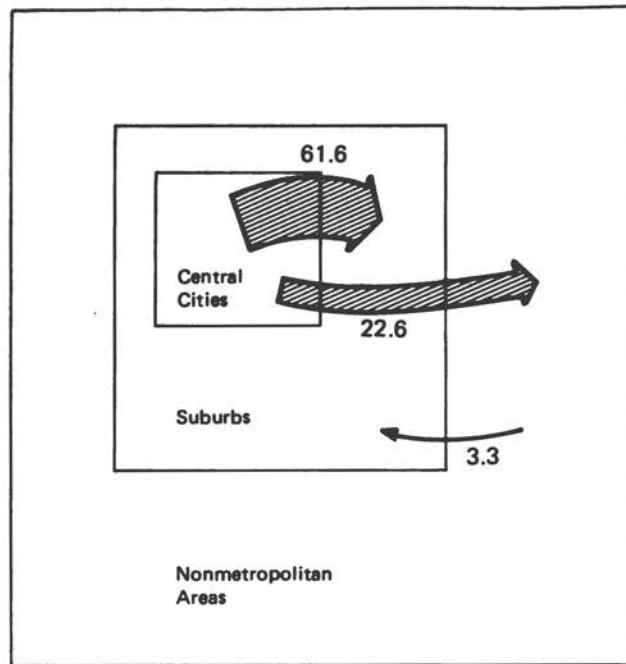
^aPositive numbers indicate net in-migration and negative numbers indicate net out-migration.

SOURCE: Regional Economic Analysis Division (1976).

⁶Central counties are those counties within metropolitan areas that most closely approximate the central city (Regional Economic Analysis Division 1976). These data on worker migration are derived from the Social Security Administration's Continuous Work History Sample.



1960-1963



1970-1973

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

FIGURE 6 Net work-force flows, 1960-1963 and 1970-1973 (in thousands)
(Regional Economic Analysis Division 1976).

TABLE 7 Place-to-Place Net Migration of Work Force for Metropolitan and Nonmetropolitan Counties: 1960-1963 and 1970-1973 (in thousands)^a

Metropolitan Counties												
Central Counties of SMSAs with Populations of:												
2 Million or More		1 Million-1,999,999		0.5 Million-999,999		Less Than 0.5 Million		Suburban Counties		Nonmetropolitan Counties		
'60-'63	'70-'73	'60-'63	'70-'73	'60-'63	'70-'73	'60-'63	'70-'73	'60-'63	'70-'73	'60-'63	'70-'73	
Central counties of SMSAs with populations of												
2 Million or more	--	--	0.1	73.7	-10.4	47.1	-3.1	20.7	65.1	75.8	-24.6	53.5
1 Million-1,999,999	-0.1	-73.7	--	--	1.5	-3.2	-19.3	16.5	-23.7	12.6	-30.3	1.0
0.5 Million-999,999	10.4	-47.1	-1.5	3.2	--	--	0.6	-13.7	-1.2	-11.6	-36.3	-16.6
Less than 0.5 million	3.1	-20.7	19.3	-16.5	-0.6	13.7	--	--	-10.2	-15.7	-42.9	-15.3
Suburban counties	-65.1	-75.8	23.7	-12.6	1.2	11.6	10.2	15.7	--	--	-25.4	-3.3
Nonmetropolitan counties	24.6	-53.5	30.3	-1.0	36.3	16.6	42.9	15.3	25.4	3.3	--	--

^a Positive numbers indicate net in-migration, and negative numbers indicate net out-migration.

SOURCE: Regional Economic Analysis Division (1976).

the nation's largest ones--that has been occurring during the 1970s.

Characteristics of Movers

Previous research has demonstrated that, typically, persons who move differ from those who do not move and, as a result, have an impact on areas of origin and destination greater than their numbers alone would imply.⁷

Age The highest levels of mobility are usually found among persons in their 20s, reflecting the establishment of new households by young adults who have recently completed their schooling, married, or entered the labor force. During the first half of the 1970s, 72 percent of all persons aged 25 to 29 resided at a location in 1975 different from that in 1970, compared with just over 40 percent of the total population (over 4 years of age). Persons in their early 20s and early 30s were also highly mobile during this period: about 60 percent of both groups changed residence. The high mobility rates of younger adults are also reflected in the mobility rates of their children, which are higher than those for adolescents whose parents are older.

Race Residential mobility levels differ by race as well as by age. Between 1970 and 1975, more blacks changed their residence than whites (46 compared with 41 percent), but they tended to move shorter distances; 36 percent of all blacks aged 4 and older moved to a new residence within the same county, compared with 23 percent of all whites. However, the long-distance moves, represented by intercounty and interstate migration, were more frequent among whites than blacks (18 compared with 10 percent and 5 compared with 3 percent of each respective subpopulation).

Education Educational attainment is another factor influencing the likelihood of migration. College graduates are more likely to move between counties and states than high school graduates, who, in turn, migrate more often than

⁷A summary of earlier research on the levels of geographical mobility of specific subpopulations is presented in Taeuber and Taeuber (1957); statistics for the 1970s are from U.S. Bureau of the Census (1975b).

persons whose formal schooling ended at the primary level. Among all persons aged 18 and older, 30 percent of those with 4 or more years of college moved to a different county between March 1970 and March 1975, compared with 16 percent of those who had completed 4 years of high school and 9 percent of those with 8 years of education or less.

Family Structure The presence and age level of children are additional factors influencing the spatial mobility of families. Among married men aged 25-34 living with their wives, those with no children under 18 are more mobile than those with children under 18. Husband-wife families (head aged 25-34) whose children are all under 6 are also more residentially mobile than those with children over 6. Thus, the presence of school-age children appears to reduce the spatial mobility of families.

Characteristics of Subpopulations of Movers Not only do more mobile individuals differ from those who are spatially stable, but also subpopulations of the spatially mobile differ among themselves in the direction of their moves. For instance, persons moving to central cities tend to be slightly younger than persons moving from central cities. In the 1970-1975 period, the median age of central-city in-migrants was 25.1 years, compared with 27.6 years for out-migrants. Blacks are relatively more numerous in the migration flow to, rather than from, central cities. Between 1970 and 1975, blacks constituted 12.3 percent of the in-migrants to central cities and 7.5 percent of the out-migrants. Continuation of these particular migration patterns by blacks and younger individuals, accompanied by the higher rates of natural increase associated with both groups, will contribute to raising the proportion of youths and blacks residing in central cities.

Directions of Residential Changes

Suburbanization Trend Those who make short-distance moves, especially those who remain within a single metropolitan area while changing residence, contribute more to the suburbanization trend than those who move long distances (e.g., interregional migrants). Among those who moved within the same metropolitan area during the 1970-1975 period, those moving from the central city to the suburbs outnumbered those moving from the suburbs to the central city by 3 to 1. Among interregional migrants, on

the other hand, persons shifting to the suburbs outnumbered those shifting to central cities by only 2 to 1. This difference between short- and long-distance movers produced a net shift to the suburbs that was 42 percent higher among those who remained within a single metropolitan area than among interregional migrants.

Metropolitan/Nonmetropolitan Shifts A similar trend was evident during this period among individuals who changed their residential location between metropolitan and non-metropolitan areas. The proportion of movers shifting from metropolitan to nonmetropolitan areas while remaining within the same region was 14 percent higher than the proportion of those who stayed in the same residential category while migrating between regions. Among persons shifting both from central cities to suburbs and from metropolitan to nonmetropolitan areas, short-distance movers exhibited the greater tendency to shift away from the central city. These differences between local and long-distance movers are at least partially explained by the fact that interregional migrants continue to include individuals seeking the opportunities traditionally associated with central cities, such as schooling and better employment. For the black poor leaving rural areas (especially those of the South), accessible housing and personal contacts are often found in the inner city. These overriding decentralization trends should not obscure the fact that some 61 percent of all interregional migrants who had resided in nonmetropolitan areas in 1970 were by 1975 living in metropolitan areas.

Black Migration The movement to metropolitan areas was most apparent among black migrants from the South, who continue to maintain migration streams from rural areas to the cities of the North.⁸ However, even this pattern is changing. During the 5-year period from 1965 to 1970, the black population of the South decreased by 216,000 due to out-migration, but since then the South has gained 14,000 blacks from other regions of the country. Comparing the first half of the 1970s to the last half of the 1960s, in-migration by blacks to the South increased 86.4 percent and out-migration decreased 23.8 percent.

⁸See U.S. Bureau of the Census (1975b) for data documenting the continued long-distance moves to central cities from rural areas.

Economic Aspects of Population Shifts

These population shifts have broad economic consequences for central cities. During 1970-1975, the mean family income of black migrants leaving nonmetropolitan areas for central cities was \$5,037 or about half that of blacks already residing in central cities. This continuing flow of low-income persons will continue to add to the financial burdens of central cities. The economic problems of cities are also affected by the fact that more families and unrelated individuals are leaving the central city than are moving to it, and the income levels of in-migrants are in general lower than those of out-migrants.⁹ The previous-year mean income level of families and individuals who moved to central cities between 1970 and 1974 was about \$10,300, compared with \$12,500 for those who moved from central cities. During this 4-year period alone, central cities experienced a net loss of \$29.6 billion in the aggregate personal incomes of their residents, due to the differential income levels between in-migrants and out-migrants and the greater number of out-migrants than in-migrants.

Conclusion

Overall, the decentralization trend has been greatest among movers who change residence within the same region of the country, while at least some interregional migration continues to include people moving from rural areas to central cities. More blacks, more poor, and greater numbers of younger persons are moving to, rather than from, central cities. The suburbs receive proportionately more whites, the more affluent, and families rather than single persons.

It has been suggested that these current patterns of decentralization represent continuations of previous trends --that what is now being referred to as nonmetropolitan growth is simply growth at the exurban fringes of metropolitan areas. However, longitudinal analysis of data from 1900 through the 1970s, which document levels of population concentration, forces us to conclude that what we are now witnessing is something more than the continued expansion

⁹See U.S. Bureau of the Census (1975d) for more detail on the income differences between central-city, suburban, and nonmetropolitan residents.

of metropolitan areas. The data consist of indexes of population concentration at each of several levels (scales) of spatial disaggregation, with the coarsest level consisting of the nine geographical divisions used by the Census Bureau and the finest consisting of county units. Analysis of changes in those indexes shows that population concentration has declined throughout this century at the division and state levels, reflecting the general deconcentration that has accompanied the expansion of settlement to the West and the South. During the 1940s, population dispersal also occurred at the county level, reflecting the suburbanization movement. On the other hand, analysis of population concentrations at a level termed economic subregions (which divide the country into approximately 100 areas centered on metropolitan economies) shows continually more concentration between 1920 and 1970, indicating that period's widespread trend of rural-to-urban migration (Duncan et al. 1961, Vining and Strauss 1976).

Since 1970, however, deconcentration has occurred at all of the spatial levels--from the county through the divisional. This represents a clean break with the previous trends indicating continued urbanization in the form of rural-to-urban migration. For the first time in this century, population deconcentration is now occurring at all levels of regional disaggregation. Although population concentration continues in some of the most rural states, e.g., New Mexico and North Dakota, the trend toward decentralization in the more urbanized states far outweighs these counterflows and indicates that the current changes represent a genuine turning point from the nation's preceding trends toward urbanization and metropolitan concentration.

CHARACTERISTICS OF METROPOLITAN-AREA RESIDENTS

Halfway through the current decade, the central cities of metropolitan areas lost 2.7 percent of their 1970 residential population. During the same period, suburban areas gained 9.6 percent. As a result, the suburbs contain 33 percent more residents than do central cities; 39 percent of the nation's population reside in suburban areas, compared with 29 percent in central cities and 32 percent in nonmetropolitan areas. The differences between central-city and suburban residents are significant.

Income

The median income of families residing in the suburbs is now \$14,007, 23.5 percent higher than the average of \$11,343 for central-city families.¹⁰ The difference between the average suburban and central-city family's income was 17.8 percent in 1970. In the 1970-1975 period, suburban incomes increased 4.6 percent and central-city incomes diminished an average of 0.3 percent.

Contrary to popular beliefs, current differences between central-city and suburban incomes are of a similar magnitude for both black and white families. The median income of suburban black families is now 20 percent higher than that of black families residing in central cities, and the median income of suburban white families is 15 percent higher than that of white families living in central cities. The generally lower income levels for both central-city blacks and whites should not, however, lead one to conclude that higher-income families have altogether deserted central cities. As of March 1974, when the median family income nationwide was \$12,000, one-third of all central-city families (almost 5.3 million) had annual incomes in excess of \$15,000, and 17 percent had annual incomes over \$20,000.

Although the number of persons with incomes below the poverty level has actually decreased during the 1970s (from 27 million or 13.7 percent of the total population in 1969 to 23 million or 11.1 percent by 1973), the portion of that population that resides in metropolitan areas has increased from 56.2 percent to 59.9 percent, and the largest share of the increase has occurred within the central city. Central cities, with 29 percent of the nation's population, now contain 37.4 percent of its poor, an increase of 3.2 percent of the total since the beginning of the decade. Just over 10 percent of all central-city families now receive some form of public assistance income, while the proportion of suburban families receiving such assistance is 3.9 percent.

Race

Not only do central cities contain a disproportionate number of the nation's poor, but they are also the home of a

¹⁰All figures in this discussion of income levels are in constant 1973 dollars (U.S. Bureau of the Census 1975d).

majority of the nation's blacks. Of the total black population, 58 percent now reside in central cities compared with 25 percent of all whites, while 17 percent of all blacks and 42 percent of all whites reside in the suburbs. The number of black persons residing outside metropolitan areas continues to decline, and the white nonmetropolitan population is now increasing at a higher rate than that of the 1960s.

Although the number of blacks residing in suburbs relative to the number of whites remains small, the suburban growth rate of blacks has exceeded that of whites during both the 1960s and 1970s. During the 1960s, black suburban population grew at an annual rate of 3.2 percent compared with 2.3 percent for whites; since 1970, black suburban population growth has increased to an average of 5.2 percent per year, while growth in the number of whites residing in the suburbs has decreased to an annual rate of 1.6 percent. Thus, black suburbanization rates have increased during the 1970s at a time when white suburbanization rates have dropped.

This increased rate of suburbanization by blacks, coupled with a central-city growth rate that has dropped from 3.1 percent per year during the 1960s to 1.9 percent per year in the 1970s, is now producing a decline in the concentration of blacks residing in the central city for the first time in this century. The central-city concentration of blacks reached its peak in 1970, when 80 percent of all blacks living in metropolitan areas resided in central cities. Since then, the level of central-city concentration of blacks has dropped to 74 percent, placing it below the levels of the 1940s.

Blacks are not the only minority group concentrated in metropolitan areas. Persons of Hispanic origin are more concentrated in metropolitan areas than either blacks or whites; however, they are not as concentrated in central cities as blacks. Of the nation's total Hispanic origin population, 81 percent now reside in metropolitan areas, but only 49 percent reside in central cities, compared with 58 percent of blacks and 25 percent of other whites.

Age

Similarly, the decline in the total population of central cities during the 1970s has not been distributed equally among all age-groups. The number of young adults aged 25-34 has increased, while the number of youths through age 17

and adults aged 35-64 has decreased, due to generally lower birth rates and the general suburban shift of families. The median age of the central city's declining population remains slightly older than that of suburban residents, but this gap has narrowed since the 1960s as the proportion of young children in the suburbs has declined. The proportion of elderly persons (65 and over) among the residents of central cities remains large, with 22 percent of all central-city residents receiving part of their income from social security, compared with 18 percent for suburban dwellers.

Family Structure

The final set of differences between central-city and suburban residents relates to family structure. The nationwide increase of 1.2 million families headed by women in 1970-1975 is equal to the increase in such families that occurred during the entire decade of the 1960s. The largest proportion of this rise (83 percent) has occurred in metropolitan areas, where 74 percent of all female-headed families resided in 1974. Female-headed families accounted for 19 percent of all families in the central cities and 10 percent of all families in the suburbs.

The difference in the number of female-headed households in the suburbs and the central cities can be attributed to differences in black and white family structure; 39 percent of black families living in central cities are headed by females, whereas 14 percent of white families in central cities are headed by females.

SUMMARY

Significant changes have taken place in the nation's settlement patterns since 1970. The two major categories of change involve the population distribution among regions and between metropolitan and nonmetropolitan areas.

Regional Changes

- The South is experiencing net migration gains from all other regions in numbers that are more than double the net gain to the West--the only other region now experiencing a net migration gain. Significantly, the long-term trend

of out-migration by blacks from the South to the North was reversed during the first half of the 1970s.

- The growth rate of the West continues to be the highest in the country, but the most rapid growth within that region has shifted from the coastal states (Pacific division) to those of the Mountain division.

- The net flow of migrants from the Northeast and North Central regions during the first half of the 1970s was almost double that of the last half of the 1960s. This increase has resulted primarily from a rise of 34.1 percent in the migration from the North to the South coupled with a decrease of 17.3 percent in migration from the South to the North.

Metropolitan and Nonmetropolitan Changes

- Since 1970, the metropolitan areas of the United States have grown more slowly than the nation as a whole and substantially less rapidly than nonmetropolitan America, a development that stands in sharp contrast to all preceding decades back to the early 19th century.

- On a net basis, metropolitan areas are now losing migrants to nonmetropolitan areas, although they still show slight population increases due to natural increase and immigration.

- The overall decline in the growth of metropolitan areas is largely accounted for by the largest metropolitan areas, particularly those located in the Northeast and North Central regions. Through 1975, the 8 metropolitan areas exceeding 3 million in population added only 270,000 residents to a 1970 population base of 52 million, while their central cities had absolute declines in population. All central cities of the nation's metropolitan areas grew at an average annual rate of 0.6 percent between 1960 and 1970 but have declined at an average annual rate of 0.4 percent since 1970 (annexations excluded). Much of the decrease is attributable to the post-1970 decline in the number of white central-city residents, which has occurred at a rate of 1 percent per year.

- Rapid growth has taken place in some smaller metropolitan areas, particularly in the South (especially Florida), the West, and in exurban counties located immediately outside metropolitan areas that have substantial daily commuting to metropolitan areas.

- Particularly noteworthy are the reversals in migration trends in the largest metropolitan areas and the

furthermost peripheral counties. The metropolitan areas with populations exceeding 3 million gained migrants in the 1960s but have lost residents since 1970; the nation's peripheral nonmetropolitan counties lost migrants between 1960 and 1970 but have gained migrants since 1970. The balance of migration flows has been reversed.

- High growth rates prevail in certain nonmetropolitan areas, especially those with manufacturing, centers of higher education, resources for recreational development, and retirement centers. The long-term shift away from agricultural employment has also tapered off, adding to rural population retention.

We must learn more about the causes of the redistributions and their implications, for if the nation's settlement patterns are changing, urban policy should be shaped to deal with these changes.

APPENDIX

TABLE A-1 Population of the United States, 1970-1977
(in thousands)^a

Residential Category	1977	1970	Percent Change 1970-1977
Total U.S.	211,792	199,819	6.0
Metropolitan	143,182	137,058	4.5
Central-city	60,334	62,876	-4.0
Suburban	82,848	74,182	11.7
Nonmetropolitan	68,610	62,761	9.3

^aFor population of the United States, 1950-1975, see Table 1.

SOURCES: U.S. Bureau of the Census (1972, 1975e). Figures updated through 1977.

TABLE A-2 Interregional Migration: 1975-1977
(in thousands)^a

Residence in 1975	Residence in 1978			
	Northeast	North Central	South	West
Northeast	--	278	902	395
North Central	247	--	1,136	788
South	466	707	--	718
West	183	498	843	--

^aFor 1965-1970 and 1970-1975 interregional migration data, see Table 4.

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

TABLE A-3 Residential Mobility: 1975-1978 (in millions)^a

Residential Category in 1975	Residential Category in 1977		
	Central City	Suburb	Nonmetropolitan Area
Central city	[15.2] ^b	7.5	2.4
Suburb	3.7	[16.7] ^b	2.9
Nonmetropolitan area	1.6	2.6	[17.5] ^b

^aFor 1970-1975 residential mobility data, see Table 5.

^bFigures in brackets are movers who remained in the same residential category during relocation.

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

TABLE A-4 Population, Population Change, and Components of Change for Selected Categories of Metropolitan and Nonmetropolitan Counties: 1960-1970 and 1970-1975 (in thousands)

Location	Population			Population Change				Natural Increase				Net Migration			
	1975			1970-1975		1960-1970		1970-1975		1960-1970		1970-1975		1960-1970	
	(Provi- sional)	1970 (Census) ^a	1960 (Census)	Number	Annual Percent ^b	Number	Annual Percent	Number	Annual Percent	Number	Annual Percent	Number	Annual Percent	Number	Annual Percent
UNITED STATES	213,051	203,304	179,311	9,748	0.89	23,993	1.25	7,281	0.67	20,466	1.07	2,467	0.23	3,528	0.18
Metropolitan areas ^c	156,098	149,826	127,943	6,272	0.78	21,883	1.58	5,575	0.69	15,548	1.12	696	0.09	6,335	0.46
Over 3 million ^d	53,135	52,865	45,766	271	0.01	7,099	1.44	1,635	0.59	5,042	1.02	-1,364	-0.49	2,057	0.42
1-3 million	41,402	39,341	32,403	2,061	0.97	6,939	1.98	1,451	0.68	4,066	1.13	610	0.29	2,873	0.80
0.5-1 million	23,782	22,548	19,386	1,234	0.10	3,162	1.51	922	0.76	2,425	1.16	312	0.26	736	0.35
0.25-0.5 million	19,554	18,223	15,803	1,331	1.34	2,420	1.42	798	0.80	2,062	1.21	533	0.54	358	0.21
Less than 0.25 million	18,225	16,849	14,585	1,376	1.49	2,264	1.44	770	0.84	1,953	1.24	605	0.66	311	0.20
Nonmetropolitan areas	56,954	53,475	51,368	3,476	1.20	2,110	0.40	1,706	0.59	4,918	0.94	1,770	0.61	-2,808	-0.54
Counties by level of commuting to metropolitan areas:															
20 percent or more	4,407	4,003	3,651	404	1.83	353	0.92	115	0.52	312	0.82	289	1.31	41	0.11
10-19 percent	10,011	9,349	8,705	662	1.30	644	0.71	267	0.52	760	0.84	395	0.78	-116	-0.13
3-9 percent	14,338	13,497	12,805	841	1.15	692	0.53	431	0.59	1,238	0.94	410	0.56	-546	-0.42
Less than 3 percent	28,197	26,628	26,207	1,569	1.09	422	0.16	893	0.62	2,607	0.99	676	0.46	-2,186	-0.83

NORTHEAST ^c	54,849	54,289	48,989	559	0.20	5,301	1.03	1,267	0.44	4,561	0.88	-708	-0.25	739	0.14
Metropolitan areas ^f	47,021	46,980	42,264	41	0.02	4,716	1.06	1,087	0.44	3,998	0.90	-1,046	-0.42	718	0.16
Over 1 million	34,772	35,024	31,464	-251	-0.14	3,560	1.07	811	0.44	2,493	0.92	-1,063	-0.58	517	0.16
New York SCSA ^g	16,365	16,701	15,126	-337	-0.39	1,576	0.99	369	0.46	1,347	0.85	-706	-0.81	229	0.14
Philadelphia SCSA	5,635	5,628	5,024	7	0.02	604	1.13	140	0.47	506	0.95	-133	-0.45	98	0.18
Boston NECMA	3,915	3,849	3,457	66	0.32	392	1.07	82	0.40	331	0.91	-16	-0.08	61	0.17
Pittsburgh	2,316	2,401	2,405	-85	-0.69	-4	-0.02	24	0.19	162	0.68	-109	-0.88	-166	-0.69
Washington (pt)	2,018	1,989	1,495	29	0.27	494	2.64	86	0.82	255	1.46	-57	-0.54	239	1.37
Baltimore	2,137	2,071	1,804	66	0.60	267	1.28	55	0.50	213	1.10	11	0.10	54	0.28
Buffalo	1,527	1,349	1,307	-22	-0.31	42	0.32	26	0.38	124	0.94	-48	-0.70	-82	-0.62
Hartford NECMA	1,060	1,035	847	25	0.45	188	2.00	29	0.53	105	1.11	-5	-0.08	83	0.89
0.5-1 million	7,328	7,206	6,453	122	0.32	753	1.10	150	0.30	559	0.82	-28	-0.07	194	0.28
0.25-0.5 million	3,059	2,971	2,760	88	0.56	211	0.74	77	0.49	241	0.84	11	0.07	-30	-0.10
Less than 0.25 million	1,863	1,780	1,587	83	0.87	193	1.15	49	0.51	156	0.93	34	0.36	37	0.22
Nonmetropolitan areas	7,828	7,310	6,725	518	1.30	585	0.83	180	0.45	563	0.80	338	0.85	22	0.03
20 percent or more	1,288	1,127	929	161	2.53	198	1.93	27	0.42	78	0.76	134	2.11	120	1.17
10-19 percent	2,006	1,889	1,734	117	1.14	155	0.85	41	0.40	127	0.70	76	0.75	28	0.15
3-9 percent	2,174	2,060	1,929	115	1.03	131	0.66	50	0.45	157	0.79	65	0.58	-26	-0.13
Less than 3 percent	2,360	2,234	2,133	126	1.04	101	0.66	62	0.52	201	0.92	63	0.52	-100	-0.46
NORTH CENTRAL	57,665	56,593	51,619	1,072	0.36	4,974	0.92	1,953	0.65	5,657	1.05	-882	-0.29	-683	-0.13
Metropolitan areas	39,902	39,408	34,859	494	0.24	4,548	1.23	1,550	0.74	4,362	1.18	-1,055	-0.51	187	-0.51
Over 1 million	26,123	25,996	22,948	127	0.09	3,349	1.25	1,004	0.73	1,867	1.17	-877	-0.64	180	0.07
Chicago SCSA	7,623	7,611	6,794	12	0.03	817	1.13	295	0.74	823	1.14	-283	-0.71	-6	-0.01
Detroit SCSA	4,701	4,669	4,122	32	0.13	547	1.24	195	0.79	532	1.21	-163	-0.66	15	0.03
Cleveland SCSA	2,912	3,000	2,732	-88	-0.56	267	0.93	94	0.60	304	1.06	-181	-1.17	-36	-0.13
St. Louis	2,369	2,410	2,144	-41	-0.33	267	1.17	78	0.62	242	1.06	-119	-0.95	30	0.11
Minneapolis	2,027	1,965	1,598	62	0.59	367	1.61	86	0.81	250	1.10	-23	-0.22	118	0.52
Cincinnati SCSA (pt)	1,376	1,362	1,238	14	0.19	124	0.96	51	0.71	152	1.16	-37	-0.52	-26	-0.20
Milwaukee SCSA	1,602	1,575	1,421	28	0.33	154	1.03	53	0.64	183	1.22	-26	-0.31	-29	-0.19
Kansas City	1,287	1,274	1,109	13	0.20	165	1.39	52	0.77	135	1.13	-39	-0.57	31	0.26
Indianapolis	1,147	1,111	944	36	0.61	167	1.62	51	0.86	128	1.25	-15	-0.25	38	0.37
Columbus	1,077	1,018	845	59	1.08	173	1.65	49	0.90	121	1.30	10	0.18	52	0.55
0.5-1 million	3,966	3,874	3,393	72	0.45	481	1.12	172	0.83	450	1.24	-80	-0.39	32	0.09
0.25-0.50 million	4,645	4,536	4,055	109	0.45	481	1.12	179	0.74	502	1.17	-70	-0.29	-21	-0.05
Less than 0.25 million	5,168	5,001	4,463	166	0.62	538	1.14	195	0.73	543	1.15	-29	-0.11	-5	-0.01

TABLE A-4 (Continued)

Location	Population			Population Change				Natural Increase				Net Migration			
	1975	1970		1970-1975		1960-1970		1970-1975		1960-1970		1970-1975		1960-1970	
	(Provi- sional)	1970 (Census) ^a	1960 (Census)	Number	Annual Percent ^b	Number	Annual Percent	Number	Annual Percent	Number	Annual Percent	Number	Annual Percent	Number	Annual Percent
Nonmetropolitan areas	17,763	17,185	16,760	577	0.63	426	0.25	404	0.44	1,296	0.76	173	0.19	-873	-0.51
20 percent or more	1,322	1,241	1,163	81	1.20	78	0.65	33	0.49	85	0.71	48	0.71	-7	-0.06
10-19 percent	3,378	3,249	3,031	129	0.74	217	0.69	93	0.53	255	0.81	36	0.20	-37	-0.12
3-9 percent	4,550	4,412	4,239	138	0.59	173	0.40	110	0.47	334	0.77	28	0.12	-162	-0.37
Less than 3 percent	8,513	8,284	8,327	229	0.52	-43	-0.05	168	0.38	621	0.75	61	0.14	-664	-0.80
SOUTHEAST ^h	28,210	25,450	21,648	2,859	2.03	3,802	1.61	992	0.70	2,675	1.14	1,867	1.32	1,127	0.49
Metropolitan areas	17,544	15,550	12,154	1,994	2.30	3,396	2.45	639	0.70	1,616	1.17	1,385	1.59	1,780	1.29
Over 1 million	6,471	5,493	3,849	978	3.11	1,644	3.52	171	0.55	457	0.98	867	2.57	1,187	2.54
Washington (pt)	999	921	602	77	1.53	319	4.99	54	1.06	131	1.71	24	0.47	189	2.48
Miami SCSA	2,301	1,888	1,269	413	3.76	619	3.92	27	0.25	107	0.68	386	3.51	512	3.24
Atlanta	1,806	1,596	1,169	211	2.36	426	3.09	95	1.06	193	1.40	116	1.30	233	1.69
Tampa-St. Peters- burg	1,365	1,089	809	277	4.30	279	2.94	-4	-0.06	26	0.28	281	4.36	253	2.67
0.5-1 million	3,414	3,184	2,687	230	1.33	497	1.69	145	0.84	386	1.31	85	0.49	111	0.38
0.25-0.5 million	3,999	3,533	2,907	465	2.35	627	1.95	159	0.81	397	1.23	306	1.55	230	0.71
Less than 0.25 million	3,660	3,340	2,712	320	1.74	625	2.08	134	0.73	376	1.24	187	1.02	252	0.83
Nonmetropolitan areas	10,766	9,900	9,494	866	1.60	406	0.42	383	0.71	1,059	1.09	483	0.89	-653	-0.67
20 percent or more	661	607	592	54	1.62	15	0.25	21	0.64	61	1.01	33	0.98	-46	-0.77
10-19 percent	1,993	1,784	1,662	209	2.11	123	0.71	59	0.59	166	0.96	150	1.52	-44	-0.25
3-9 percent	2,713	2,482	2,362	231	1.69	120	0.49	90	0.66	259	1.07	141	1.03	-140	-0.58
Less than 3 percent	5,399	5,027	4,878	372	1.36	149	0.30	213	0.78	573	1.16	159	0.58	-424	-0.86
SOUTH CENTRAL ⁱ	34,398	32,133	29,001	2,265	1.30	3,131	1.02	1,495	0.86	3,728	1.22	770	0.44	-596	-0.20
Metropolitan areas	21,392	19,770	16,775	1,623	1.50	2,995	1.64	1,085	1.00	2,502	1.37	538	0.50	493	0.27
Over 1 million	6,379	5,845	4,445	534	1.67	1,400	2.72	334	1.04	699	1.36	200	0.62	701	1.36
Dallas-Ft. Worth	2,553	2,378	1,738	174	1.35	640	3.11	133	1.03	273	1.33	41	0.32	368	1.79
Houston SCSA	2,479	2,169	1,571	310	2.54	598	3.20	142	1.17	271	1.45	168	1.37	328	1.75
New Orleans	1,094	1,046	907	48	0.85	139	1.43	50	0.88	129	1.32	-2	-0.03	11	0.11
Cincinnati (pt)	253	251	229	2	0.12	22	0.90	9	0.65	26	1.09	-7	-0.53	-5	-0.20
0.5-1 million	5,488	5,173	4,488	315	1.13	685	1.42	247	0.88	596	1.23	68	0.24	89	0.18
0.25-0.5 million	5,017	4,639	4,057	379	1.49	581	1.34	258	1.02	620	1.43	121	0.48	-38	-0.09
Less than 0.25 million	4,508	4,113	3,784	395	1.75	329	0.83	246	1.09	588	1.49	149	0.66	-259	-0.66

nonmetropolitan areas	13,005	12,363	12,226	642	0.96	137	0.11	410	0.62	1,226	1.00	232	0.35	-1,089	-0.89
20 percent or more	1,082	979	928	103	1.90	51	0.53	32	0.59	86	0.90	71	1.30	-35	-0.37
10-19 percent	2,206	2,074	1,985	132	1.18	89	0.44	61	0.54	181	0.89	71	0.63	-92	-0.45
3-9 percent	3,189	3,059	3,024	130	0.79	30	0.10	109	0.66	326	1.07	21	0.13	-296	-0.97
Less than 3 percent	6,528	6,251	6,284	277	0.83	-34	-0.05	208	0.62	633	1.01	69	0.21	-667	-1.06
WEST	37,831	34,838	28,053	2,992	1.57	6,785	2.16	1,573	0.82	3,844	1.22	149	0.74	2,941	0.94
Metropolitan areas	30,238	28,119	21,891	2,119	1.38	6,227	2.49	1,244	0.81	3,070	1.23	875	0.57	3,158	1.26
Over 1 million	20,791	19,847	15,462	944	0.88	4,387	2.49	765	0.72	2,042	1.16	178	0.17	2,345	1.33
Los Angeles SCSA	10,317	9,983	7,752	334	0.63	2,231	2.52	412	0.77	1,060	1.19	-79	-0.15	1,172	1.32
San Francisco SCSA	4,580	4,424	3,492	156	0.66	932	2.36	142	0.60	444	1.12	14	0.06	488	1.23
Seattle SCSA	1,822	1,837	1,429	-15	-0.16	408	2.50	53	0.61	174	1.06	-74	-0.77	235	1.44
San Diego	1,587	1,358	1,033	230	2.97	325	2.72	62	0.80	156	1.31	168	2.17	169	1.41
Denver	1,404	1,239	935	165	2.38	305	2.80	62	0.89	140	1.29	103	1.48	165	1.51
Portland	1,082	1,007	822	75	1.36	185	2.03	29	0.53	69	0.75	46	0.83	117	1.27
0.5-1 million	3,586	3,111	2,366	475	2.70	745	2.72	207	1.18	435	1.59	267	1.52	310	1.13
0.25-0.5 million	2,835	2,545	2,024	290	2.05	520	2.28	125	0.88	303	1.33	165	1.17	218	0.95
Less than 0.25 million	3,026	2,615	2,039	411	2.78	575	2.47	145	0.99	290	1.24	264	1.79	286	1.23
Nonmetropolitan areas	7,593	6,720	6,162	873	2.32	558	0.87	329	0.88	775	1.20	544	1.45	-217	-0.34
20 percent or more	55	49	38	6	2.18	11	2.50	2	0.66	2	0.55	4	1.53	9	1.95
10-19 percent	427	353	293	75	3.65	60	1.86	14	0.67	32	0.99	61	2.98	28	0.87
3-9 percent	1,712	1,485	1,247	227	2.71	238	1.74	72	0.86	161	1.18	155	1.85	77	0.57
Less than 3 percent	5,999	4,833	4,585	565	2.10	249	0.53	241	0.90	579	1.23	324	1.21	-331	-0.70

^uIncludes corrections in local and national totals determined after 1970 Census complete-count tabulations were made.

^vAverage annual percent change.

^wMetropolitan areas defined as of December 31, 1976. Data refer to standard consolidated statistical areas (SCSAs) where they have been defined. Data for New England's metropolitan areas refer to New England county metropolitan areas (NECMAs). Some metropolitan area titles have been abbreviated.

^xPopulation size classification of metropolitan areas is as of the Census of 1970.

^yExpands Northeast region to include Delaware, Maryland, and the District of Columbia.

^zNew England county metropolitan areas (NECMAs) in New England.

^{aa}Excludes portion located in New England division.

^{ab}Includes all states in South Atlantic division except Delaware, Maryland, and the District of Columbia.

^{ac}Combines East South Central and West South Central divisions.

SOURCE: Unpublished data provided by Richard L. Forstall updating Forstall (1975).

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POPULATION REDISTRIBUTION AND THE USE OF LAND AND ENERGY RESOURCES

Edwin S. Mills

INTRODUCTION

The so-called Sun Belt trend and demetropolitanization trend, as identified by Berry and Dahmann in this volume, are examined in this paper in terms of their implications for government policies relating to the use of land and energy. The two trends have different causes, different results, and, to a considerable extent, different policy implications. Hence these trends are discussed separately within the section on land use policy and within the section on energy policy.

The Sun Belt trend is conceptually straightforward and is well established by census data; for many decades the predominant pattern of migration was from the South to the North, but in the 1970s, large numbers of Americans have been moving from the colder to the warmer parts of the country. The causes of this dramatic reversal of migration trends are not well understood and deserve careful study. However, the implications of the Sun Belt trend for uses of land and energy resources are relatively easy to analyze. These implications will be the subject of subsequent sections of this paper.

The demetropolitanization trend is conceptually more complex than the Sun Belt trend. Berry and Dahmann show that the nonmetropolitan population grew much faster than the metropolitan population during the first half of the 1970s. Were that trend to persist through 1980, this decade would be the first since the census began in 1790 in

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which rural population grew more rapidly than urban population.¹

However, the demetropolitanization trend may be largely a statistical illusion. The dispersion of population and jobs from the center to the periphery of metropolitan areas is well established and has proceeded for at least a century. In each census, more land is included in most metropolitan areas than in the previous census. Berry and Dahmann have shown that the most rapid nonmetropolitan growth is occurring in counties adjacent to metropolitan areas. By 1980, the Census Bureau will probably conclude that the main trend is not demetropolitanization but an expansion of metropolitan areas into formerly rural areas. Whether population growth just outside a metropolitan area should be identified as enlargement of the metropolitan area or as rural growth is a subtle issue. The Census Bureau programmatically bases its decision on the extent of the interdependencies between the new settlements and the metropolitan area.

Perhaps the time has come for revision of the criteria used to determine which settlements are parts of metropolitan areas. The density of metropolitan areas in the United States is extremely low when compared with that of metropolitan areas in most other nations. The densest parts of many U.S. metropolitan areas currently are less dense than rural areas in many of the world's more populated countries. In the context of the United States in the last quarter of the 20th century, a determination of what constitutes a metropolitan area must be based on careful analysis, for the trend toward urbanization is strong and pervasive throughout the developing and developed world. In the absence of a man-made or natural catastrophe, a fundamental reversal of that trend would be among the most dramatic events of the 20th century. Until much better evidence is available, the demetropolitanization trend should be assumed to be a continuation of the long-standing trend toward dispersal of population to the peripheries of metropolitan areas. That assumption will be maintained throughout this paper.

¹The terms "rural population" and "nonmetropolitan population," as defined by the U.S. Bureau of the Census, are not synonymous. My use of these terms conforms with the definitions used by the Bureau of the Census.

TRENDS IN URBAN LAND USE

Urbanization

The United States has urbanized rapidly and steadily during its 200-year history. In 1790, 5.1 percent of the population resided in urban areas; by 1975, urban areas housed 75 percent of the population. The pattern of growth in the United States consisted of a rapid increase in the percentage of urban growth during the years when rapid industrialization was taking place (approximately 1820-1920) and a slower but substantial increase in the percentage of urban growth since that time. This pattern is typical of high-income industrialized nations. Japan and most of the countries of northern Europe have displayed similar patterns, although compared with the United States, the pattern developed earlier in Europe and later in Japan. During the middle half of the 20th century, the pattern also has been observed in rapidly developing countries such as Brazil and South Korea. Growth in the percentage of urban growth decelerates after reaching about 50 percent and increases very slowly after reaching about 70 percent.² By the end of the century, about 80 percent of the population of the United States will probably live in urban areas.

Urban land is expensive compared with rural land in all countries in which land markets are permitted to record land values and allocate land. The cost of land along with other factors results in greater land economy for urban activities. Residences in urban areas, in contrast with rural areas, are surrounded by less land that has not been used for buildings. Given land areas are used to provide more square feet of floor space in urban areas than in rural areas. Similarly, manufacturing and service activities employ less land relative to output and other inputs in urban areas than in rural ones. Thus, urbanization is, in part, a shift from land-using to land-economizing activities. Contrary to the popular notion that urbanization swallows up open space, urbanization decreases the amount of space needed to provide housing and employment for the population. Thus, the predominant implication of urbanization for land use is that it frees land for recreational purposes, forests, or nonuse.

The size distribution of urban areas is among the most stable social phenomena. An examination of any country

²See Mills (1972a) for detailed data and comparisons.

during any period of history reveals that size distribution is always highly skewed to the right, with the largest urban area having many times as many people as the mean or modal urban area. The Pareto distribution with an exponent between 1 and 1.5 provides a close approximation to the distribution. The pattern has persisted throughout the 200-year period for which usable data are available, under greatly varying levels of economic development and across an astonishing variety of cultural and political organizations. Many scholars have fitted a variety of statistical frequency distributions to urban size data, and all have concluded that the best fit is provided by the Pareto distribution or ones that are closely related (Rosen and Resnick 1979).

In the United States, the size distribution of urban areas follows the pattern found elsewhere. The distribution and, to a lesser extent, the positions of particular urban areas in the distribution are highly stable. Large and high-income countries tend to be less primate than other countries, meaning that the urban population is less concentrated in the largest urban area or areas. As U.S. population and real income per capita have increased, smaller urban areas have grown faster on the average than larger urban areas. New York has been the country's largest metropolitan area since the founding of the nation, but for many decades it has become steadily smaller relative to other metropolitan areas and to the total urban population (Mills 1972b). The right tail of the size distribution of urban areas has become gradually less prominent. Census data show that from 1940 to 1970, the period for which data are best, the population of the New York metropolitan area fell as a percentage of total U.S. metropolitan population from 18.6 percent to 11.8 percent.³ During the same period, the population of the 10 largest metropolitan areas fell as a percentage of total U.S. metropolitan population from 51.8 to 39.3. These data indicate a very rapid decrease in primacy. But this long-term trend is to be distinguished from the events of the 1970s. All of the five largest metropolitan areas in 1970 lost population by 1974. This loss is, in all probability, mainly the result of the severe 1974-1975 recession and will almost certainly not continue. Between the mid-1970s and 1990 or 2000, the trend probably will be for slow growth

³The population of New York is that of its standard consolidated area.

of the largest metropolitan areas and faster growth of smaller metropolitan areas.

The move to the Sun Belt is a continuation of the trend toward decreased primacy in the size distribution of urban areas. Small metropolitan areas are concentrated in Sun Belt states, as are most of the fastest growing metropolitan areas. Los Angeles, Phoenix, Houston, and Miami have risen in rank among metropolitan areas in recent decades, whereas Baltimore, Boston, and other northeastern metropolitan areas have fallen. The Sun Belt trend is, to some extent, a reallocation of population growth from large metropolitan areas to small and medium ones. Such a reallocation of urban population growth is precisely the mechanism by which primacy decreases. As a result of increased migration to the Sun Belt, the ranks of metropolitan areas in the Sun Belt will almost certainly continue to rise and the ranks of metropolitan areas in the Northeast and North Central regions of the country will, in all probability, continue to fall.

There are two probable explanations for the increased migration to the Sun Belt. One is the phenomenon described by Perloff et al. (1960) as the growing importance of footloose industries. As the economy grows, services become an increasing fraction of employment and output. The location of services is influenced by the location of consumers because services are consumed in the act of production and therefore production must take place close to consumption. However, the location of services is not dependent on proximity to natural resources and bulk transportation facilities. Furthermore, such proximity is becoming increasingly less important for many manufacturers. As the economy develops, materials are subjected to an increasing number of steps between extraction and consumption. As a result, a growing proportion of manufacturing output and employment is not dependent on proximity to natural resources and bulk transportation facilities. Both the growth of service industries and the decreased dependence of manufacturing on proximity to natural resources permit employers to locate where people want to live. Most people, other things being equal, probably prefer relatively warm and perhaps dry parts of the country. Hence the trend toward footloose industries is an important factor in the increased migration to the Sun Belt.

A second and perhaps more important factor is the tendency to decreased primacy. As was stated previously, countries become less primate as they urbanize and as real income per capita grows. Nobody knows to what extent the

move to the Sun Belt is a consequence of decreased primacy. Phenomena such as the Sun Belt trend are frequently attributed to highly localized causes. It is important to recognize that generalized phenomena such as decreasing primacy may influence the Sun Belt trend and that local causes may be less significant than they first appear.

Primacy decreases with development for many reasons. The largest urban areas reach sizes at which the costs of living and the costs of production become increasingly expensive because of growing congestion, deteriorating environment, and perhaps other disamenities. The greatest population and employment growth then takes place in smaller metropolitan areas. In the United States, the South has been less urbanized and less industrialized than the North and typically has smaller metropolitan areas. The relatively small urban areas of the Sun Belt are, therefore, likely places for growth to occur.

Considering that the size distribution of urban areas is a rather abstract notion, primacy is a remarkably controversial subject. Among the most persistent beliefs of our time is that unless governments act to control metropolitan growth, an excessive number of people and jobs will be concentrated in the largest metropolitan areas. The belief is held by public officials, scholars, journalists, and others in the United States, Europe, and most developing countries. Most countries have more or less thoroughly formulated and enforced government programs to control the growth and sizes of their largest metropolitan areas. Perhaps the most articulate advocate of this position in the United States is Sundquist (1975).

The desire to control populations of large metropolitan areas is based on the concept that residents of large metropolitan areas are victims of disamenities--particularly congestion and pollution--that are outside the control of market forces. Pollution, congestion, and other disamenities are somewhat worse in large metropolitan areas than elsewhere, but the conclusion that government should control population in large metropolitan areas does not follow. Tolley (1974) has shown that government programs to control disamenities might increase or decrease the population of large metropolitan areas. Pollution abatement programs, for example, make production more expensive in large urban areas than elsewhere, but they also improve the environment more in large metropolitan areas than elsewhere. The former tends to decrease the population of large metropolitan areas and the latter to increase it. The net result depends on the magnitude of the two forces.

The basic point is that if pollution is excessive, government programs should be directed at pollution abatement, not at metropolitan populations. Pollution results mainly from the manner in which resources are allocated, not from the size of an urban area. Reducing the size of the largest metropolitan areas would be very disruptive and would have little effect on pollution levels, whereas a direct attack on pollution could have large beneficial effects.

Although many have advocated government programs to control populations of large urban areas, market forces have for decades been accomplishing just that. The relative sizes of our largest metropolitan areas have fallen in recent decades even without a government policy on the matter. By now, the United States is among the world's least primate countries. No rational basis exists for developing a government program to control the relative sizes of urban areas.

Suburbanization

The second important trend in urban land use has been the dispersion or suburbanization of people and employment from the centers toward the peripheries of metropolitan areas. When Americans think of suburbanization, they think of movement from the jurisdictions of central-city governments to those of local governments in the surrounding area. But boundaries of local government jurisdictions are moved frequently and, in the United States, the part of the metropolitan area that falls within the boundaries of the central city varies greatly from one metropolitan area to another. In addition, in most countries a single local government jurisdiction includes the entire metropolitan area. For these reasons, movement among jurisdictions is an unreliable measure of suburbanization.

For a quarter of a century, economists have instead measured suburbanization by changes in parameters of a population density function. The most common such function is the negative-exponential,

$$D(x) = D_0 e^{-bx}, \quad (1)$$

where $D(x)$ is population density at distance x from the center of the metropolitan area, e is the base of the natural logarithm, and D_0 and b are parameters estimated

from the data. In this equation, b is the percent decrease in density per unit of distance from the center and is always positive. Equation (1) is usually found to fit the data about as well as any comparably simple function. This equation has been estimated for 19th- and 20th-century cities in Europe, North America, Asia, and elsewhere.

In equation (1), b is a simple measure of suburbanization. Of two metropolitan areas with the same total population and radius, the one with the larger b has more people within any given distance of the center. Thus, a highly centralized metropolitan area has a large value of b and a decentralized metropolitan area has a smaller value of b . In the limiting case in which b is zero, density is constant throughout the metropolitan area. We term b the density gradient.

Estimated values of b have fallen dramatically in American metropolitan areas. In *Studies in the Structure of the Urban Economy* (1972c), I was able to estimate equation (1) for four metropolitan areas from 1880 to 1963. The average value of b for the four metropolitan areas fell from 1.22 in 1880 to 0.31 in 1963. Much better data are available for the 20th century, particularly for the period since World War II. Many scholars have estimated density functions and all have concluded that American metropolitan areas have decentralized rapidly during the 20th century and that rapid decentralization probably has been taking place since about the middle of the 19th century. Although European metropolitan areas are more centralized than American metropolitan areas, the same process of decentralization has occurred there. Recent studies of Japan (Mills and Ohta 1976) and Korea (Mills and Song 1979) show that metropolitan areas in both these countries are much more centralized than metropolitan areas in the United States, but that they are undergoing very rapid decentralization.

Three factors are mainly responsible for decentralization.⁴ First, as metropolitan areas grow, subcenters for employment and shopping can be supported in locations outside the center of the metropolitan area. Once these subcenters are established, the advantage of proximity to the center for workers and shoppers is reduced. Second, as real incomes rise, the demand for housing grows, and much of the demand is directed toward housing on the periphery where land values are low. Third, as transportation improves, the cost of trips from the periphery to the centers

⁴See Mills (1972d) for a precise statement.

of the metropolitan areas falls, thus reducing the disadvantage of residential locations on the periphery.

The pervasive causes of suburbanization, like those of the Sun Belt trend, have little to do with localized phenomena. Racial tensions and high local taxes in central cities may contribute to suburbanization in the United States, but they should not be considered primary factors. Similarly, the automobile is not a primary factor. Transportation improvements, whether they consist of road or subway construction, also contribute to suburbanization. Japanese urban areas, where public transit accounts for the majority of trips, have suburbanized rapidly as public transportation has improved. Metropolitan areas in the United States are more decentralized than those in Europe and Asia, largely because in this country land values are much lower in relation to incomes. Among industrialized countries,⁵ the United States is almost uniquely rich in land and therefore all activities, urban and rural, take place at remarkably low densities. In Japan, which contrasts sharply with the United States in terms of density, land values relative to incomes are 20 times as high as they are in the United States (Mills and Ohta 1976).

Metropolitan decentralization is a controversial phenomenon. The major concern is whether metropolitan decentralization results in land being used for urban purposes that could be better used for agricultural purposes. There can be no doubt that suburbanization and the related declines in urban population density increase the amount of land used for urban purposes and that agricultural uses are frequently the alternative to urban uses. Some of the most valuable agricultural land is that land close to cities, because prices reflect proximity to markets. Furthermore, land that is particularly valuable for urban uses is frequently also valuable for agricultural uses; for both urban and agricultural uses, the best land is relatively flat, well drained, and near good natural transportation routes such as navigable waterways. Thus, urban decentralization often conflicts with agricultural land uses. Central to the controversy is the extent to which land prices reflect the most valuable use of the land. If prices are an accurate reflection, then urban uses outbid agricultural uses only when urban uses are more valuable, and it is in

⁵Canada and Australia also have low densities, but much of their land is almost uninhabitable.

these instances appropriate to convert agricultural land to urban uses.

POPULATION TRENDS AND GOVERNMENT LAND USE POLICIES

Demetropolitanization and Government Policy

Because government taxation and land use policies distort land prices, prices may not reflect the value of land for alternative uses. The issue is complex because all economic activities are taxed and all take place on land. Virtually all taxes distort demand and supply of taxed activities and therefore distort prices and uses of land on which the activities take place.

Of all taxes and land use controls, those directed at housing are most likely to distort the prices and uses of urban land. Housing is by far the largest single use of urban land; about half the land developed for urban purposes is used for housing. Housing is among our most heavily taxed commodities. Urban real estate taxes average about 3 percent of the market value of the property, which means that the annual tax is equal to nearly 25 percent of the annual cost of the property. Such high taxation substantially reduces the demand for housing and consequently the amount of urban land used for housing. Offsetting high real estate taxes is the favorable treatment of owner-occupied housing in the federal income tax laws. Aaron (1972) estimates that the federal tax "subsidy" equals about 15 percent of housing costs of owner-occupiers. Thus, the net tax burden on urban housing would be 15 percent of annual housing costs if all urban residents were owner-occupiers. However, only about two-thirds of urban residents are owner-occupiers and the net tax burden therefore exceeds 10 percent.

Agricultural and other rural real estate is also subject to real estate taxes and to preferential treatment under the federal income tax. In most states, both law and custom dictate that agriculture be taxed at a lower percentage of market value than urban real estate. Furthermore, owner-occupancy is more common in agricultural than in urban areas, and the preferential federal tax treatment of owner-occupants is therefore probably more important in agricultural areas. Thus, the net tax burden on agricultural housing is probably less than on urban housing, and these taxes, therefore,

probably discourage conversion of some agricultural land for urban uses.

In addition to taxes, government policies on land use also affect the amount of land used for urban residential purposes. Most of the land in metropolitan suburbs in the United States is zoned for low population densities in order to exclude racial minorities and people with low incomes. Two- to six-acre zoning and the exclusion of all but single-family detached dwellings are not unusual. Zoning, combined with a plethora of other land use controls, has been successful as a technique for restricting residential areas to high-income citizens. (Mills 1972d, 1979). However, urban land use controls have had the unintended results of producing excessively low suburban population densities and excessive use of land for suburban residences. Land use controls are relatively unimportant in rural areas and therefore no rural programs have been developed to encourage excessive use of land for housing.

Nobody knows the net effect of land use regulations on land use for urban housing. My judgment is that the effect is a modest but significant overuse of land in U.S. suburbs. However, even in the absence of land use controls, suburban population densities would be lower than those in central cities because suburban land costs less. Furthermore, the density in Houston, which has no zoning, is not notably higher than the density in comparable cities that have zoning. Thus, at the present time, the excess use of urban land that results from zoning and other land use controls probably is modest, but the subject needs further study. The modest effect of land use controls on excess land use should not be permitted to obscure the considerable social effect that such controls have on excluded minorities and other low-income urban residents (Downs 1973).

The Sun Belt Trend and Land Use Policies

It has been pointed out earlier that the move to the Sun Belt is in part a move from relatively large metropolitan areas to relatively small ones, and that the Sun Belt trend reinforces the trend toward decreased primacy. The move to the Sun Belt will increase urban land use for two reasons. First, population densities are lower in small metropolitan areas than in large ones and the move to the Sun Belt is, therefore, a move from high-density metropolitan to low-

density metropolitan areas. As a consequence, the amount of land used for urban purposes will increase. Second, metropolitan areas of given population in the Sun Belt are much less densely settled than metropolitan areas of similar population in other parts of the country. For example, the Baltimore and Houston metropolitan areas each had about 2.1 million people in 1973, but the population density of the Baltimore metropolitan area was three times that of Houston. As a second example, the Akron and Jacksonville metropolitan areas each had populations of just over 640,000 in 1973, but the density of Akron was more than three times the density of Jacksonville. These examples, which are typical, suggest that the Sun Belt trend represents a shift in population from high-density metropolitan areas to low-density metropolitan areas even when the trend reflects movement between metropolitan areas with populations of equal size.

Since the rate of residential density in northern metropolitan regions is three times the rate of residential density in the Sun Belt, a typical individual who moves to the Sun Belt would use three times the amount of land for residential purposes that he would have used if he had moved to a northern metropolitan area.

Why are the population densities of metropolitan areas in the Sun Belt so low? The explanation generally given is that because much of the growth of metropolitan areas in the Sun Belt has taken place in recent decades, these areas are products of the automobile age. It is claimed that these areas developed a low-density land use pattern that was appropriate for transportation systems based on the automobile. In contrast, much of the growth of older metropolitan areas in the North occurred before the automobile had become the predominant mode of urban transportation. These northern areas therefore developed high-density patterns appropriate for transportation systems based on public transit.

This explanation has some validity. Patterns of land use change slowly in older urban areas and land use patterns in metropolitan areas of the Sun Belt are better suited to automobile travel than the patterns of northern metropolitan areas. However, the explanation overlooks the most important determinant of population density--namely, land prices. Land costs much less in metropolitan areas of the Sun Belt than in metropolitan areas in many other regions of the country because the Sun Belt has lower population densities, less industrialization, less productive agricultural land, a large supply of flat land suitable for

urban development, and so forth. However, where land is cheap, households and businesses use a great deal of it.

Dramatic verification of the importance of land prices in determining population densities is obtained by comparing Los Angeles and Chicago. Los Angeles is popularly viewed as a metropolitan area that is completely dependent on the automobile. It is the largest metropolitan area in the country without a subway system, and its bus system is primitive. In contrast, Chicago has both a subway system and an elaborate bus system. The populations of the two metropolitan areas are approximately the same size and the population densities are identical. The density of Los Angeles is high despite the area's reliance on the automobile because Los Angeles is an exception to the rule of low land values in Sun Belt metropolitan areas. The Los Angeles basin is an especially attractive place to live and produce, and the area is highly industrialized and heavily populated. Thus, the cost of land is high and residents and businesses economize on land, thereby creating population densities that are high. Because Phoenix, Albuquerque, and Dallas are in regions where population is low and the productivity of agricultural land is low, the cost of land is also low.

The Sun Belt trend represents not only a shift from high-density metropolitan areas to low-density metropolitan areas, but also a shift from regions where land costs are high to regions where they are low. Where land values are low, patterns of residential and commercial land use are entirely appropriate. The low densities of the Sun Belt are not caused by a "frontier outlook" that leads residents to squander land; rather, the densities are the result of an appropriate response to inexpensive land. As Sun Belt metropolitan areas grow, land values will rise and land uses will gradually become more intensive.

The low densities of metropolitan areas in the Sun Belt do not provide governments with a reason for rationing land or for otherwise encouraging high-density land use. But if Sun Belt metropolitan area governments decided they wished to encourage high density, the land use controls necessary for achieving this goal would be very different from those used elsewhere for exclusionary purposes. As indicated earlier, suburban jurisdictions exclude low-income families by zoning regulations that establish minimum lot sizes and that permit only single-family detached houses. To encourage high-density development, governments would have to require maximum lot sizes and multi-family housing.

Suburban land use controls have been less important in the Sun Belt than elsewhere for several reasons. Urban areas in the Sun Belt have until recently been small, and land use controls are relatively unimportant in small urban areas in all regions of the country. Second, local governments in the Sun Belt receive a large part of their revenues from state and federal funds, and the fiscal incentive to exclude people with low incomes is probably less strong than in areas where local governments raise most of their revenues from local real estate taxes. Furthermore, the extremely low densities permitted by inexpensive land probably result in people's being less sensitive to differences between themselves and their neighbors.

I believe the federal government should attempt to ease exclusionary land use controls in the North and prevent them from becoming more important in the Sun Belt. I see no justification for land use controls to force high-density development in Sun Belt metropolitan areas. There is no reason to believe that market choices lead to excessively low densities. Furthermore, history shows that land use controls, although introduced for legitimate purposes, quickly come to be used to exclude people who are not wanted because of their race or income level (Mills 1979). Recently, the courts, in such cases as *Southern Burlington County NAACP v. Mt. Laurel, N.J.*, have begun to chip away the most extreme land use controls. Undoubtedly, the number of such cases will increase and more zoning restrictions will be invalidated by the courts. But I do not believe that the courts can significantly alleviate the essential harm done by exclusionary controls.⁶ The other branches of the federal government could do much to prevent land use controls from becoming important in the Sun Belt.

POPULATION TRENDS AND GOVERNMENT ENERGY POLICIES

Both the move to the Sun Belt and suburbanization have implications for energy use. Each will be discussed in turn.

The Sun Belt Trend

In order to determine the effect of the Sun Belt trend on energy use, the amount of energy used in the Sun Belt for

⁶See Mills (1979) for a detailed historical and economic argument.

heating and cooling and the amount used for transportation must be compared with the amount of energy used for the same purposes in other parts of the country. Heating costs are obviously lower in the Sun Belt than in other regions of the country. An Arthur D. Little study (1974) shows that about twice as much energy is needed to heat a house of a given type (e.g., single-family detached) in the Northeast as in the South. Comparisons between the cold North Central region and the South result in greater differences while comparisons between the relatively warm West and the South result in smaller differences. The relationship does not vary much by fuel or by house type, provided the combination of fuel and house type is the same for all regions being compared. The differences for employment facilities are similar.

Although energy use for space heating is less in the South than in the North, energy use for space cooling is obviously greater in the South. When the combined energy use of the Sun Belt for heating and cooling is compared with that of other regions, the Sun Belt still uses less energy. The ratios resulting from regional comparisons of total energy required for heating and cooling do not vary much according to house type but do vary according to fuel type. For most combinations of fuel and house type, 60-90 percent as much energy is required for heating and cooling in the South as in the Northeast. Again, comparisons between the North Central region and the South yield lower ratios and comparisons between the West and the South yield higher ratios. Thus, the Sun Belt trend offers a distinct potential for saving energy, particularly because most migrants come from the cold Northeast and North Central regions, not from the moderate West region. Use of energy for other household purposes does not vary by region.

Two other factors relating to space heating and cooling will influence the effect of the Sun Belt trend and energy use. First, the amount of energy used for heating and cooling greatly depends on the construction of the house and on the difference between inside and outside temperatures. Because heating and cooling costs are lower in the Sun Belt than elsewhere, the return to the owner from investment in insulation and other energy-saving improvements is less in the Sun Belt. Therefore, tax credits for insulation expenses and other government measures designed to induce homeowners to economize on household energy use may be less effective in the Sun Belt than elsewhere. Second, solar-energy technology for heating and cooling is

likely to improve greatly in coming years. Solar energy undoubtedly has its greatest fuel-saving potential in the Sun Belt, especially for use in cooling. A consideration of the various factors influencing energy use leads to the conclusion that the Sun Belt trend will probably substantially contribute to the conservation of energy used for heating and cooling purposes.

The Sun Belt trend affects not only the amount of energy used for heating and cooling but also the amount of energy used for transportation. In the Sun Belt, public transit is used less relative to the automobile than in other regions. Since the energy efficiency of buses and subways is greater than that of cars, the energy consumption for transportation purposes will probably increase as a result of the Sun Belt trend. Use of public transit in Sun Belt metropolitan areas is low mainly because the densities of these areas are low. Efficient use of public-transit systems requires high densities at origins and destinations along transit routes. Public transit is efficient in terms of economics and energy only if ridership is large. Operating buses and subways that are mostly empty does not save energy. But in low-density areas, ridership cannot be large enough to make public transit more energy-efficient than cars. Because the density of Sun Belt metropolitan areas is only one-third the density of other metropolitan areas, public transit in the Sun Belt is doomed to fail. If the low densities of Sun Belt metropolitan areas resulted mainly from their small size, the problem would solve itself as Sun Belt metropolitan areas grew. However, the low densities result mainly from the low cost of land. Many decades will pass before land prices rise enough to produce density levels adequate to support public transit. Meanwhile, federal subsidies for transit systems in metropolitan areas of the Sun Belt will be wasted money. The future of public transit in Sun Belt metropolitan areas is bleak unless a dramatic change, such as a tripling of the price of gasoline, occurs.

The amount of energy used for transportation purposes is also affected by the average trip lengths that result from the density levels of the Sun Belt. In principle, the length of urban trips depends not on density but on the distances from origins to destinations. For example, work trips can be short in a low-density metropolitan area if workplaces are close to residences. However, in U.S. metropolitan areas, workplaces tend to be segregated from residences and commuting is common practice. Under circumstances that require commuting, the length of the trip

increases as density decreases. Although I have seen no data, I am confident that average trips tend to be longer in Sun Belt metropolitan areas than in other metropolitan areas of similar population.

One additional aspect of the Sun Belt trend will affect the amount of energy used for transportation: in the Sun Belt more cars are air conditioned, and air conditioning reduces miles per gallon by approximately 15 percent.

I am unable to provide good evidence on the greater energy use for transportation in Sun Belt metropolitan areas than elsewhere. The Arthur D. Little data (1974) showed that the move of a family from the Northeast to the Sun Belt decreases energy use for space heating and cooling. On the other hand, I have suggested that the Sun Belt trend would result in increased driving and greater use of air-conditioned cars. The increase in the amount of energy used for transportation would probably equal the decrease in the amount of energy used for space heating and cooling. Since total energy used for space heating and cooling is about the same as that used for automobile travel, the move to the Sun Belt would probably have little effect on energy consumption.

Thus, federal energy officials should not expect the Sun Belt trend to have significant effect on energy use. However, I believe it would be a mistake to encourage energy conservation by subsidizing public transit in most Sun Belt metropolitan areas. Unless gasoline becomes much more expensive or scarce, public transit has little potential for success in most Sun Belt metropolitan areas; and if gasoline should become much more expensive or scarce, subsidies for public transit would be unnecessary.

Suburbanization

Because suburbanization results in low densities, it has important implications for energy use. As was pointed out earlier, low densities make public transit impractical, encourage automobile use, and necessitate daily trips of greater-than-average distance.

Local government regulations controlling land use have greatly exacerbated this situation. Low-density zoning has reduced suburban densities below the level that would result from free-market choices. Without these regulations, average trips would be shorter and public-transit ridership would be greater. More importantly, land use controls have resulted in excessive segregation of workplaces and

commercial centers from residences, thereby necessitating lengthy trips for commuting and shopping purposes. In many U.S. suburbs, zoning is so stringent that an individual store may not be located within walking distance of residences.

Although excessive land use controls have probably caused more important distortions in energy consumption than in land use, they waste both land and energy. Federal programs should encourage substantial relaxation of land use controls by local government in order to improve the use of land and energy and provide better social organization in the suburbs.

As pointed out earlier, suburban zoning excludes all but single-family detached housing. Furthermore, such housing is excessively encouraged by several federal programs. Americans, like people in many other countries, have a traditional attachment to single-family owner-occupied housing. This attachment results in part from economic motivation; owner-occupied housing is among the most profitable investments available to people with little capital. Thus, high levels of owner-occupancy would occur without government encouragement, but government programs have contributed to the current levels. In addition, preferential treatment of owner-occupied housing amounts to about a 15-percent reduction in the costs of such housing to the average homeowner. Owner-occupied housing is by no means identical to single-family detached housing, but ownership is technically easier to define, and consequently easier to finance, with single-family detached housing. In addition, FHA and VA mortgage insurance from the Federal Housing Administration and the Veterans Administration have encouraged owner-occupied housing.

Although the amount of single-family owner-occupied housing that results directly from federal and local preferential treatment is unknown, it must be considerable. Since World War II, the importance of federal income taxes and suburban land use controls has increased greatly. From 1900 to 1940, the percentage of housing that was owner-occupied showed no trend, hovering around 45 percent. After World War II, the percentage climbed steadily to about 65 percent. These figures suggest that the percent of housing units that are owner-occupied as a result of government programs may be as great as 20. The percentage of owner-occupied housing and single-family housing is about equal. In the 1960s, the trend in housing construction was strongly toward multi-family dwellings. Many people felt the era of owner-occupied housing was ending. But since about

1974, the trend has been reversed, and the 1977 boom in housing construction was based almost entirely on construction of single-family units.

In terms of energy used for space heating and cooling, the distinction between single-family and multi-family structures is important, whereas ownership is irrelevant. The Arthur D. Little study (1974) ranks housing types by energy efficiency: high-rise multi-family dwellings are the most energy-efficient, low-rise multi-family dwellings are second, single-family attached dwellings are third, and single-family detached dwellings are last. The data show dramatic differences in energy use for heating and cooling by housing types: a single-family attached dwelling typically might require 75 percent as much energy for heating and cooling as a single-family detached dwelling, a multi-family low-rise dwelling might require half as much, and a multi-family high-rise dwelling might require one-third as much. The key parameter in such data is the amount of outer wall area. The ratios are only slightly dependent on region or fuel.

Because space heating is the single largest energy use, a shift in the proportion of single-family detached dwellings and multi-family dwellings could result in tremendous energy savings. Beyond a doubt, removal of preferential programs for single-family detached housing is the single most important measure available to governments for energy conservation. For example, if newly constructed single-family detached dwellings reverted to their prewar percentage of the total housing stock, only about half of new dwellings would be single-family detached, as contrasted with the present level of about 78 percent. If the proportion remained constant, by 1988, single-family detached dwellings would be 58 percent of the total housing stock as contrasted with the current level of about 68 percent. The result would be about a 10-percent drop in total energy used for residential space heating and cooling.

Thus, I conclude that an important ingredient of government policies on the use of land and energy must be abandonment of programs that have exacerbated the problems.

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THE ECONOMIC AND FISCAL
ACCOMPANIMENTS OF POPULATION
CHANGE

George E. Peterson and Thomas Muller

INTRODUCTION

The force of demography in shaping economic and fiscal adjustments often is underestimated. The baby boom of the post-World War II years will leave its imprint on the country in wave after wave of policy repercussions. This population bulge, which has progressed through successive age cohorts, has disrupted one national institution after another. In the 1950s and 1960s, it created problems of expansion for the public schools and universities--institutions that more recently have had to cope with the ordeal of shrinking as their user populations have subsided. When the population crest reached the 18-24 age bracket, it multiplied crime rates and redirected national job creation efforts to the alleviation of youth unemployment. Perhaps the greatest adjustments for public policy lie ahead--when the babies of 1950 become the aged of the year 2015. One projection estimates that if the federal budget holds steady at approximately one-fifth of gross national product and if federal programs for the aged already on the books are maintained in their present form, the share of the federal budget spent on the aged will have to rise from 26 percent at

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present and 32 percent in 2005 to 63 percent in 2025.¹ Political pressure almost certainly will prevent such a reallocation of federal resources from occurring, but the figures indicate the magnitude of the adjustment in social security and other domestic programs for the elderly that will be necessitated by the baby boom.

Geographical shifts in the nation's population have brought with them the need for almost equally large economic and fiscal adjustments. Differences in rates of regional growth, and the burdens heaped upon some of the nation's older population centers as they wrestle with decline, promise to provide a focus for domestic policy for at least the next generation. In some respects, the full implications of these geographic movements are more difficult to unravel than those of the nation's shifting age profile. Except for the uncertainties of illegal immigration, the age distribution of the nation's population is known in advance and is largely unresponsive to current events. All of those who will be elderly in 2025 are now alive and available for enumeration. In contrast, the future geographic distribution of the population is a variable yet to be determined and one that will respond sensitively to the locus of job opportunities and to other factors, many of which the government will try to influence through its domestic policies. In order to use demographic trends to help frame a national economic development policy or to plan for fiscal assistance to state and local governments, it is necessary to understand the market forces that have produced these trends and determine whether (with or without government intervention) they are likely to persist.

This paper treats four issues that are fundamental to the interrelationship between population change and national economic development policy. The first section examines the extent of economic adjustment that already has accompanied geographical shifts in the nation's population. It attempts to distinguish whether the current trends have produced convergence toward income equality or have triggered a new and unstable imbalance in regional and local incomes.

¹Background memorandum prepared by the U.S. Administration on Aging. This projection assumes that medical prices rise at a rate that is 3 percent per year higher than the rate for other prices. If medical prices are assumed to rise at the overall inflation rate, the federal budget share claimed for the aged is less but still substantial--46 percent of total federal outlays in 2025.

The second section investigates the role migration has played in local growth rates and local unemployment rates. In principle, labor migration (as well as capital movements) should be a strong equilibrating force. But most development policy discussions in this country assume that private market job opportunities are shifting too swiftly to be absorbed by the private market through worker migration and that, as a consequence, high unemployment has become a permanent way of life in the Northeast, older central cities, and other selected areas. Indeed, migration often is accused of exacerbating regional and local imbalances. If this is so, there is a *prima facie* case for government subsidies to create jobs in areas of excess labor supply. However, if private market adjustments already are successfully matching jobs with people through migration, government efforts to balance regional or local economic growth may represent no more than a costly and unproductive attempt to preserve traditional regional economic roles.

The third section of this paper examines the factor cost adjustments that have accompanied different rates of economic and population growth. The best hope for the future of the Northeast and the older central cities may well lie in restoration of their cost competitiveness in producing for national markets. It therefore is of interest to determine whether the economic pressure of recent years has lowered production costs in these regions relative to the costs in regions of the country that are growing. Such an adjustment is part of the competitive market model, but its lessons extend to government actions as well, for government is now an important part of the cost calculations of the private sector.

Finally, different growth rates have major repercussions for the fiscal costs and revenues of local governments. The federal government first became involved in the formulation of a national urban policy in an attempt to shield state and local governments from the fiscal impacts of economic decline. Population loss, unemployment rates, and laggard job growth have been proposed or written into federal-aid formulas as elements entitling local governments to greater federal assistance. Compensation paid to local governments for such conditions, in fact, remains the cornerstone of the nation's urban policy. It is appropriate, therefore, to take stock of these indexes of fiscal weakness and to assess the long-term consequences of disbursing federal aid in proportion to them.

The recent trends in population distribution have been an amalgam of three separate movements: a movement of

population from the North to the South and West; a movement from large metropolitan areas to smaller metropolitan areas and to nonurban locations; and within metropolitan regions a movement from central cities to suburbs. Although these population movements are occurring simultaneously and result from many of the same causes, their effects on economic and fiscal conditions are often quite different. Generalizations about the economic or fiscal effects of population change must be approached with skepticism.

ECONOMIC CONVERGENCE OR A NEW DISEQUILIBRIUM?

Differences in regional and local rates of population growth would cause little concern if not for the fact that these differences in population trends are usually accompanied by parallel differences in economic growth. As Tables 1 and 2 show, population growth and per-capita income growth tend to be closely related. Between 1969 and 1977, 23 of the 31 states with above-average population gains also had above-average income gains. The states losing population were more evenly divided between gainers and losers in per

TABLE 1 Population Change and Per-Capita Income Growth by State and Region, 1969-1977

Region and State	Population Gain %	Per-Capita Income Gain	
		%	Index Relative to Total U.S.
United States	7.5	91.4	100
<u>New England</u>	<u>4.3</u>	<u>79.8</u>	<u>87</u>
Connecticut	3.6	73.7	81
Maine	9.4	91.5	100
Massachusetts	2.3	81.5	89
New Hampshire	17.3	84.9	93
Rhode Island	0.3	86.0	94
Vermont	10.5	78.9	89
<u>Mideast</u>	<u>0.8</u>	<u>82.5</u>	<u>90</u>
Delaware	7.8	80.3	88
Maryland	7.0	89.9	98
New Jersey	3.3	83.4	91
New York	-1.6	74.1	81
Pennsylvania	0.4	92.8	102

TABLE 1 (Continued)

<u>Great Lakes</u>	<u>2.9</u>	<u>88.9</u>	<u>97</u>
Illinois	1.9	84.1	92
Indiana	3.6	91.7	100
Michigan	4.0	92.3	101
Ohio	1.3	87.5	96
Wisconsin	6.2	96.4	105
<u>Plains</u>	<u>4.2</u>	<u>99.4</u>	<u>109</u>
Iowa	2.6	99.9	109
Kansas	4.0	105.6	116
Minnesota	5.8	100.5	110
Missouri	3.5	94.7	104
Nebraska	5.9	93.8	103
North Dakota	5.2	110.0	120
South Dakota	3.1	105.8	116
<u>Southeast</u>	<u>12.3</u>	<u>103.1</u>	<u>113</u>
Alabama	7.3	108.6	119
Arkansas	12.1	115.6	126
Florida	27.3	94.5	103
Georgia	10.9	94.3	103
Kentucky	8.1	107.4	118
Louisiana	8.3	108.3	118
Mississippi	7.6	16.2	127
North Carolina	9.8	98.2	107
South Carolina	11.9	104.8	115
Tennessee	16.3	101.1	111
Virginia	11.3	101.9	111
West Virginia	6.5	118.8	130
<u>Southwest</u>	<u>17.1</u>	<u>106.3</u>	<u>116</u>
Arizona	32.2	96.6	106
New Mexico	17.7	107.7	118
Oklahoma	10.9	106.6	117
Texas	16.2	107.7	118
<u>Rocky Mountain</u>	<u>19.6</u>	<u>102.9</u>	<u>113</u>
Colorado	20.9	102.8	112
Idaho	21.2	99.9	109
Montana	9.7	95.5	104
Utah	21.1	102.3	112
Wyoming	23.4	122.0	133
<u>Far West</u>	<u>11.6</u>	<u>89.7</u>	<u>98</u>
California	11.1	88.3	97

TABLE 1 (Continued)

Nevada	31.9	87.9	96
Oregon	15.2	101.5	111
Washington	9.4	92.7	101
<u>Other</u>			
Alaska	37.5	151.7	166
Hawaii	18.7	84.1	92

SOURCE: Compiled from data presented by the U.S. Bureau of Economic Analysis (1978).

capita income, but most of the states in the Northeast performed below the national average on both counts.

The relationship between population growth and per-capita income for growing and declining cities is even more regular. Between 1969 and 1974, cities growing in population had above-average rates of income gain. Cities losing population had lower-than-average income growth--especially those cities that lost population at a rapid rate. In Table 2, the category "rapidly declining" is used to describe cities in which population loss between 1970 and 1975 was 10 percent or greater. Money income per capita in these cities grew approximately one-fifth more slowly than it

TABLE 2 Population Change and Per-Capita Income Growth for Cities over 100,000

Population Trend, 1970-1975	Number of Cities in Category	Money Income Per Capita, 1974 (dollars)	Percent Growth in Per-Capita Money Income, 1969-1974
Growing	57	4,692	49.1
Declining	84	4,767	44.0
Rapidly declining ^a	11	4,092	38.7
All cities	152	4,690	45.5

^aMore than 10 percent loss in population

SOURCE: U.S. Bureau of the Census (1977c).

did in cities that increased their population. Even this comparison is greatly distorted by the large amounts of transfer income received in the declining cities. For example, during the early 1970s income from government transfers rose 4.4 times as fast as income from private earnings in Philadelphia, 3.3 times as fast as private earnings in St. Louis, and 2.8 times as fast as private earnings in Suffolk County (Boston) and Baltimore (Peterson et al. 1980). Private earnings did a much better job of keeping pace with transfer income in cities with growing populations.

Many factors contribute to the observed association between changes in population and changes in income. Because movers tend to have above-average incomes and education, the mere influx of movers into one area and their loss to another tends to raise average incomes in the first location and lower them in the second.² In addition, economic opportunities play a large role in inducing migration. The prospects of above-average economic growth attract population to growing parts of the country. In some cases, the broadening of markets that accompanies in-migration may itself stimulate further economic gains, even when measured on a per capita basis.

Although the connection between population and income gains appears logical, Table 1 shows that there is no ineluctable bond between the two. During the last decade the Plains states have benefited from strong demand for U.S. agricultural products. Per capita income in each of these states rose at above-average rates between 1969 and 1977 despite continued lags in population growth. At the other extreme, California has continued to have above-average population growth despite slowing income advances. In the states of California, Arizona, Hawaii, and Florida, life-style, as much as job opportunities, has encouraged in-migration.

Exceptions to the association between population and income change are also found at the city level. Indeed, it is unclear whether the historic correlation will apply at all in the future. In some cities, almost the entire population loss can be attributed to the fact that smaller and often more affluent households are replacing previous residents of the city's housing. An extreme example is afforded

²As Alonso (1978) has emphasized, such a change in average incomes may leave the incomes of all individuals unchanged and be a misleading index for policy decisions.

by Minneapolis, which lost 13 percent of its population between 1970 and 1975 but actually experienced increases in the number of households in the city and in the number of employed residents. Under these conditions population decline need not have adverse impacts. Population change in the past has been a convenient rough index of the direction of local economic movement, but national development policy must be based on fuller and more direct measures of economic condition.

Convergence or Disequilibrium

Implicit in much of the debate over national development policy is disagreement over the proper interpretation of the economic trends summarized in Tables 1 and 2. One interpretation suggests that the different rates of economic growth have succeeded in narrowing long-standing inequalities, thereby causing convergence toward a rough balance in the economic prosperity of different regions of the country. An alternative interpretation finds that recent trends have already overshoot convergence, creating a new regional imbalance that threatens to widen at an alarming rate unless the government intervenes.

Tables 3 and 4 provide a long-term perspective on regional per-capita incomes. They show that the predominant trend of the last half century has been one of convergence. Fifty years ago the relative gap in per-capita incomes between the Southeast and Middle Atlantic states was more than four times as large as it is now. Incomes in other

TABLE 3 Regional Per-Capita Income as Percent of U.S. Average

	1930	1950	1960	1970	1975	1977
New England	130	107	110	100	103	102
Mideast	141	117	116	113	109	107
Great Lakes	110	111	108	104	104	105
Plains	62	95	93	95	98	97
Southeast	50	68	73	82	86	86
Southwest	64	87	87	89	93	95
Rocky Mountain	86	97	94	91	94	94
Far West	131	120	116	111	111	111

SOURCES: U.S. Bureau of Economic Analysis (1978); early years from Bureau of Economic Analysis (unpublished tables).

TABLE 4 Median Household Income by Region^a (constant 1975 dollars)

Region	1955	1965	1970	1976	Percent Change, 1970-1976	Mean Income 1977 Current Dollars
Northeast	9,481	12,943	14,825	14,573	-1.7	16,680
North						
Central	9,543	12,456	14,314	15,081	+5.3	16,474
South	7,206	9,568	11,859	12,694	+7.0	15,069
West	9,678	13,140	14,239	14,648	+3.1	16,627
Percent						
South of Northeast	76.0	74.0	80.0	87.1		90.3

^aCensus regions in this table do not correspond fully to regions in Table 3. Approximate correspondences are as follows: Northeast = New England, Mideast; North Central = Great Lakes, Plains; South = Southeast, Southwest; West = Rocky Mountains, Far West.

SOURCES: U.S. Bureau of the Census (1977b, 1978).

regions, too, have moved markedly toward the national mean. This comparison is as true when incomes are measured for household units (Table 4) as when they are measured in per-capita terms (Table 3). By either measure, the convergence process has continued into the 1970s. A comparison of nominal incomes, moreover, reveals no evidence of unstable overshooting. The regions of the country that historically have enjoyed above-average incomes continue to do so, although the margin of their advantage has greatly diminished in recent years.

The pattern of convergence in national economic growth is actually stronger than the pattern of regional economic change and stronger than the association between population and income change. Of the 48 contiguous states, 42 saw their per-capita income levels move toward the national mean between 1969 and 1977. Three exceptions were the New England states of New Hampshire, Vermont, and Rhode Island, which began the period with below-average income levels and fell further behind. Other exceptions were Wyoming, Washington, and Michigan, which began the period with above-average incomes and enjoyed above-average gains (though narrowly so in the case of Washington and Michigan).

One objection frequently raised to comparisons of the type reported in Tables 3 and 4 is that they overlook regional differences in the cost of living. Although regional

cost differentials exist, their measurement is presently uncertain. The most common measuring stick is that provided by the family budgets developed by the Bureau of Labor Statistics (BLS). These budgets are prepared for households of two different age compositions and three standards of living in selected urban areas. However, the BLS household budgets cannot be used directly to convert nominal incomes to their real equivalents for states or regions. For one thing, cost levels differ greatly within regions--by size of urban area and presumably between urban and rural areas as well. Any regional averaging of consumer budget costs therefore involves considerable speculation concerning how the data obtained from a few urban areas should be generalized. Another difficulty is posed by the bundle of consumption items priced in the BLS studies. These do not (and very likely cannot) take into account all of the variations in local or regional spending patterns. The differences in consumption become particularly important in pricing such items as housing in urban budgets. The BLS method assumes that households of the same budget class consume the same type of housing, regardless of where they live.³

These caveats should be kept in mind by the reader when examining Table 5, which presents regional per-capita incomes indexed for differences in the cost of living. Such corrections show that the present range of regional income differentials is smaller than that suggested by comparisons of nominal income. The adjusted figures raise the possibility that the convergence process has indeed overshot equilibrium, bringing with it a new regional imbalance. With the cost-of-living adjustments shown in Table 5, New England has the lowest per-capita income level as well as the slowest rate of income growth. A comparison with the growth rates presented in Table 1 shows that New England and the Mideast, on this measure, are now falling further behind the Southwest and other parts of the country in per-capita real income.

When the focus of attention shifts to the cities, the evidence of unstable overshooting is clearer. There was

³The BLS budget costs also include taxes paid to state and local governments. If these are viewed as voluntary burdens selected by the local citizenry to finance public services, their inclusion as "costs" in adjusting local incomes may be inappropriate for purposes of federal-aid legislation or other federal policy.

TABLE 5 Regional Per-Capita Incomes, 1977 (Indexed),
Nominal and Adjusted for Cost of Living

Region	Nominal	Adjusted
New England	102	88
Mideast	107	98
Great Lakes	105	103
Plains	97	98
Southeast	86	93
Southwest	95	101
Rocky Mountain	94	98
Far West	111	106

SOURCES: Cost-of-living adjustment based on Grasberger (1978); comparison adapted from Advisory Commission on Intergovernmental Relations (1978).

a time when the northern cities that are currently suffering population losses enjoyed a decided edge in income levels over cities elsewhere in the country. As Table 2 demonstrates, this is no longer the case. Cities suffering from rapid population loss already trail other cities by a significant margin in per-capita income. Corrected for cost-of-living differences, the entire set of declining cities would clearly lag behind other cities, both in income levels and in income growth. Greater divergence in income levels would have occurred if not for the infusion of government transfer funds into declining cities.

Whether recent income trends have tended to narrow or widen income differentials depends on one's perspective. From a broad regional point of view and from the perspective of several decades, the pattern that prevails is one of convergence. From a perspective that emphasizes growth in the 1970s or focuses on individual cities, the pace of convergence may seem unduly accelerated and likely to overshoot equilibrium, creating new imbalances that work to the disadvantage of the older parts of the country. For the cities with the most rapid population decline, the unstable overshooting beyond income equality already has occurred.

THE ADJUSTMENT PROCESS: MIGRATION AND UNEMPLOYMENT RATES

In a smoothly functioning national market, factor migration is crucial to restoring regional and other geographical

balance. Capital and labor will flow between geographical locations in response to differences in earnings opportunities. As long as all factors are fully mobile, the outcome of this migration process will be twofold: full employment of resources, including labor; and factor price equalization between regions (Borts 1960). Factor movements under these conditions produce equal earnings opportunities for labor and capital in different parts of the country. This equality of earnings opportunities, of course, can be associated with vastly different local growth rates, when measured in terms of aggregate income.

Although few studies have examined the responsiveness of capital flows to regional differences in rates of return, it is generally assumed that capital investment is indeed highly sensitive to relative profit rates and that, consequently, regional variations in the return to capital are quickly eliminated.⁴ Much more doubt exists about the mobility of labor and the ability of migration to equalize real-wage rates, absorb local pools of unemployment, or otherwise stabilize the regional development process.

If labor migration is unable to bring local labor supplies into balance with local labor demand, a second type of market adjustment will occur. Market pressures will cause permanent wage and other factor price differentials to emerge. Wages will tend to rise in areas of strong product demand and to fall in areas of weak demand and excess labor supply. The prices of other fixed factors, such as the capital embodied in buildings, will tend to follow the same pattern. These adjustments in factor costs, in turn, will reduce the costs of doing business in areas suffering from soft demand, which will tend to divert to them a greater share of production for national markets. The size of the factor-cost adjustments that must occur to absorb a given level of local unemployment will depend upon the ease with which national product demand can be captured for local production through factor-cost reductions.⁵

⁴For evidence of high elasticity in regional capital supplies, see Engle (1974).

⁵The role of factor costs in location decisions of firms is the subject of some controversy. Birch (1977) presents evidence that the location of economic activity may not be highly sensitive to differences in factor costs. However, Carlton (1979) has found that when industries producing for national markets are isolated, factor-cost differentials play a clear and significant role in location decisions--

Only if both market-clearing mechanisms fail will there appear permanent pockets of localized unemployment. Migration flows then will have been insufficient to move workers to where the jobs are, and local cost adjustments will have been insufficient to draw into production the region's unemployed resources.

Efforts to forge a national development policy or national urban policy in this country, like parallel efforts to establish national settlement patterns in European countries, have been premised on the presumption that market adjustments are inadequate (Sundquist 1975). Labor migration is thought to be insufficient to match fully jobs with people, and institutional impediments (such as union wage contracts and a national minimum wage) are thought to make it impossible or undesirable for prices to fall far enough in areas of weak demand to reestablish full employment. If these presumptions are accurate, it may become efficient for the government to subsidize job creation in areas of excess labor supply. To the extent that the United States has had a regional and local development policy in recent years, it has consisted of federally subsidized job creation and capital investment in areas of high unemployment. The 1978 renewal of the Comprehensive Employment and Training Act, for example, calls for the federal government to create local public service jobs to absorb a minimum of 20 percent of local unemployment over 6 percent. The cornerstone of the Carter administration's urban policy, announced in 1978, was a series of proposals for subsidizing capital investment as a means of job creation in high-unemployment areas. Conspicuously missing from government proposals have been policies that would assist the private market in its adjustments by facilitating labor migration or by encouraging factor-cost reductions in areas of weak demand.

Migration

Although official U.S. development policies imply skepticism of migration as an equilibrating mechanism, most

though the factors whose prices and availability are most important vary sharply by industrial classification. Note that if a single factor is in excess local supply, price adjustments will also lead to factor substitution in production, thus further tending to absorb the unemployed resources and equalize factor prices.

analytical studies suggest that migration has effectively performed its balancing role, at least for segments of the labor market.

Repeated research has demonstrated that labor migration responds to geographical differentials in earnings opportunities. Migration rates have been shown to be sensitive to regional differences in unemployment levels, rates of job growth, and wage rates or income levels (Alperovich et al. 1977, Greenwood and Gormeley 1971, Miller 1973, Morrison and Rellers 1975, Pack 1973, Rothenberg 1977). Longitudinal studies of individual migrants find that the income levels of those who migrate are improved as a result of their moves, suggesting that the expectations of greater economic achievement raised by regional differentials in earnings opportunities are, in general, satisfied for individual movers (Kiker and Traynham 1977, Lansing and Morgan 1967). The economic incentives for sustaining migration therefore appear to be present.

Studies of the effect of migration on the rates of return to schooling shed more light on the economics of the migration process. The differences in the level of skills and education among different regions of the United States have been long-standing; the portion of the labor force that possesses high occupational or educational skills is lower in the South than in the rest of the country. Southern-born men of both races, for example, have lower educational levels and lower occupational status than northern-born men. In a well-functioning market, the relative paucity of highly educated labor in the South should give rise to higher returns to education in that region and create special incentives for the migration of educated workers into the region.

Both of these expectations are borne out in practice. Studies of the rates of return to education reveal that the highly educated northern-born (white) worker who migrates to the South earns the greatest return on schooling (Featherman and Hauser 1978). Comparisons of interregional migration flows also show that this socioeconomic group has dominated North-South migration. To a considerable extent, as Featherman and Hauser (1978) note, the South has satisfied its need for highly skilled labor by attracting movers from the North who are able to earn higher returns on their educational training in the South than they can in the North.

Of course, the contribution that migration makes to regional skill equalization will depend upon the size of migration flows. The persistence of skill imbalances

throughout the 20th century indicates that migration has not been quick to equalize the distribution of skills among regions. However, the pace of skill equalization has accelerated in recent years. Table 6 shows migration patterns for the single year 1975-1976. It illustrates the net out-migration of college-educated labor from the Northeast and North Central states, and its absorption in the South and the West. The difference in skill mix between migrants and native-born workers in the South is supported by the fact that in 1970, 37 percent of people 25-64 years old who migrated to the South Atlantic region had completed 4 or more years of college. Only 8.8 percent of non-migrants in this region achieved this level of education (Bouvier and Cahill 1975). A similar pattern emerges from the breakdown of migration by occupation type. Net flows of professional management workers to the South have been far larger than those of service workers (see Table 6).

The ability of migration to alter skill distributions can be seen from a comparison of the Houston and New York metropolitan areas. In 1977, the Houston standard metropolitan statistical area (SMSA) had a higher proportion of college graduates in the 30-34 age bracket than did the New York SMSA, while in 1970, the New York SMSA had a substantially higher proportion of such persons. The

TABLE 6 Net Migration Between Regions by Education and Occupation 1975-1976 (in thousands)

Region	Education Level					
	4 or More Years of College			0-8 Years of School		
	In-Migrants	Out-Migrants	Net Change	In-Migrants	Out-Migrants	Net Change
Northeast	70	-119	-49	24	-21	+3
North Central	74	-116	-42	31	-65	-34
South	124	-100	+24	63	-60	+3
West	118	-52	+68	58	-30	+28

Region	Occupation Type					
	Professional-Management			Service		
	In-Migrants	Out-Migrants	Net Change	In-Migrants	Out-Migrants	Net Change
Northeast	55	-70	-15	21	-14	+7
North Central	43	-107	-64	11	-23	-12
South	107	-70	+37	29	-26	+3
West	88	-46	+42	23	-29	-6

SOURCE: U.S. Bureau of the Census (1977a).

change in skill mix is primarily attributable to net immigration, although as job opportunities expand, the proportion of the native-born population receiving formal training also tends to rise.

Even if migration has succeeded in smoothing out some of the geographical imbalances in skill distributions and labor demand, there are groups of the population for which it has not functioned well as an equilibrating mechanism.

Interregional migration is far less feasible for low-educated, low-skilled workers than for the upper echelons of the work force. Highly skilled persons sell their labor to a national market and therefore are more aware of migration opportunities. Furthermore, the costs of interregional migration appear high to workers in relatively low-paying jobs. The costs of moving limit the ability of private markets to equilibrate wages or returns to education through migration.

Regional wage differentials are much greater for low-skilled jobs than for more highly skilled occupations, reflecting the fact that low-skilled jobs are insulated from the equilibrating force of migration. The difference between the South and the Northeast in average metropolitan wages for unskilled plant labor, for example, is more than 10 times as large as the difference for skilled maintenance workers (see Table 8). This wage difference is a result of numerous factors including the higher rate of union organization of low-skilled workers in the North. Nonetheless, the persistence and expansion of the low-skilled wage gap shows that migration has not caused wage equalization.

Labor migration within a metropolitan region also is limited as a stabilizing force. The dispersal of jobs and population throughout the metropolitan region has gone far to equalize suburban and central-city wage rates for given job titles.⁶ But the concentration of low-paying jobs and low-earning households at the urban core has given rise to

⁶For example, in 1976 the construction wage index was 116 in New York City and 114 in Nassau and Suffolk counties, Long Island. (U.S. city average = 100). The wage structure of metropolitan areas formerly reflected the centralization of job opportunities. Suburban wages were lower than central-city wages in part because those who worked in the suburbs faced lower commuting costs. The decentralization of jobs has tended to equalize wages throughout the metropolitan region (Peterson 1979).

imbalances in local fiscal capacity. These imbalances trigger inequalities in tax burdens and public-service costs. Equalization of factor prices at the metropolitan scale does not remove all the consequences of locational clustering. Even where intrametropolitan migration is successful in equalizing wage rates for given jobs, it may create residential clusters of affluent and poor households, leading to greater social segregation and concentration of public-sector cost burdens (see section on fiscal impacts).

Unemployment Rates

Part of the equilibrating function of migration should be to eliminate local pockets of unemployment or to spread the long-term national unemployment rate more evenly among geographical locations. Even the most cursory inspection of unemployment data, however, reveals very strong geographical concentrations of unemployment. This raises the question: Why has migration failed to smooth out the clustering of the unemployed? Has labor failed to respond in adequate numbers and with adequate speed to local differences in earnings opportunities? Or have other factors served to retain an excess supply of labor in some parts of the country despite low employment demand?

In an analysis of metropolitan unemployment rates, Wheaton (1979) has sought to explain observed differences in long-term rates over two periods: 1961-1967 and 1968-1974. He finds that the bulk of systematic variation in unemployment rates can be explained by what are called structural factors. These include differences in the level of unemployment compensation, differences in the industrial composition of the labor force, and differences in the degree of union organization. In metropolitan areas where unemployment benefits are more generous, unemployment is higher. This suggests that at least part of local unemployment is voluntary. Unemployment rates also are higher in metropolitan areas marked by a concentration of high-wage, cyclical industries. The expectation of more frequent unemployment appears to be capitalized into the wage structures of the construction industry and capital-goods industries. High wages, in effect, compensate the worker for the prospect of greater unemployment. Metropolitan areas that concentrate in cyclical industrial activities experience not only higher-than-average rates of unemployment, but also higher-than-average wages. Thus, there may

be no economic inducement to out-migration.⁷ Finally, the positive relation between unemployment and the level of unionization of the labor force suggests that unions accept some additional unemployment as the price of sustaining higher wages or wages that can be maintained at fixed levels in the face of periodic slack demand.

Although not included in Wheaton's regression analysis, the unemployment data also point clearly to the conclusion that quality-of-life considerations play a role in unemployment differences. Metropolitan areas like San Diego persistently sustain above-average rates of unemployment, while metropolitan areas in the farm states, with their presumptively less congenial living environments, persistently have below-average rates of unemployment. Such findings are consistent with analyses of the reasons for household migration. Population movements are by no means motivated solely by earnings calculations. As long as people prefer to live in sunny climes and near large bodies of water, workers will tend to move to these areas, and unemployment rates will be higher than in areas with fewer environmental amenities. Workers' preferences for residing in certain parts of the country will also be reflected in their willingness to accept lower wages.⁸ In both cases, households "pay" for superior living conditions through reduced earning power.

One of Wheaton's (1979) most interesting findings is that once structural variables are controlled, metropolitan differences in employment growth have no apparent effect on metropolitan unemployment rates; high-growth areas are as likely to suffer from high unemployment as low-growth areas. Wheaton interprets this as evidence that economically motivated migration successfully clears metropolitan labor markets, except to the extent that it is prevented from so doing by public policy and environmental features that make some areas more attractive residential locations than others.

Unfortunately, there are at present no reliable data on metropolitan rates of unemployment by industrial or skill classification. The crucial test of the ability of migration to clear labor markets would be its ability to break the relationship between job growth and unemployment, even for the low-skilled segment of the labor force. From the

⁷See also Vernez et al. (1977).

⁸For evidence on the relation between metropolitan wage levels and quality-of-life variables, see Hoch (1976).

direct evidence on migration patterns, it appears unlikely that migration has smoothed out local unemployment rates for unskilled labor. Elimination of local pockets of unemployment in this sector of the labor force thus becomes the responsibility of public policy.

Unemployment rates for individual jurisdictions have been estimated only since 1974, when they became an element in federal-aid allocations. The procedures used to estimate city unemployment have been subjected to well-deserved criticism. The data do seem to establish, however, that there is a strong negative connection, at least for large cities, between local rates of unemployment and rates of both population and job growth. Some simple associations are shown in Table 7. Replication of Wheaton's estimating equations at the local level confirms the importance of structural factors in explaining variations in city unemployment rates. But it also indicates that at the city level, laggard job growth systematically adds to the local unemployment rate. The causes for the differences between effects at the city level and effects at the metropolitan level are currently unknown. These differences may be a result of the concentration in the cities of lower-skilled workers who cannot easily avail themselves of migration opportunities or a consequence of the special time period for which the city estimates were made,⁹ or they may be the result of other factors.

Conclusion: The Role of Migration

The general role of migration and factor movements in the development process is one of the most controverted issues of development policy.

Labor migration and capital movements are, beyond doubt, largely responsible for the regional economic shifts that have occurred in recent decades. One of the most frequent policy responses to these development trends, especially

⁹Such estimates are possible only for the period 1974-1977, which was a recession era. It is possible that migration responds with a lag to changes in economic conditions, and that several years would be required to adjust to the sharply different job losses experienced in different cities during the recession. Alternatively, these differential job losses might be viewed by workers as a purely cyclical phenomenon and not a cause for migration.

TABLE 7 Population Change and Unemployment Rates, 1970-1976, Cities over 100,000

Population Trend ^a	Unemployment Rate (%)		
	1970	1976	Growth 1970-76
Growing	4.4	7.6	72.7
Declining	4.7	8.8	86.9
Rapidly declining ^b	5.5	11.8	115.2
All cities	4.6	8.5	84.3

^a1970-1975.

^bMore than 10 percent population loss.

SOURCES: Compiled from average unemployment estimates in U.S. Bureau of Labor Statistics (1976a). Unemployment data from 1970 *Census of Population*.

in areas losing population and investment, has been to try to impede factor movements. Almost all of the northern states, for example, have pending legislation that would restrict part of the investment assets of public pension funds to local development purposes, regardless of the need to accept lower rates of return. The public expenditures made on behalf of local public job creation are based on the presumption that not only will labor migration not suffice to clear local labor markets but also migration of the scale necessary to do so would be injurious to local economies and disruptive of national development policy. The concept of development imbalance that underlies this point of view might be labeled product-oriented. It is concerned with total levels of economic production in different parts of the country and the rapidity of shifts in levels of economic activity.

The alternative concept of development imbalance focuses on inequalities in factor earnings. If capital and labor can earn the same return in different parts of the country, there may be said to be development balance, despite the fact that there are greatly different rates of total output growth in different regions. Both in principle and in practice, migration remains a strong force in equalizing factor earnings. The conflict between equal factor earnings and equal regional growth rates as objectives of national development policy is frequently reflected in legislation. For example, early versions of the proposed national development bank argued that a national lending

and subsidy policy was necessary precisely because private markets channel investment funds to where they can earn the greatest return. If one looks at national development from an equal earnings perspective, this fact is a strong force tending to establish regional equilibrium. If, however, one looks at the objectives of "balanced growth" as equal rates of product expansion in different parts of the country, such movements of capital will tend to encourage regional imbalance.

Even if equalization of factor earnings, especially labor earnings, is accepted as an important goal of development policy, migration faces two serious limitations. First, migration apparently does not serve to clear markets in unskilled labor. Auxiliary measures are needed to protect this portion of the labor force from the impact of local growth differentials. Second, by equalizing labor earnings for particular jobs or particular skill levels, migration may still produce a clustering of high-skilled, high-earning households in one part of the country or in one part of the metropolis and a clustering of low-skilled, low-earning households elsewhere. Because of the nature of local public-sector financing in the United States, this geographical clustering is likely to give rise to different tax and public service burdens.

FACTOR-COST ADJUSTMENTS

In a market economy, price adjustments are fundamental to the establishment of equilibrium. Regional markets are no exception to this rule. Market pressures in areas of weak product demand will tend to depress factor prices. These price signals will promote migration of labor and other factors of production. If the migration response is rapid, factor price differentials will then be eliminated. However, if migration is impeded, market forces in areas of weak demand will cause factor prices to remain depressed. Surplus factor supplies then must be absorbed by lowering the costs of regional production by a sufficiently wide margin to divert production for national markets into the region.

From a practical standpoint, the first question to ask in deciding whether the market is assisting equilibrium adjustment is: Are factor prices adjusting to reflect regional and other differences in product demand or factor availabilities?

That *some* regional factor-cost adjustments occur in response to weak product demand is clear. Most obviously

affected are the prices of literally fixed factors of production, such as office and factory space. During the period 1972-1976, commercial rental costs in New York City office buildings, for example, fell by more than 25 percent at the same time costs per square foot were rising sharply in Houston, Dallas, and other growing markets. (New York City's rental costs, at least in Manhattan, recovered equally quickly with the revived demand during 1977-1979). Housing prices have responded with comparable sharpness to differences in demand as expressed by local population growth rates.

The factor of greatest importance in determining local production costs, however, is labor. It is far from clear whether wage costs have adjusted in a manner to restore cost competitiveness between regions. Resolution of this question is particularly difficult in view of the manner in which labor costs are commonly reported. Most regional comparisons of wage levels have run together wages for the entire nonagricultural or manufacturing sector. Comparisons spanning any length of time are therefore influenced to an unknown degree by the shifting composition of the regional labor force.¹⁰ The Bureau of Labor Statistics does provide annual comparisons of wages for selected private-sector job titles. Table 8 summarizes relative wage indexes for three types of labor, by metropolitan area and region. The comparisons suggest that far from converging in response to labor demand imbalances, relative wage costs over the period 1967-1975 widened in the face of soft demand in the Northeast and some North Central states. Although relative wages in all three job groupings fell in the high-cost West region, they rose in the North Central region. For two of the three job groupings, relative wages rose in the Northeast. Despite strong employment growth in the South, wage increases there were below the average for large metropolitan areas. Only in the job class most exposed to interregional migration--skilled maintenance--is there evidence of regional convergence in wage rates.

The localized nature of unskilled labor markets is emphasized by the sharp variations in wage trends for unskilled plant labor. In some markets, such as New York, Detroit, and San Francisco (all highly unionized), unskilled wage rates registered exceptionally large gains over the period 1967-1975. In other markets, such as San Antonio, unskilled wage levels remained depressed and even fell relative to other urban regions. This is explained by the

¹⁰See, for example, Mills (1978).

TABLE 8 Relative Wage Levels, by Metropolitan Area and Region
(U.S. metropolitan average = 100)

Metropolitan Area and Region	Job Class and Year					
	Office Clerical		Skilled Maintenance		Unskilled Plant	
	1967-68	1975	1967-68	1975	1967-68	1975
Northeast						
Boston	95	99	95	97	94	92
Buffalo	101	103	104	104	106	107
Newark	100	104	101	99	105	104
New York	103	108	101	100	108	121
Philadelphia	97	98	97	97	104	108
Pittsburgh	101	104	99	99	107	111
Average ^a	99.5	102.7	99.5	99.3	103.3	107.2
North Central						
Chicago	104	105	106	110	107	117
Cincinnati	97	97	98	99	102	102
Cleveland	102	101	102	105	108	113
Detroit	116	122	114	116	122	132
Kansas City	96	98	104	106	105	111
Milwaukee	99	99	106	106	111	110
Minneapolis-St. Paul	93	95	104	106	109	117
St. Louis	98	101	104	103	106	112
Average ^a	100.6	102.2	104.8	106.4	108.8	114.2

South						
Atlanta	100	103	95	100	79	70
Baltimore	94	99	99	101	91	90
Dallas	94	95	91	94	80	82
Houston	99	100	99	99	79	78
Memphis	88	92	93	94	81	81
Oklahoma City	91	89	90	94	84	78
San Antonio	85	81	88	--	71	66
Average ^a	<u>93.4</u>	<u>94.1</u>	<u>93.6</u>	<u>97.0</u>	<u>80.7</u>	<u>80.7</u>
West						
Denver	97	98	98	99	101	97
Los Angeles	112	107	105	103	114	115
Phoenix	96	90	101	99	87	85
San Diego	104	99	107	101	110	104
San Francisco	109	110	113	117	126	136
Seattle	<u>106</u>	<u>102</u>	<u>104</u>	<u>108</u>	<u>120</u>	<u>120</u>
Average ^a	<u>104.0</u>	<u>101.0</u>	<u>104.7</u>	<u>104.5</u>	<u>111.3</u>	<u>109.5</u>

^a Average indexes are the simple average of the metropolitan areas subsumed under each regional heading.

SOURCES: U.S. Bureau of Labor Statistics (1969a,b, 1976b).

influx of Mexican workers, who have limited ability to move to other, higher-paying labor markets. The inter-metropolitan variation in unskilled wages far exceeds that in the other labor categories, indicating that each local labor market tends to respond to its own balance of supply and demand for unskilled labor and to its own bargaining situation.

Although Table 8 shows no signs of wage-rate convergence over the period 1967-1975, more recent wage changes do suggest this possibility. Table 9 summarizes average wage increases by region in 1975-1976 for the five job classes now reported by the Bureau of Labor Statistics. The data are too spotty to constitute a trend, but it is interesting to note that between 1975 and 1976, wage adjustments in the Northeast lagged behind the national average in all five job classes.

Further signs of cost adjustments can be found in the consumer price index. Since 1975, consumer costs in New York, Boston, and other northern metropolitan areas have increased at a rate much below the national average (see Table 10). These regional cost differences have been led by housing prices. In direct response to the pressure population trends have placed on metropolitan housing markets, housing costs have climbed fastest in the South and West and slowest in the northern SMSAs. Public-sector tax burdens in northeastern SMSAs also have climbed more slowly, as cities have limited their expenditure growth.¹¹ If these regional variations in cost of living continue, they eventually will be built into the regional wage structure. Thus, there are some signs that the recent divergence in regional growth rates has reduced differences in the costs of living and doing business in different parts of the country.

Labor Productivity

Wages alone provide an unreliable guide to labor costs. Falling relative wages may be more than offset by declines in labor productivity. Prices will then be forced to make still larger adjustments if they are to reestablish regional cost competitiveness.

¹¹For evidence of the year-to-year convergence in state-local tax burdens on industrial produce in different metropolitan areas, see Hansen and Touhsaent (1978).

TABLE 9 Percent Increase in Average Hourly Earnings for Selected Occupational Groups in All Metropolitan Areas, 1976-1977

Region	Work Classification				
	Office Clerical	Electronic Data Processing	Industrial Nurse	Skilled Maintenance	Skilled Plant
Northeast	7.2	6.6	7.8	8.5	8.7
North					
Central	7.8	7.1	8.3	8.4	8.8
South	7.2	7.0	8.2	8.9	9.0
West	7.6	7.1	7.9	8.7	10.0
United States	7.4	6.9	8.1	8.6	9.0

SOURCE: U.S. Bureau of Labor Statistics (1978b).

Table 11 compares for different parts of the country value added per production worker in manufacturing. Because different industrial mixes are involved in the regional labor forces, comparisons of value added must be made with caution. However, the data in the table suggest that central cities as a group, especially the central cities of New England and the Middle Atlantic states, lag well behind the rest of the country in value added per laborer. Productivity gains in these areas between 1970 and 1975 were also well below the national norm. At least for the central cities, regional differences in value-added growth were more pronounced than regional differences in factor-cost adjustments. This suggests that manufacturing is becoming less competitive in Northeast and Middle Atlantic cities--not because of widening wage differentials, but because of comparatively low and slowly growing output per employee. The productivity lag, in turn, could be attributed to changes in the industrial composition, to differences in the level of regional capital investment, or to changes in the skill level of the labor force. Further analysis would be required in order to identify the role played by these factors, but each implies that recent regional income trends are likely to persist as the differences in labor productivity and productivity growth are translated into household earnings.

Labor productivity growth in the South and West undoubtedly has benefited from the higher level of capital investment occurring in these regions. In recent years, regional differences in private capital investment have exceeded

TABLE 10 Growth in Consumer Price Index, by Metropolitan Area, 1976-1977, 1977-1978^a

	1976-1977	1977-1978
Northeast		
Boston	5.6	3.3
Buffalo	7.2	5.7
New York	5.8	5.3
Philadelphia	6.9	6.7
Pittsburgh	6.9	6.7
Regional average ^b	6.1	6.1
North Central		
Chicago	6.2	7.7
Cincinnati	7.3	8.4
Cleveland	7.8	6.1
Detroit	7.7	8.7
Kansas City	7.7	7.5
Milwaukee	7.3	6.1
Minneapolis-St. Paul	6.4	8.5
St. Louis	7.4	7.1
Regional average ^b	7.2	7.7
South		
Atlanta	6.3	8.7
Baltimore	7.0	7.6
Dallas	7.9	7.4
Houston	8.4	7.6
Regional average ^b	6.8	7.9
West		
Los Angeles	7.5	7.6
San Diego	6.7	7.6
San Francisco	8.3	8.9
Seattle	8.4	9.4
Regional average ^b	7.8	8.6

^aCovers period April to April, May to May, or June to June, depending upon survey cycle.

^bAverage for entire region.

SOURCE: U.S. Bureau of Labor Statistics (1978a).

TABLE 11 Value Added Per Production Worker in Manufacturing--Central Cities and Inner Suburbs, by Region, 1970-1975

Region	Central City		Balance of Urban Community'	
	Dollar Value Added Per Production Worker 1975 (in thousands)	Percent Change in Value Added Per Production Worker 1970-1975	Dollar Value Added Per Production Worker 1975 (in thousands)	Percent Change in Value Added Per Production Worker 1970-1975
New England	29	45	39	65
Middle Atlantic	34	47	56	75
East North				
Central	36	50	41	58
West North				
Central	40	54	45	73
South Atlantic	36	44	32	100
South East				
Central	38	65	39	63
South West				
Central	40	74	58	29
West	41	61	39	50
All cities	37	59	41	64

SOURCES: U.S. Bureau of the Census (1970, 1975).

regional differences in labor-force growth by a substantial margin, indicating that capital endowments per worker are growing at a more rapid pace in growing regions than in the older sections of the country.

Tables 12 and 13 provide partial measures of this trend. Table 12 shows value per employee in industrial and commercial construction activities for selected metropolitan areas in 1976. The advantage of western metropolitan regions is obvious. More detailed evidence on capital investment can be compiled for the manufacturing sector. Between 1970 and 1975, capital investment per production employee in the New England and Middle Atlantic states trailed the national average by a wide margin, particularly in central cities (see Table 13). Investment per manufacturing worker in the South Atlantic states and South Central states, for example, was more than twice that in the New England and Middle Atlantic states. Average investment per employee in central cities ran well behind that in the suburbs in all parts of the country. These differences in the capital endowments being provided to workers threaten to widen the productivity gap between different regions of the country and between central city and suburb.¹²

Conclusion: Factor-Cost Adjustments

Until recently, price adjustments do not appear to have worked to lower relative costs in the Northeast or in northern cities generally. The failure of factor prices to reflect trends in product demand has prevented market forces from playing a more vigorous role in the restoration of regional equilibrium.

There are multiple signs that since 1975, factor costs have begun to adjust in the manner predicted by market theory. The severity of the 1974-1975 recession and the accompanying local fiscal difficulties may have encouraged the Northeast and large cities to realize that in the face

¹²The differences in manufacturing investment levels for large metropolitan areas are still more striking. For example, over the period 1970-1976, the Houston SMSA benefited from \$31,700 in capital investment per production employee, compared to \$16,000 of capital investment per worker in New York, \$7,700 in Philadelphia, and \$6,400 in Pittsburgh.

TABLE 12 Industrial and Commercial Construction Activity in Selected SMSAs, 1976

SMSA	Construction Value Per Employee (\$)
Northeast	
New York	15
Philadelphia	36
Boston	62
Buffalo	92
West	
Los Angeles	140
Phoenix	137
Denver	175
San Diego	180

SOURCES: U.S. Bureau of Domestic Commerce (1976), Bureau of Labor Statistics (1976a).

of weak product demand, their long-term interests are best served by trimming their high costs of operation.

The difficulties of adjustment that confront the older parts of the country should not be underestimated. Because wide gaps in regional labor productivity have emerged, even substantial price adjustments may be insufficient to restore factor demand. If equilibrium were to be established solely

TABLE 13 Capital Investment Per Production Employee, by Region, 1970-1975

Region	Central City (\$)	Balance of Urban County (\$)	Percent Difference
New England	5,467	6,952	27
Middle Atlantic	6,197	11,480	85
North Central	9,796	14,528	49
South Atlantic	11,626	9,594	-18
South Central	12,206	32,043	163
West	8,395	11,774	40
Average U.S.	8,910	12,064	35

SOURCE: Muller (1978).

through market adjustments, older parts of the country would have to accept wage and other factor-cost adjustments that probably would be socially intolerable. This provides a rationale for direct government intervention in the development process. Because recent capital investment rates could result in a cumulative divergence in regional and local labor productivity, the federal government is provided with a special rationale for encouraging capital investment in areas of laggard development. Private-sector capital accumulation provides one of the best long-term opportunities to stabilize the deteriorating competitive positions of older parts of the country.

FISCAL IMPACTS

During the late 1960s and the first half of the 1970s, perhaps the most destabilizing impact of population change was on the fiscal condition of local governments. The fiscal dilemma posed by local population loss is that local revenues have proved more elastic and more immediately sensitive to population decline than have local expenditures. Many of the costs of operating the public sector are, under normal conditions, "fixed" costs. It requires drastic measures, such as large-scale employee layoffs and the contraction of capital facilities, to trim public-sector operating costs in line with population decline. Local revenues, on the other hand, when measured in real terms, tend to fall automatically and exponentially in response to population loss. Under these conditions, population decline magnifies the budgetary strain of cities; it depletes taxable resources more quickly than it eases expenditure requirements.

Of course, rapid population growth can also pose financing problems. The bunching of public capital investment requirements, in particular, can create the need for heavy debt issuance. These debts, however, tend to be self-liquidating because sustained economic growth usually generates more than adequate revenues for amortization. In contrast, the fiscal difficulties of decline can easily become cumulative. Tax rate hikes to balance public budgets may push firms and affluent citizens out of the city, thereby further depleting the local taxable base. To the extent that public-sector costs in declining cities are deferred to the future, they become even more burdensome, for tomorrow's taxpayers are likely to be fewer in number and poorer in real wealth than today's taxpayers.

Because of the apparent importance of population trends for local fiscal conditions, population gains and losses have been included as criteria in several federal-aid formulas. The 1977 revisions of the Community Development Block Grant Program explicitly recognize local population shortfall (the difference between local and national population growth rates) as an element in determining the aid entitlements of cities. Below-average population growth has also been proposed as an element establishing eligibility or aid allocations for Supplemental Fiscal Assistance, National Development Bank subsidies, and other elements of the Carter administration's urban policy.

*Population Change and the Local Tax Base*¹³

Local population growth or decline alters the scale of almost all revenue sources. When population is climbing, earned and potentially taxable income, sales, and taxable property values tend to climb with it; when population is falling, revenue sources (measured in real terms) tend to decline as well. The importance of population change for the fiscal base does not lie in this magnification or reduction of scale alone, but in the imbalances it triggers. Different tax bases respond quite differently to population changes. As a result, the structure of the local tax system will tend to exaggerate or reduce the fiscal consequences of population change.

Of all local revenue sources, it is the property tax base that is most sensitive to local population shifts. Population growth adds directly to the stock of taxable residential property, just as population loss gradually tends to remove residential property from the tax rolls. More importantly, population shifts are reflected in the price of housing. A city's stock of housing is, in the short-to-intermediate term, relatively fixed in quantity. As with any commodity in relatively inelastic supply, shifts in demand will work large price changes. Between 1960 and 1973, Buffalo, Cleveland, Pittsburgh, and St. Louis sustained population losses of more than 20 percent. No city can withstand such losses without suffering a decline

¹³This section draws on material presented in Peterson et al. (1979) in which the impacts of population change, job growth, and employment rates on local fiscal conditions are examined in greater detail.

in the demand for housing. Between 1966 and 1971, the average value of single-family houses sold in these four cities increased by only 0.03 percent. During the same period, in 13 large cities that gained population in the 1960s, the average sales price for single-family housing increased by 48 percent. With residential housing accounting for the greatest share of taxable property values, these divergent price trends are reflected directly in the strength of the local tax base.

Table 14 compares the sensitivity of different local tax bases to population change. The term "growth elasticity" in the table refers to the percentage gain (or loss) registered by a particular tax base in response to a 1-percent gain (or loss) in city population. For example, the value of 2.7 for the property tax base elasticity over

TABLE 14 Local Tax Base Elasticities with Respect to Population Change

Tax Base	Sample Size	Real Growth Elasticity 1960-1970	Real Growth Elasticity 1970-1975	R ²
Market value of taxable property	27 Central cities	2.1 ^a (7.9) ^b		0.74
	23 Central cities		2.7 ^c (4.8) ^b	0.59
Retail sales values	38 Central cities	0.8 (7.4)		0.69
	40 Central cities		1.6 (6.9)	0.67
Value of local income tax base	8 Central cities	NA	1.6 (1.9)	0.35

^a1961-1971.

^bNumbers in parentheses are *t* statistics.

^c1971-1976.

SOURCES: Market values of property computed from Bureau of the Census assessment data and aggregate assessment/sales ratio, using preliminary data (*Taxable Property Values*, Volume 2, Part 1). Retail sales values obtained from *Sales Management*. Local income tax bases obtained from local bond prospectuses and local financial offices. Data compiled for The Urban Institute.

the period 1971-1976 indicates that each 1-percent gain in local population has on average been accompanied by a 2.7-percent gain in the value of taxable real property; declines in local population are similarly magnified into declines in taxing capacity. A growth elasticity value of 1.0 would indicate that on a per-capita basis population growth or decline neither adds to nor detracts from the tax base. Values greater than 1.0 imply that even on a per-capita basis taxable resources grow and fall with population growth and decline, respectively.

The elasticities in Table 14 were estimated from regression equations relating tax base growth in different cities to population growth. The sample was comprised of the subsets of the nation's 40 largest cities for which data were available.¹⁴ All tax base values have been deflated by the GNP deflator to eliminate distortions due to general price inflation.

The extent to which cities' tax bases respond to population change varies quite widely, although in all three cases the elasticities are substantial. The property tax base is the most sensitive to population trends. Table 14 suggests that heavy reliance on the property tax can have highly disequilibrating effects on a locality that is suffering population loss because population decline is translated, with a multiplier effect, into a loss of taxable resources. A shrinking tax base, of course, can be forced

¹⁴Estimates of the market value of taxable property are not fully comparable across cities or time periods. Commercial and industrial property of high value is excluded from the Bureau of the Census assessment-sales comparisons, which are used to convert assessed valuations to market-value equivalents. Thus market-value conversions implicitly assume that high-valued commercial and industrial properties are assessed at the same proportion of market value as residential and lesser-valued commercial and industrial properties. If this assumption is incorrect, a bias is imparted to market-value calculations. Comparisons between 1961 and 1971 are further complicated by the fact that sales ratios in the first year were computed for "ordinary real estate," while in the final year they were computed for "all types of real property." The extent of distortion introduced by these inconsistencies in measuring market values of real property is unknown, but felt by the authors to be small relative to systematic variations across cities.

TABLE 15 Per-Capita Expenditures by Large Cities for Common Functions^a

Item	Growing Cities	Cities Growing in Population 1960-1970, Currently Declining	Declining Cities
Expenditures per capita, common functions			
1973 ^b	\$100	\$139	\$178
1976 ^c	\$158	\$205	\$247
Percent growth	+58%	+47%	+39%
Common function municipal workers, per 1,000 residents			
1974 ^b	7.0	8.1	11.2
1977 ^c	7.9	9.3	11.5
Percent growth	+28.6%	+14.8%	+2.7%
Average monthly wage, other than teachers			
1974	\$908	\$956	\$973
1977	\$1,065	\$1,140	\$1,199
Percent growth	+20.7%	+19.5%	+23.2%

^aThe cities covered in this table are all cities that reached a population of 500,000 at some point between 1960 and 1973.

^bPer capita figures based on 1973 population estimates.

^cPer capita figures based on 1975 population estimates.

SOURCES: U.S. Bureau of the Census (various years), *City Government Finances*, and *City Employment*.

to yield higher revenues through frequent increases in the local tax rate, but such actions may jeopardize a city's competitive position. Furthermore, such increases may be rejected by the voters or may be in violation of taxing limitations.

Locally imposed sales taxes and income taxes display less sensitivity to local population trends. These taxes tend to draw on resources held by the population throughout the metropolitan area, and thus are not so closely tied to trends in city population.

A second trend apparent from Table 14 is the greater sensitivity of both sales and property tax bases to population change in the most recent time period. The explanation of this phenomenon is not altogether clear; quite likely, however, it is attributable to a more pronounced distinction between growing and declining cities. Population loss, job loss, and real income loss are currently more closely intertwined than in the past; because each of these changes contributes to local tax base deterioration, a simple elasticity estimated with respect to any one of the variables is likely to be stronger than in the past. If the increasingly sharp distinction between growing and declining cities is a permanent development, ever greater redistributive efforts through state and federal-aid programs would be needed to stabilize local tax bases. It is likely, though, that this apparent distinction is partially a product of the period chosen for comparison. The period ends in 1975, at the bottom of the national recession that struck hardest at cities suffering long-term population losses.

Expenditure Elasticities

If local expenditures rose or fell with population in the same proportions as local tax revenues, population loss would pose no special financing problems for cities. In actuality, at least until very recently, city spending commitments tended to grow almost without relation to population growth or decline. As a consequence, per capita expenditures have been highest in those cities suffering population losses, creating a severe imbalance between spending trends and local tax base trends.

Table 15 compares per-capita expenditures as of 1973 for the same set of cities identified in Table 14. Expenditure totals have been drawn from the Bureau of the Census publication, *City Government Finances* (various years). The

common functions referred to in the table represent an attempt to define a core of common services provided by virtually all city governments. The per-capita spending figures correspond to total current account spending on highways, police protection, fire protection, sanitation, parks and recreation, financial administration, general control, and interest on debt. Other services, including education, welfare payments, hospital services, and capital outlays, have been excluded because municipal responsibility for these functions varies greatly from city to city. Also shown in Table 15 are the number of common-function municipal employees per 1,000 residents and the average monthly wage received by these employees.

Per-capita spending on common functions in 1973 can be seen to have been almost 80 percent higher in large, declining cities than in large, growing cities. This result was the product both of more municipal workers per 1,000 residents and of higher public-sector wages. Since 1973, however, there has been a movement toward convergence of city spending levels. Indeed, the convergence of public-sector costs has exceeded the convergence of private-market costs and prices, reviewed earlier in this chapter. Local governments of all types have cut back on their historical rates of spending growth. In the last 5 years public-sector wages generally have failed to keep pace with inflation and have lagged behind private-sector wage increases. However, the burden of convergence in city spending has fallen almost entirely upon real-resource use. As Table 15 shows, the greater fiscal pressure on declining cities so far has failed to have an impact on public wage adjustments in different cities. In contrast, different employment adjustments are readily apparent. In cities losing population, public employment actually was reduced by almost the same proportion as the city population, despite new federally sponsored job programs. The previous trends toward larger public-sector work forces persisted in the growing cities. Beyond common services, employment trends have displayed still sharper divergence because older cities have trimmed many of their optional service responsibilities in response to fiscal pressure. Capital expenditures, too, have been cut back more deeply in the older cities.

Table 16 compares the elasticity of total city spending with respect to population growth and decline in different periods. The expenditure elasticities have been estimated in the same manner as the revenue elasticities in Table 14. For the first two periods, the spending elasticities are extremely low, indicating that in contrast to local tax

TABLE 16 Local Expenditure Elasticities with Respect to Population Growth

Period	Sample Size	Elasticity of Real Expenditures
1960-1970	38 Central cities	0.35 (1.2) ^a
1970-1973	40 Central cities	0.49 (1.6)
1973-1976	40 Central cities	1.2 (3.8)

^aNumbers in parentheses are *t* statistics.

SOURCE: The Urban Institute.

revenues, local spending levels in the past have been quite insensitive to local population trends. Other studies have reported the same result. Kasarda (1978), for example, found that over the period 1950-1960 city spending growth on most functions was actually negatively related to population change, i.e., total expenditures climbed more rapidly in cities losing population than in cities gaining population. The period 1960-1970 is characterized by a slight, positive relationship between city expenditure and population growth. These low or negative spending elasticities, coupled with the high tax base elasticities reported earlier, imply that city population loss in the past has produced a budget squeeze for city governments. Cities with declining populations have been forced to raise their tax rates or receive more external aid in order to balance their budgets in the face of spending commitments. In actuality, most of the gap until recently was filled by external assistance. Table 17 shows that state aid and federal aid have greatly favored cities losing population. Until recently, these levels of aid were an indirect consequence of the greater tax burdens, higher unemployment rates, and other characteristics of such cities. Now, however, population loss has become an element directly determining aid entitlements under the Community Development Block Grant Program, and has been proposed as a basis for aid allocation in other urban legislation. Growth in external assistance was sufficient to insulate partially city governments from the deterioration in locally taxable resources.

TABLE 17 Revenue by Source, Fiscal 1970 and 1975, in Cities with 100,000 or More Residents

City Type	N	Local Revenue			State Revenue			Federal Revenue		
		1970 (\$)	1975 (\$)	Percent Change	1970 (\$)	1975 (\$)	Percent Change	1970 (\$)	1975 (\$)	Percent Change
Growing	57	123	190	54.5	23	51	120.9	7	29	310.5
Declining	84	169	275	62.8	46	104	125.6	15	76	409.0
Rapidly declining ^a	11	199	298	49.5	47	153	225.8	13	89	582.5
Total	152	153	243	58.7	38	88	131.1	12	58	384.6

City Type	N	All Revenue			Local Revenue as Per- cent of Total Revenue		
		1970 (\$)	1975 (\$)	Percent Change	1970 (\$)	1975 (\$)	Percent Change
Growing	57	153	270	76.5	80.4	70.4	-12.5
Declining	84	230	455	97.8	73.5	60.4	-17.8
Rapidly declining ^a	11	259	540	108.4	76.8	55.2	-28.1
Total	152	203	389	91.6	75.4	62.4	-17.2

^aCities with population decline in excess of 10 percent between 1970 and 1975.

SOURCES: U.S. Bureau of the Census (1971, 1976).

The elasticity estimate for city spending in the 1973-1976 period stands out in sharp contrast to estimates for the earlier periods. The elasticity value of 1.2 implies that on a per-capita basis the expenditure levels of growing and declining cities are now converging toward each other. This convergence can be seen clearly in Table 15, in which the 1973-1976 changes can be seen to have served to narrow the per-capita spending differences that existed at the beginning of the period.

Even though city employment levels, wage rates, and capital operations have proved difficult to trim in response to population loss in the past, most public-sector costs are not literally fixed but merely difficult to reduce under normal conditions. The fiscal difficulties of 1974-1975 appear to have been severe enough to force many city governments to begin to cut back these costs. During this period, most of the declining cities finally began to catch up with past population declines through reductions in city employment. The result has been a much greater sensitivity of city spending trends to population change. It seems likely that future city spending will continue to be restrained by population and tax base trends, as cities tackle the difficult problem of bringing their budgets in line with their resources. This restraint is likely to be reinforced by a sharp decrease in the growth rate of federal aid to older cities. Federal support was sustained in 1977 and 1978 through the operation of temporary countercyclical programs, many of which were allowed to terminate during the period. The necessity of financing further expenditures from their own resources will be a major restraining influence on declining cities.

Finally, there are signs that the real costs of public service provision are experiencing convergence. Crime rates, for example, are rising much more rapidly in growing cities than in declining cities.¹⁵ Construction and other capital costs are also moving toward equality. This

¹⁵Between 1970 and 1976, the crime rate per 1,000 residents in six representative declining cities (Detroit, Cleveland, St. Louis, Buffalo, Pittsburgh, and Newark) rose by 42 percent. The crime rate in six representative growing cities (San Diego, San Antonio, Phoenix, San Jose, Honolulu, and El Paso) rose 109 percent. This convergence eliminated the greater part of the crime rate difference between the two classes of cities.

convergence of selected private-market costs leaves its imprint on public-sector spending patterns.

Conclusion

There can be little doubt that substantial population loss compounds the fiscal pressure on city governments. Population decline tends to bring an automatic loss of tax-raising capacity; corresponding economies in city expenditures are much more difficult to achieve. Whether population short-fall is an appropriate basis for allocations of large amounts of federal aid is less clear. Population loss appears to create an adjustment problem, primarily because of the amount of time needed for "fixed" costs to be rendered variable. Additional federal assistance, perhaps, is in order during severe adjustment periods, but indefinite scaling of grants to population decline would be inappropriate. Such assistance merely defers managerial efforts to keep the size of the public sector roughly proportionate to total local economic activity. The evidence available to date suggests that adjustments in public-sector operating costs can be made, even in the face of local population decline. However, the adjustment process has been rendered more difficult by the relative inflexibility of wages and other prices paid by the public sector. As a result, practically all of the burden of reducing local government costs has been borne by real-resource cutbacks, cushioned only by increases in state and federal aid to the cities.

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POPULATION REDISTRIBUTION AND EMPLOYMENT POLICY

Michael J. Greenwood

INTRODUCTION

Berry and Dahmann have identified a number of aspects of population redistribution that may have serious implications for employment policy. After a number of decades during which the West experienced the greatest volume of net in-migration, the South, since 1970, has had a volume of net in-migration roughly twice that of the West. Moreover, the historical trend of migration out of nonmetropolitan areas and into metropolitan areas has been reversed; nonmetropolitan population is currently growing more rapidly than metropolitan population. The absolute decline in the population of some central cities, combined with a slackening of suburban growth, has contributed to the lower rate of metropolitan growth.

Three questions arise regarding these findings. First, to what extent do the observed changes in spatial population distribution reflect changes in the spatial distribution of economic activity? Second, what are the causative factors in the relationship between population distribution and the distribution of economic activity as measured by employment distribution and composition? Third, what employment problems are caused or intensified by population and employment redistribution, and do these problems warrant governmental action? Only after such problems have been identified can appropriate policy solutions be developed and the appropriate level of government be selected for administering the various policies.

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The outline of this paper follows the order of the questions posed above. The first section is concerned with the identification of changes in the distribution of economic activity among Census regions and among central cities and suburbs.¹ Economic activity is defined in terms of employment. Changes that have occurred in recent years are placed in historical perspective to allow identification of trend reversal or continuation. The second part of the paper focuses on the causal relationships between population and employment change. Qualitative and, to a lesser extent, quantitative relationships are discussed. The term "qualitative relationship" refers to the direction of the causal linkage between two variables, while the term "quantitative relationship" refers to the magnitude of such a linkage. The third section deals with certain problems toward which employment policy might appropriately be directed.

THE SPATIAL DISTRIBUTION OF EMPLOYMENT

Area employment changes result from three basic forces. First, given labor supply and demand conditions, if labor markets are out of equilibrium, then wage changes that result from equilibrating market forces may result in employment changes. Second, given labor supply curves that are not perfectly inelastic, changes in labor demand can cause changes in employment. Changes in labor demand can be caused by a number of factors, such as changes in the state of the national economy, changes in area income, population changes brought on by natural increase or net migration, changes in population composition, and changes in consumer preferences. Third, given labor demand curves that are not perfectly inelastic, changes in labor supply can cause changes in employment. Changes in labor supply can also result from a number of factors, including changes in the working-aged population brought on by natural change or by net migration and changes in labor-force participation rates that are independent of wage levels. Although the three forces generally operate simultaneously in local

¹The metropolitan-nonmetropolitan dichotomy is not discussed here because of the highly suspect quality of available 1970-1975 employment data that distinguish metropolitan status.

economies that are growing or declining, the latter two are likely to be of primary importance.

Each of these forces, however, unfolds in the context of the national economy, and therefore regional changes in employment and population should not be viewed apart from their national setting.

The National Setting

At the national level three factors distinguish the 1965-1975 period from the earlier post World War II years:

1. The national rate of employment growth altered sharply at about 1963, after which the annual average rate doubled, and the rate of growth from 1963 to 1969 was particularly high relative to typical rates of earlier and later periods.
2. The aging of the war-baby cohort brought an extremely large number of young persons into the labor force, and young persons tend to be quite mobile geographically.
3. Substantial changes in fertility patterns and family composition, combined with a number of other factors, contributed to appreciable increases in labor-force participation rates among young white women. These increased rates and the increased size of the young population cohort contributed greatly to increasing the size of the labor force. Changes in fertility patterns, family composition, and marriage rates also directly affected migration rates.

These three factors are, of course, not independent of one another or of other forces operating in the economy and in society in general. Let us briefly consider the relevance of each factor to changes in the spatial distribution of the population.

Rate of Employment Growth Table 1 shows average annual growth rates in national employment and civilian labor force (CLF) for various periods during the postwar era. The 30-year period 1947-1976 can conveniently be divided into two subperiods: 1947-1963 and 1963-1976. During the earlier period the average annual rate of employment growth was 1.1 percent, but during the later period it was 2.0 percent. A further breakdown of the later period shows that between 1963 and 1969 the average annual rate of

TABLE 1 Average Annual Rates of Growth in Employment and Civilian Labor-Force Growth for Various Subperiods, 1947-1976

Period	Employment (%)	Civilian Labor Force (%)
1947-1948 to 1962-1963	1.1	1.2
1963-1964 to 1975-1976	2.0	2.2
1963-1964 to 1968-1969	2.4	2.0
1969-1970 to 1975-1976	1.7	2.3

SOURCE: Calculated from data presented in Tables A-1 and A-3 of the 1977 *Employment and Training Report of the President* (U.S. Department of Health, Education, and Welfare, and U.S. Department of Labor 1977).

employment growth was 2.4 percent, whereas between 1969 and 1976 the growth rate moderated considerably to an average of 1.7 percent.

The high and sustained rate of employment growth between 1963 and 1969 was due in part to the effects of the Vietnam War and to the sizeable increases in the labor force. Probably less important contributing factors were the permanent tax cut of 1964 and the relative credit ease beginning in late 1966. The more moderate rate of growth after 1970 was caused in part by dislocations and reallocations brought on by post Vietnam War adjustments, by the quadrupling of oil prices in 1973, and by deficient aggregate demand. The recession of 1974-1975 was the most serious since 1950. The national rate of unemployment averaged 8.5 percent during 1975 compared with 5.6 percent during 1974.

The differential behavior of the 1963-1969 period relative to the 1969-1975 period is emphasized by the behavior of the manufacturing sector. After increasing by 3,172,000 jobs between 1963 and 1969, or at an average annual rate of 3.1 percent, manufacturing employment declined by 1,820,000 jobs between 1969 and 1975, amounting to a negative annual average rate of 1.5 percent. Nationally only 285,000 more manufacturing jobs existed in 1975 than in 1965.² The effects of the Vietnam War in the late 1960s

²The source of these figures is the 1977 *Employment and Training Report of the President*, U.S. Department of

and of the recessionary conditions of the early 1970s had important implications for the manufacturing sector, which in turn had important implications for the spatial distribution of employment. Moreover, since manufacturing is the single most important source of urban employment, the status of the manufacturing sector during the early 1970s had obvious implications for urban growth and for the intraurban location of economic activity.

Vernez et al. (1977, p. x) summarize their findings regarding the regional employment impacts of national economic fluctuations:

Areas that tend to be slow in recovery, with long cycles, are usually located in the North-East and North-Central census divisions and are characterized by a slow rate of employment growth or a large labor force. Slow growth and large size also characterize areas with the largest cyclical amplitudes. They are typically located in the North-East and East-North-Central areas.

. . . The severest cycles are more often found in areas of the North-East and North-West-Central census divisions and are characterized by slow employment growth.

Hence, according to the Vernez study, in terms of length, amplitude, and severity of cycle impacts, the Northeast and North Central regions tend to be the most seriously affected by national economic conditions.

Health, Education, and Welfare, and U.S. Department of Labor (Table C-1). Other sources yield slightly different information. Data gathered from U.S. Department of Labor, Bureau of Labor (1977), for example, indicate that manufacturing employment declined by 1,972,300 between 1969 and 1975 and that nationally only 182,700 more manufacturing jobs existed in 1975 than 1965. Note too that the choice of 1975 as the end point of the series has special implications for the manufacturing sector, which was especially impacted by the recession of 1974-1975, when manufacturing employment declined by 1,699,000 jobs or by 8.5 percent. These latter figures have been calculated from data presented in the *1977 Employment and Training Report of the President*.

Rate of Growth of the CLF The period from approximately 1963 to and beyond 1975 is rather unusual in the recent history of the American economy, because of the high rate of labor-force increase brought on by the aging of the war-baby cohort and by the increased labor-force participation rates of women. As indicated in Table 1, the civilian labor force increased at an average annual rate of 1.2 percent between 1947 and 1963. However, between 1963 and 1976 the CLF increased at an average annual rate of 2.2 percent. Again the periods 1963-1969 and 1969-1976 were characterized by somewhat different rates of growth. During the former period the CLF grew at an average annual rate of just less than 2.0 percent, while during the latter period it grew at a rate of just over 2.3 percent. Note also that between 1963 and 1969 the rate of employment growth exceeded the rate of labor-force growth, but that between 1969 and 1976 the rate of labor-force growth was somewhat higher than the rate of employment growth.

Table 2 presents labor-force data by age, sex, and race for 5-year periods beginning in 1950 and running to 1975. Labor-force participation rates are shown for each sex-age-race group at the various points in time. During the 1965-1975 period the labor force aged 16-24 increased by 8.1 million, which amounts to an annual average rate of 5.7 percent, compared with a 2.3-percent annual rate of increase over the previous 15 years. The entry of women 25 and over into the labor force accounted for another 6.57 million workers between 1965 and 1975.

The 1965-1975 increase in the young labor force was due not only to the larger number of persons aged 16-24 in the population, but to the increased labor-force participation rates of this group. Approximately 35.7 percent of the increase in the labor force aged 16-24 can be attributed to increased labor-force participation rates, with the remainder due to increased size of the underlying population.³ Between 1965 and 1975, participation rates increased somewhat more for young women than for young men; rates for women went from 44.0 to 57.1 percent and rates for men went from 69.0 to 72.4 percent (see Table 2).

Table 3 reports labor-force participation rates of young women by marital status. The largest increases in participation rates have clearly occurred among married women

³This estimate was derived by calculating the size of the 1975 labor force if 1965 participation rates had prevailed.

TABLE 2 Labor Force (numbers in thousands) and Labor-Force Participation Rates by Sex, Age, and Race, 1950-1975, with Projections to 1990^a

Year	Males				Females			
	16 and Over		16-24		16 and Over		16-24	
	Wht	Nwht	Wht	Nwht	Wht	Nwht	Wht	Nwht
1950	43,819 [86.4]		7,136 [77.3]		18,389 [33.9]		4,387 [43.9]	
1955	40,196 (85.4) [85.3]	4,279 (85.0)	4,857 (72.0) [72.3]	732 (74.5)	17,886 (34.5) [35.7]	2,663 (46.1)	3,679 (43.5) [43.1]	489 (40.3)
1960	41,742 (83.4) [83.3]	4,645 (83.0)	5,992 (71.3) [71.6]	917 (74.0)	20,171 (36.5) [37.7]	3,069 (48.2)	4,071 (43.1) [42.9]	565 (41.2)
1965	43,400 (80.8) [80.7]	4,855 (79.6)	7,277 (68.9) [69.0]	1,012 (69.3)	22,736 (38.1) [39.3]	3,464 (48.6)	5,177 (44.3) [44.0]	700 (42.3)
1970	46,013 (80.0) [80.0]	5,182 (76.5)	8,533 (70.2) [69.4]	1,180 (64.4)	27,505 (42.6) [43.3]	4,015 (49.5)	7,135 (52.1) [51.3]	979 (46.2)
1975	49,881 (78.7) [77.9]	5,734 (71.5)	10,795 (74.3) [72.4]	1,363 (60.1)	32,203 (45.9) [46.3]	4,795 (49.2)	8,890 (59.0) [57.1]	1,216 (46.4)
Projections								
1980	60,000 [77.8]		12,974 [73.6]		41,673 [48.4]		11,292 [61.1]	
1985	62,903 [77.5]		11,976 [73.7]		45,699 [50.3]		11,091 [64.5]	
1990	65,220 [77.3]		10,647 [72.9]		48,619 [51.4]		10,305 [66.6]	

^aValues in parentheses indicate sex, age, and race specific labor-force participation rate; values in brackets indicate sex and age specific labor-force participation rate.

SOURCES: Data for 1950-1975 are from or are calculated from the 1977 *Employment and Training Report of the President* (U.S. Department of Health, Education and Welfare, and Department of Labor 1977, Tables A-3 and A-11). Projections are from Fullerton and Flaim (1976).

TABLE 3 Labor-Force Participation Rates of Young Women by Marital Status, Various Years, 1950-1975

Year	Single		Married, Spouse Present		Widowed, Divorced, Separated	
	20-24	25-34	20-24	25-34	20-24	25-34
1950	74.9	84.6	28.5	23.8	45.5	62.3
1955	69.6	80.9	29.4	26.0	55.1	60.5
1960	73.4	79.9	30.0	27.7	54.6	55.5
1965	72.3	83.4	35.6	32.1	58.6	62.8
1970	71.1	80.7	47.4	39.3	59.7	65.1
1975	69.3	80.0	57.1	48.3	67.6	67.4

SOURCE: 1977 *Employment and Training Report of the President* (U.S. Department of Health, Education and Welfare, and Department of Labor 1977, Table B-2).

with spouse present.⁴ Particularly since 1965, this group has experienced an especially sharp rise in its participation rate. Between 1965 and 1975 the 20-24 age-group had a 21.5 percentage-point increase in its rate, while the 25-34 age-group had a 16.2 percentage-point increase. Approximately 4,612,000 more married women of all ages, with spouse present, were in the labor force in 1975 than would have been in the labor force if 1965 participation rates had prevailed.

Changes of such magnitudes in the labor-force participation rates of married women with spouse present, and especially of young married women, have potentially profound implications for geographic mobility. If the 4,612,000-person figure given above were doubled to reflect the fact that the affected households had a minimum of two persons, the resulting 9,224,000 persons would be a minimum estimate of the number of household members

⁴Married women with spouse present accounted for 59.8 percent of all women 16 years old and over in 1975. This group also accounted for 57.8 percent of the female labor force. Since married women with spouse present outnumber both single women and women who are widowed, divorced, or separated, and since the married group also experienced the largest increases in labor-force participation rates, we can conclude that married women with spouse present are somewhat more responsible than the other groups for the overall increase in female participation rates.

directly affected by the differential labor-force participation behavior of married women. This latter figure was 6.0 percent of the 1975 noninstitutional population of the United States. If the spouses of these women are assumed to be labor-force members, then these young women and their spouses were 10.0 percent of the country's 1975 CLF.

Because many young couples that would previously have had one wage earner now have two, their family income is somewhat higher than it would otherwise have been. The second salaries permit these families, at a relatively young age, to purchase housing in locations that would otherwise have been beyond their price range. These new locations may be in the suburbs rather than in the central city, in exurban or even rural areas, or in regions with historically low wages but desirable amenities, such as sunshine, mountains, or seashore.

As shown in Table 2, female labor-force participation rates for the young are projected to continue their rise through 1990, but male rates are projected to remain relatively constant. Overall, the rate of labor-force increase is expected to moderate considerably during the 1980s, when the projected average annual rate of increase will fall to 1.2 percent. The labor force aged 16-24 will decline in absolute numbers; the decrease is expected to amount to over 3.31 million.

The racial composition of the labor force has changed relatively little in recent years. In 1965 blacks comprised 11.2 percent of the labor force, and in 1975, 11.4 percent. The most conspicuous change along racial lines has been the appreciable decline in black male labor-force participation rates, especially among the young. In 1960 black males, 16-24 years of age, had a participation rate of 74.0 percent, compared with a corresponding rate of 71.3 percent for whites. In 1975 the participation rate for black males in this age-group was 60.1 percent; the corresponding rate for whites was 74.3 percent. If the black participation rate in 1975 was what it had been in 1965, an additional 208,000 young black males would have been in the labor force in 1975. Of course, if black rates had risen along with the corresponding white rates, this estimate would be somewhat higher. The 1975 unemployment rate of black males, 16-24, was 27.4 percent. A conservative estimate of the unemployment and underemployment rate among young black males is therefore 37.0 percent. Rates such as these have important implications for employment policy in the central cities of the nation's major metropolitan areas, where the unemployment and underemployment rate is thought to exceed 37.0 percent.

These changes in the age composition of the labor force have important consequences for interregional migration. Lansing and Mueller (1967), using data from the *Current Population Reports*, show that of all age-groups, the group between 22 and 24 has the highest migration rate (17.8 percent). Migration rates decline rapidly with age; for the 30-34 and 35-44 age-groups the respective rates were 8.8 and 4.8 percent.⁵

Changes in Family Composition Between 1960 and 1975 the percentage of women, 20-24 years old, who had been or were married but had not borne any children increased dramatically from 24.2 to 42.3. The percentage of whites in this category increased from 25.0 to 44.7, but the percentage of blacks increased more slowly, from 17.0 to 20.2 (U.S. Bureau of the Census 1975a). Fertility and labor-force participation behavior of women have been mutually dependent and have together permitted or encouraged many American families to move. However, the relatively small percentage of black women in this category has served to discourage black migration, both by reducing income per family member and by increasing local community ties. Black women tend to bear a higher cost of acquiring access to the labor market (for example, the cost of day care), which has important policy implications for central cities.

Changes in female participation in the labor force and in family composition have acted as permissive factors in the population dispersion from the higher income areas of the Northeast and North Central states. Information presented in *Current Population Reports* is consistent with the claim that changes in family composition may have contributed to greater interstate migration rates. Of married men 14-24 years old with wife present, 20.3 percent of those with no children of their own changed their state of residence between 1970 and 1975, compared with 17.2 percent of those with own children. Comparable percentages for the 25-34 age-group are 25.4 percent for the group

⁵The data reported by Lansing and Mueller (1967) refer to migration during the year ending in March 1965. Such rates are somewhat sensitive to prevailing economic conditions, but give a good indication of the order of magnitude of the differences between age-groups. As reported in the CPR, migration refers to anyone changing his county of residence.

with no own children and 17.6 percent for the group with own children.⁶

The influence of changes in fertility patterns on population movements from central cities to suburbs should not be overlooked. Married couples with no children appear to have higher rates of movement from central cities to suburbs than married couples with children. Of suburban married men 14-24 years old with wife present and no own children as of 1975, 24.7 percent had moved to the suburbs from the central city since 1970. The corresponding figure for men with own children was 19.9 percent. For the 25-34 age-group, corresponding percentages for men with no own children and with own children were, respectively, 35.6 and 26.4.⁷

A number of factors are responsible for higher rates of movement from central cities to suburbs among married couples with no children. One of the most important of these is that couples with no children are more likely to have two wage earners providing sufficient income to afford housing in the suburbs. The mutual dependence of fertility and labor-force participation behavior of young couples is again evident.

Other societal trends have also been important in determining shifts in regional and urban location patterns, although the quantitative relationship between these trends and patterns has not been determined with any precision. For example, marriage rates among the young have fallen sharply. In 1975, 56.0 percent of the females aged 20-24 were married, compared with 61.4 percent in 1970 and 68.8 percent in 1962. Comparable percentages for males are

⁶These percentages were calculated from data presented by U.S. Bureau of the Census (1975c, Table 23). The numbers of persons abroad and for whom no information was available on mobility status were removed from the base population before the rates were calculated.

⁷The source of this information is U.S. Bureau of the Census (1975c, Table 22). The number of relevant suburban persons abroad and for whom no information was given on mobility status was removed from the denominator when these rates were calculated. The fractions of relevant 1970 central-city married men who had moved to the suburbs by 1975 would be more appropriate, but the data do not allow the computation of mobility rates for the relevant base populations as defined in 1970.

38.6, 43.6, and 47.0 (U.S. Bureau of the Census 1962, 1970, 1975b). This decline will probably act as a damper on both interstate and intrastate migration because there are significant differences in movement rates between the married and the unmarried segments of the population.⁸ In itself, the drop in marriage rates should partially offset those factors contributing to increasing rates of movement.

As a result of the aging of the war-baby cohort and the high migration rates for the age categories through which the cohort has been passing since about 1965, the age composition of interregional migration streams has changed. As recently as 1965-1966, 40.9 percent of the interregional migrants were 18-34 years old; during the 1970-1975 period, 45.5 percent were in this age category (U.S. Bureau of the Census 1966, 1975c). In the absence of significant exogenous forces, such as severe energy shortages, interregional migration should decline after 1980, when the number of people in the most mobile age categories is expected to decrease.

Regional Changes in Employment and Population

Regional employment and population changes are positively correlated. Hence, at the regional level, the recent population changes depicted by Berry and Dahmann reflect

⁸The *Current Population Report* (No. 285, Table 20) indicates substantial differences in mobility rates between young married males with wife present and other young males. Of males aged 18-24 in 1975, 56.9 percent of those married with wife present had since 1970 changed houses within a given county, whereas only 21.8 percent of the remaining male population in this age-group had made a similar move. While married 18-24-year-old males with wife present had a 1970-1975 intercounty, intrastate migration rate of 20.0 percent, other males in this age class had a completely defined rate of 7.7 percent. The married group had a between-states migration rate of 18.7 percent, but the other group had a between-states rate of only 7.8 percent. In the calculation of the above rates, the number of persons abroad and the number for whom mobility status was not reported were excluded from the denominator.

corresponding employment changes, although the extent to which population changes lead, lag, or occur simultaneously with employment changes is unknown. Moreover, although a positive relationship exists between regional employment and population changes, quantitative analysis of available data suggests an extremely unstable relationship between the variables over time as well as a relationship that differs considerably between regions.

Table 4 shows for each Census region total nonagricultural employment and total population aged 5 years and over for 5-year increments beginning in 1950 and running to 1975. With the exception of the Northeast, which experienced slight declines in employment during the period from 1970-1975, both population and employment increased in each region during each period.⁹ Moreover, during the quarter of a century covered by the data, the four Census regions ranked identically by percentage change in employment and by percentage change in population; the West, experiencing the highest percentage changes (136.3 and 87.7, respectively), is followed by the South (110.4 and 44.2), the North Central region (51.0 and 29.6), and the Northeast (30.6 and 25.3).

One consequence of interregional shifts of population and employment has been a more equitable distribution of employment opportunities relative to population. Table 5 indicates that in 1950 the Northeast held 31.6 percent of the jobs and 26.1 percent of the population, whereas the South held 24.8 percent of the jobs (the third-highest share) and 31.2 percent of the population (the highest share). By 1975 regional employment and population shares ranked identically, with the Northeast containing 24.3 percent of the jobs and 23.2 percent of the population and the South containing 30.7 percent of the jobs and 31.9 percent of the population.

⁹Note that the way in which the data are grouped in Table 4 makes employment growth over the various periods quite sensitive to conditions prevailing at the beginning and the end of each period. For example, if 1970-1974 rather than 1970-1975 had been used to define the latest period for the Northeast, nonagricultural employment there, instead of declining by 0.4 percent, would have grown by 3.0 percent. Nevertheless, data so grouped yield a reasonable indication of differences between regions.

TABLE 4 Nonagricultural Employment, Population Aged 5 Years and Over (in thousands) and Their Percentage Changes, by Region, 1950-1975

Year	Northeast		North Central		South		West ^a	
	Emp	Pop	Emp	Pop	Emp	Pop	Emp	Pop
1950	14,221 (6.0) ^b	39,478 (5.4)	13,976 (10.5)	44,461 (8.5)	11,144 (15.1)	47,197 (5.5)	5,607 (22.4)	20,190 (12.2)
1955	15,079 (3.5)	41,610 (7.4)	15,447 (2.5)	48,243 (7.0)	32,826 (11.1)	49,808 (10.4)	6,864 (17.9)	22,646 (23.9)
1960	15,610 (6.9)	44,678 (6.2)	15,837 (10.5)	51,619 (5.1)	14,243 (17.4)	54,973 (8.4)	8,091 (17.1)	28,053 (14.8)
1965	16,693 (11.8)	47,451 (3.3)	17,502 (14.0)	54,225 (4.3)	16,725 (21.8)	59,579 (5.4)	9,477 (20.3)	32,205 (8.1)
1970	18,654 (-0.4)	49,000 (0.9)	19,953 (5.8)	56,577 (1.9)	20,377 (15.1)	62,798 (8.4)	11,400 (16.2)	34,809 (8.9)
1975	18,572	49,456	21,106	57,636	23,449	68,041	13,252	37,899

^aBecause data on Alaska and Hawaii are unavailable, for some years, these two states have been excluded from the West, for the sake of comparability. In 1975 Alaska and Hawaii together accounted for 3.6 percent of the West's nonagricultural employment.

^bValues in parentheses indicate percentage changes between column year under which they are listed and subsequent column year, thus expressing changes over a 5-year period. For example, 6.0 percent refers to the percentage change in nonagricultural employment in the Northeast between 1950 and 1955.

SOURCES: Employment data are from U.S. Bureau of Labor Statistics (1977). Population data are from U.S. Bureau of the Census *Current Population Reports*, Series P-25, Nos. 147, 460, and 642.

Note that in the West and in the South the absolute difference between the rate of employment growth and the rate of population growth is appreciable; and especially in the South the relative difference is substantial. The data indicate that no obvious, generally applicable, quantitative relationship exists between incremental population and

TABLE 5 Regional Employment and Population Shares, 1950 and 1975

Region	1950		1975	
	Employment Share (%)	Population Share (%)	Employment Share (%)	Population Share (%)
Northeast	31.6	26.1	24.3	23.2
North				
Central	31.1	29.4	27.6	27.1
South	24.8	31.2	30.7	31.9
West	12.5	13.3	17.4	17.8
	100.0	100.0	100.0	100.0

SOURCE: Derived from Table 4.

incremental employment. Table 6 indicates the ratio of incremental employment to incremental population, or what might be interpreted as the extra employment associated with one extra person. The most remarkable characteristic of the data is the wide range of values for each region. For example, the Northeast region varies from a low of -0.180 extra jobs per extra person (1970-1975) to a high of 1.266 extra jobs per extra person (1965-1970).

These data strongly suggest that extra population, alone, does not account for additional employment. Among the other factors that contribute to regional employment growth or that yield differentially high relationships between

TABLE 6 Ratio of Incremental Employment to Incremental Population for 5-Year Periods by Region, 1950-1975

Period	North			
	Northeast	Central	South	West
1950-1955	0.402	0.389	0.644	0.512
1955-1960	0.173	0.116	0.274	0.227
1960-1965	0.391	0.639	0.539	0.334
1965-1970	1.266	1.042	1.135	0.738
1970-1975	-0.180	1.089	0.586	0.599
1950-1975	0.436	0.541	0.590	0.432

SOURCE: Derived from Table 4.

extra population and extra employment are the demographic and socioeconomic composition of the population, the composition of employment, the labor-intensity of production processes, incremental regional income, technological factors, and the state of the national economy. Regarding the last point, note that the values for three of four regions are highest for the 1965-1970 period, which was a period of relative prosperity, while the values for three of four regions are lowest for the 1955-1960 period, which was characterized by recession and slow growth of gross national product.

When labor demand is high, considerable employment can be drawn from a region's indigenous population through some combination of reduced unemployment and increased labor-force participation. Note that four entries in Table 6 are in excess of unity. The responsiveness of labor-force participation rates to demand has, perhaps, been somewhat neglected relative to the responsiveness of population migration. Nevertheless, one of the most remarkable features of the 25-year period following 1950 is the regional equalization of the ratio of employment to population. In 1950 this ratio was quite dissimilar across Census regions: Northeast (0.360), North Central (0.313), West (0.278), and South (0.236). In 1975 the regions ranked in identical fashion, but the differences were narrowed considerably: Northeast (0.376), North Central (0.366), West (0.350), and South (0.345).¹⁰

A problem with examining 5-year increments in employment and population is that the corresponding percentage changes are extremely sensitive to conditions existing in the initial and final year of the interval, and these conditions are in turn dependent on the state of the macroeconomy. One means of partially avoiding this problem is to consider annual changes in employment by region. If the period 1947-1975 is examined, the annual data can again be grouped into fairly distinct periods that correspond to those defined in Table 1. As would be expected given the behavior of national employment, each region experienced

¹⁰Because the South historically has had a higher birth rate than other regions of the country, the employment-population ratio might be expected to be lower there. Southern birth rates have, however, been converging toward the national average, which would also tend to raise the employment-population ratio toward the national average, other things being equal.

somewhat higher average annual rates of employment growth from about 1963 to 1975 than during the earlier post World War II years.

The contrast between the 1947-1963 interval relative to the 1963-1969 interval is readily apparent. Each region experienced a substantially higher average rate of growth from 1963 to 1969 than it experienced either before or since. However, compared to its previous experience, the Northeast fared particularly well during the late 1960s. Average nonagricultural employment growth in the Northeast was 3.5 times higher during the 1963-1969 period than during the 1947-1963 period. Nonagricultural employment growth in the North Central states was 3.0 times higher during the late 1960s, while in the South it was 1.9 times higher, and in the West it was 1.4 times higher.¹¹

The relative prosperity of the 1960s appears to have temporarily concealed the longer-term adjustments being experienced by the Northeast and North Central states. The recessions of 1969 and 1974 had particularly severe consequences in these regions, perhaps partially because they coincided with the reemergence of the regions' long-term relative decline. In the South and West, on the other hand, secular growth appears to have absorbed some of the impacts of recession, and these regions did not suffer the relative employment setbacks experienced in the Northeast and North Central states.

Shifts in Manufacturing Employment Much has been written about the relative decline of the manufacturing sector in the Northeast and the rise of this sector in the South and the West. This phenomenon has, however, not been limited to the post World War II period. Fuchs (1962a) offers a detailed description of changes in the location of manufacturing employment in the United States between 1929 and 1954. He summarizes his findings in the following way (1962a, p. 9):

The South and the West grew much more rapidly than the nation as a whole; the North Central region

¹¹Average annual rates of growth of nonagricultural employment were as follows: 1947 to 1963--Northeast, 0.77%; North Central, 1.22%; South, 2.43%; West, 3.15%; 1963 to 1975--Northeast, 1.34%; North Central, 2.24%; South, 3.64%; West, 3.56%; 1963-1969--Northeast, 2.70%; North Central, 3.61%; South, 4.53%; West, 4.43%; and 1969-1975--Northeast, -0.07%; North Central, 0.87%; South, 2.75%; West, 2.68%.

just held its share, and the Northeast showed a large comparative loss. In 1929 the South and the West together accounted for less than one out of every four manufacturing jobs and for only one-fifth of the value added by manufacture. By 1958 their share had increased to one-third, as measured by either variable. The direction of change since 1947 was substantially the same as in the longer period, but the comparative gains of the West were conspicuously greater than those of the South.

The trends distinguished by Fuchs actually began unfolding somewhat earlier in the century than 1929.

As shown in Table 7, since 1958 the broad trends described by Fuchs have continued. The South and the West have gained an increasing share of national manufacturing employment--from about 33 percent in 1958 to almost 42 percent in 1975. The North Central region has held its share, and the Northeast has experienced a large comparative loss. However, the pattern of manufacturing employment since 1958 differs in two ways from the period described by Fuchs. First, between 1929 and 1958, although the Northeast suffered a comparative loss of manufacturing employment, this region gained 1,287,900 manufacturing jobs, which amounted to more than a 23-percent increase. Northeastern manufacturing employment continued to grow until 1967, but between 1967 and 1975 manufacturing jobs in this region decreased by 1,130,900. During the same period the North Central region lost 527,500 manufacturing jobs. Second, the locus of growth shifted from the West to the South. Between 1958 and 1975 the West's share of national manufacturing employment increased from 11.4 percent to 13.5 percent, while the South's share increased from 21.6 percent to 28.3 percent.

Between 1969 and 1975, national manufacturing employment declined by 1,972,300 jobs. This decline occurred in two steps, which are associated with the recessions of 1969-1970 and 1974-1975. By 1974 national manufacturing employment was almost at its 1969 level, but between 1974 and 1975 alone, employment fell by 1,801,400 jobs. No region was immune from the manufacturing employment declines of the 1974-1975 recession. The relative declines in the North Central states (10.1 percent) and in the Northeast (9.5 percent) were greater than in the West (6.1 percent) and in the South (8.5 percent). What made the decline in northeastern manufacturing employment particularly

TABLE 7 Regional Manufacturing Employment (in thousands) and Regional Shares of Manufacturing Employment, 1947-1975

Year	Northeast		North Central		South		West ^a		Total	
	Emp	Share	Emp	Share	Emp	Share	Emp	Share	Emp	Share
1947	5,429.0	(38.0)	5,109.0	(35.7)	2,710.1	(19.0)	1,054.2	(7.4)	14,302.3	(100.0)
1954	5,536.5	(35.3)	5,399.2	(34.4)	3,173.5	(20.2)	1,570.4	(10.0)	15,679.7	(100.0)
1958	5,512.5	(34.4)	5,225.3	(32.6)	3,459.5	(21.6)	1,823.7	(11.4)	16,021.0	(100.0)
1963	5,500.1	(32.4)	5,497.8	(32.4)	3,876.5	(22.9)	2,081.8	(12.3)	16,956.2	(100.0)
1965	5,623.0	(31.1)	5,979.0	(33.1)	4,340.7	(24.0)	2,118.1	(11.7)	18,060.8	(100.0)
1967	5,921.8	(30.7)	6,356.7	(32.9)	4,676.6	(24.2)	2,365.4	(12.2)	19,320.5	(100.0)
1969	5,887.5	(29.1)	6,612.9	(32.7)	5,200.2	(25.7)	2,515.2	(12.4)	20,215.8	(100.0)
1970	5,602.6	(28.9)	6,258.3	(32.3)	5,139.2	(26.5)	2,368.7	(12.2)	19,368.8	(100.0)
1972	5,295.3	(27.8)	6,134.4	(32.2)	5,227.2	(27.5)	2,370.4	(12.5)	19,027.3	(100.0)
1974	5,295.1	(26.4)	6,484.9	(32.4)	5,646.5	(28.2)	2,618.4	(13.1)	20,044.9	(100.0)
1975	4,790.9	(26.3)	5,829.2	(32.0)	5,165.1	(28.3)	2,458.3	(13.5)	18,243.5	(100.0)

^aAlaska and Hawaii have been excluded from the West to maintain comparability for years when data are unavailable for these states.

SOURCES: *Census of Manufacturers* (U.S. Bureau of the Census 1947, 1954, 1958, 1963, 1967, 1972); and *Employment and Earnings* (U.S. Bureau of Labor Statistics 1965, 1969, 1970, 1974, 1975).

severe was that this sector never fully recovered from the recession of 1969-1970 and, moreover, had been declining rather steadily since approximately 1967.

These data suggest two conclusions. First, the increases in manufacturing employment during the 1960s that resulted in part from the Vietnam War served to mask the longer-term plight of this sector in the Northeast and North Central regions. Second, the general state of the economy has much to do with the performance of the manufacturing sector, as indicated by the 1975 decline even in the South and the West.

The long-term trends in the locus of manufacturing employment have been attributed to a number of factors: the growth of markets, the lack of unionization, relatively low wages, and the availability of sunshine in the South and the West. Burrows et al. (1971), Thompson and Mattila (1959), and Wheat (1973), for example, place particular emphasis on the growth of markets, whereas Fuchs (1962b) argues that the lack of unionization and relatively low wages, in combination with climatic factors, have attracted manufacturing employment to the South and the West. Others, such as Vaughan (1977), place more emphasis on technological change. They attribute the southward and westward shifts of the manufacturing sector to factors such as the decreasing raw material content of manufacturing output, the rising importance of truck transportation, and the general availability of air conditioning.

Moreover, it is argued that because the manufacturing capital stock in the Northeast and North Central regions is old, the manufacturing sector of these regions is at a competitive disadvantage that is particularly severe in light of the strong and growing foreign competition. Finally, the growth of manufacturing employment in the South and West is sometimes seen as a cumulative phenomenon, since manufacturing firms have a tendency to cluster in order to enjoy agglomeration economies.

Shifts in Agricultural Employment Because of the historical concentration of black workers in southern agriculture, brief recognition of regional trends in agricultural employment is pertinent. Table 8 reports agricultural employment by region in 1950, 1960, and 1970. While agricultural employment declined in each region during each decade, the relative declines were somewhat greater in the South than in the other regions. These declines in the South were in part the cause and in part the effect of the exodus of black workers from southern agriculture. As described

TABLE 8 Regional Levels of and Percentage Changes in Agricultural Employment, 1950-1970

Region	Employment Level			Percentage Change	
	1950	1960	1970	1950-1960	1960-1970
Northeast	549,748	384,157	277,674	-30.1	-27.7
North					
Central	2,433,415	1,625,366	1,064,595	-33.2	-34.5
South	3,386,186	1,853,663	1,037,095	-45.3	-44.1
West	825,161	661,688	537,066	-19.8	-18.8

SOURCE: U.S. Bureau of Economic Analysis (1975).

by Kain and Persky (1971), the migration of blacks from southern rural areas to large northern urban areas has brought large concentrations of people with relatively little education to these urban areas. Moreover, white migrants from southern rural areas to the smaller metropolitan areas of the North also had comparatively little education. The consequence has been that the urban North must now confront the problems that derive from inadequate education.

Changes in Central-City and Suburban Population and Employment Central-city decay in the major metropolitan areas of the country is a well-known phenomenon. One frequent explanation for the plight of central cities is that both workers and jobs have been involved in a self-reinforcing movement to the suburbs. Moreover, by eroding the central-city tax base and thus shifting the burden of local taxes to employers and to relatively high-income residents remaining behind, this movement is thought to have encouraged further flight from the central city.

Several studies dealing with the cumulative flight phenomenon have focused more or less specifically on the causal relationships between the movement of jobs and the movement of workers. Do jobs follow workers to the suburbs, or do workers follow jobs? Partially because manufacturing has traditionally been the single most important source of urban employment and partially because more and better data are available on manufacturing, the manufacturing sector has received particular attention. Kain (1968b, p. 17),

for example, argues that "manufacturing determines the locational decisions of urban households, not vice versa." Mills (1970, p. 12), on the other hand, tentatively concludes that "the movement of people to the suburbs has attracted manufacturing employment rather than vice versa." In a more recent study, Steinnes (1977, p. 78) concludes that "people do not follow manufacturing and services, but retail trade." He argues further that while manufacturing jobs follow people, people may actually be moving away from manufacturing jobs.

The direction of the causal relationship between the intrametropolitan movements of workers and jobs cannot be resolved in this paper. However, recent changes in the location of workers and jobs can be described and placed in historical perspective. The best data sources for identifying central-city and suburban employment growth (as distinguished from the residence of employed persons) are the *Census of Manufactures* and the *Census of Business* (U.S. Bureau of the Census, various years). These sources allow the description of four types of employment change: manufacturing, retail, wholesale, and selected services.

Table 9 indicates central-city and suburban employment for the major metropolitan areas of each Census region. Central-city manufacturing employment has declined in the Northeast in each year for which data are available. The decline between 1963 and 1967 was, however, by far the smallest recorded. Similar declines in the central cities of the North Central region are also evident, except that an increase occurred between 1963 and 1967. Probably due mainly to the Vietnam War, 1967 was an unusually good year for the manufacturing sector, and again served to mask the longer-term plight of the sector in the central cities of the older industrial areas. By 1975, the long-term trend had reestablished itself, and the added effects of a serious recession could also be seen. Even the central cities of the major metropolitan areas of the South suffered manufacturing employment declines between 1967 and 1972. Moreover, suburban manufacturing employment declined in the Northeast and in the West.

The argument has been made that during recessions the least productive capital is removed first from the production process. The least productive capital is typically the oldest capital, which consequently embodies the least recent technology. Since the oldest plants and equipment are found in central cities, especially in the central cities of older industrial areas of the Northeast and North Central regions, central cities tend to be most seriously

TABLE 9 Central-City and Suburban Civilian Labor Force and Employment for Various Years (in thousands)

Year	Northeast						North Central					
	Civilian Labor Force		Manufacturing ^d Employment		Other Measured ^d Employment		Civilian Labor Force		Manufacturing ^d Employment		Other Measured ^d Employment	
	CC ^b	SR ^c	CC	SR	CC	SR	CC	SR	CC	SR	CC	SR
1947			2,162.9	1,343.8					2,326.9	975.6		
1948					1,900.7	567.3					1,647.5	372.0
1950	6,547.6		2,129.4 ^d		1,856.8 ^d			5,502.2		2,272.7 ^d		1,629.3 ^d
1954			2,084.7	1,539.2	1,769.1	697.5			2,200.5	1,115.9	1,592.8	495.6
1958			1,964.4	1,594.7	1,896.9	870.0			2,009.2	1,255.1	1,652.5	610.9
1960	6,287.9	5,728.1	1,941.4 ^d	1,623.9 ^d	1,873.8 ^d	959.1	5,412.0	4,487.5	1,974.3 ^d	1,325.8 ^d	1,604.1	698.5 ^d
1963			1,907.0	1,667.6	1,839.1	1,092.7			1,922.0	1,431.8	1,531.4	830.0
1967			1,906.2	1,871.6	1,902.8	1,299.0			1,937.0	1,503.2	1,639.6	1,061.5
1970	5,903.4	7,227.9	1,699.0 ^d	1,817.4 ^d	1,863.7 ^d	1,532.9 ^d	4,996.3	6,611.3	1,799.7 ^d	1,721.8 ^d	1,619.0 ^d	1,357.0 ^d
1972			1,560.8	1,781.2	1,837.7	1,688.9			1,708.1	1,867.6	1,605.3	1,554.0
	South						West					
1947			588.5	210.7					438.5	318.0		
1948					976.4 ^d	166.3					756.4 ^d	271.3
1950	3,277.1		640.5 ^d		996.0 ^d		2,261.6		513.5 ^d		775.0 ^d	
1954			709.9	294.4	1,035.2	216.5			613.4	549.7	812.3	367.6
1958			775.0	359.3	1,209.4	319.3			722.8	648.7	932.5	510.0
1960	4,047.2	2,581.6	785.3 ^d	381.0 ^d	1,219.3 ^d	369.7 ^d	3,058.7	3,103.1	733.8 ^d	725.5 ^d	967.7 ^d	596.8 ^d
1963			800.7	413.5	1,234.1	445.2			750.3	845.7	1,020.5	727.1
1967			889.7	561.6	1,402.4	667.0			761.7	1,077.3	1,135.8	861.2
1970	4,363.1	4,617.6	879.9 ^d	650.8 ^d	1,545.0 ^d	927.6 ^d	3,446.1	4,779.1	770.1 ^d	1,024.5 ^d	1,230.2 ^d	1,072.6 ^d
1972			873.3	710.2	1,640.0	1,101.3			775.7	990.0	1,293.2	1,213.5

^aAll data are based on 1970 SMSA definitions. No adjustments have been made for central-city annexations of outlying areas.

^bCC refers to central cities.

^cSR refers to suburban rings.

^dValue has been interpolated.

NOTE: In 1970, 64 of 242 SMSAs in the continental U.S. had a population in excess of 500,000. With the exclusion of Jacksonville, which in 1970 is defined in such a way as to have no suburban ring, these SMSAs constitute the data base. All data have been adjusted to correspond with 1970 SMSA definitions. However, no attempt has been made to adjust central-city and suburban data for central-city annexations of outlying territory. If the data were adjusted for these annexations, based on 1970 central-city definitions, central-city data entries back through time would generally have higher values while suburban entries would have lower values.

SOURCES: Civilian labor-force data are from U.S. Bureau of the Census, *U.S. Census of Population* (1950, 1960, 1970); manufacturing data are from U.S. Bureau of the Census, *U.S. Census of Manufactures* (various years). Other measured employment data consists of retail, selected services, and wholesale, and are from U.S. Bureau of the Census, *U.S. Census of Business* (various years).

affected by national recessions. If this argument is valid, the central cities of the Northeast and North Central regions are particularly susceptible to recessions such as that of 1974-1975.

Other measurable sources of central-city employment have performed somewhat better than manufacturing. In both the Northeast and North Central regions, modest declines have occurred in retail, wholesale, and selected service employment between 1948 and 1972 (3.3 percent and 2.6 percent, respectively), but these declines have not been steady. Over both the 1950-1960 and 1960-1970 decades, central-city manufacturing employment declined somewhat more rapidly than the central-city civilian labor force (CLF), but CLF declined more rapidly than other sources of employment. These changes suggest that as far as employment is concerned, the decline of the manufacturing sector is a critical component of central-city problems. It contributes not only to a decline in jobs but also to a decline in the central-city tax base.

During the decade of the 1960s, the suburban CLF of major metropolitan areas grew at dramatic rates. As calculated from Table 9, it grew by 26.2 percent in the Northeast and by 78.9 percent in the South. Although suburban manufacturing employment did not grow as rapidly as either suburban CLF or other measurable sources of suburban employment, manufacturing employment grew quite rapidly in the suburbs, and certainly grew far more rapidly than in the central cities. In the South, suburban manufacturing grew by 70.8 percent, while in the West it grew by 41.2 percent. Suburban retail, wholesale, and selected service employment grew at roughly twice the rate of suburban CLF in the Northeast, the North Central, and the South regions.

A number of scholars have specifically addressed the question of the match (or mismatch) of central-city job requirements to the skills possessed by central-city residents (Harrison 1974, Kain 1968a, Mooney 1969). For many reasons, including overt discrimination against blacks in the housing market and the location of affordable housing, blacks are largely restricted to urban cores. Although certain types of central-city employment have grown, it is argued that black central-city residents are not equipped to fill these jobs. Black central-city residents are better suited for the jobs that are growing in the suburbs, but because intraurban transportation networks between central cities and the suburbs are inadequate and because discrimination in hiring takes place, blacks are unable to gain suburban employment in significant numbers.

Conclusions

A number of conclusions can be drawn from the foregoing discussion. Regional population changes and employment changes are positively correlated, although perhaps not as highly as might be expected. Changes in labor-force participation rates appear to be an important source of increased employment. Regional employment shifts since 1970 are consistent with post World War II trends. However, the long-term decline of the manufacturing sector in the Northeast was temporarily reversed in the late 1960s, probably due in large part to the Vietnam War. When the long-term trend was reestablished in the early 1970s, the Northeast faced particularly severe adjustments that resulted in a sizeable absolute decline in manufacturing employment. Although the rate of southern population growth approached that of the West during the 1970-1975 period, the rate of southern employment growth has been approximately equal to that of the West since 1960. Finally, regional employment growth is sensitive to the condition of the national economy, and national conditions were so depressed in 1975 that their regional impacts cannot be ignored.

Moreover, the trend of central-city employment during the 1970-1975 period was consistent with that of earlier periods, as was the trend of suburban employment. However, since approximately 1967 central-city manufacturing employment in the Northeast and North Central regions has declined somewhat more precipitously than in earlier periods. Again, this decline appears to have been amplified by the discrepancy between national economic conditions prevailing during the late 1960s and the early 1970s. These conditions have particularly severe consequences in the central cities of older industrial metropolitan areas. Furthermore, to the extent that blacks are "last hired, first fired," the concentration of blacks in central cities makes these areas all the more susceptible to high unemployment during recessionary periods.

While the severity of the employment effects is transitory in the sense that the effects will be somewhat alleviated with a return to fuller employment, no apparent reason exists to suppose that the effects will not return with future recessionary conditions. Hopefully, the severity of the 1974-1975 recession will not be repeated.

During the post World War II period, a number of important national forces contributed to the changing spatial distribution of population and economic activity. The

years from approximately 1965 to 1975 stand distinctly apart from the earlier postwar years as a period during which conditions encouraged a disproportionate amount of spatial redistribution. The aging of the war-baby cohort brought an extremely large number of young persons into the labor force, and young persons tend to be quite mobile geographically. Furthermore, economic conditions offered the inducement for movement. Moreover, as a result of the increased labor-force participation rates of young married white women, young couples had two salaries, which permitted them to locate in areas that might otherwise have been beyond their means at that stage of their life.

THE RELATIONSHIP BETWEEN POPULATION SHIFTS AND EMPLOYMENT CHANGE

The Conceptual Underpinnings

Of the sources of spatial population change, migration is likely to have the most immediate implications for employment. Therefore, the primary focus of this section is on the relationship between migration and employment growth. At the extremes, two theoretical approaches have been developed to characterize the relationship between migration and employment change. One approach hypothesizes a one-way causation running from employment change to migration (Blanco 1963), while the other hypothesizes a one-way causation running from migration to employment change (Borts and Stein 1964). Empirical support has been found for each position. More recently, however, migration and employment change have been treated as jointly dependent, and each variable has been found to influence the other (Greenwood 1975a, 1975b; Muth 1971).

The basic idea behind the simultaneous-equations models is that the migration of labor-force members is responsive to job opportunities. Areas with the highest rate of employment growth, and hence presumably the highest rate of growth in job opportunities, are those that will experience the highest rates of in-migration and the lowest rates of out-migration. Furthermore, the migrants themselves influence both the supply of and demand for local labor. Employment should grow most rapidly in those areas that are attractive to migrants and least rapidly in those areas that are suffering losses in population and labor force due to migration.

It is important to recognize that the effects of migration

on labor supply are dependent not only on the numbers of persons migrating, but also on the characteristics of the migrants. This subject has received inadequate attention in migration literature. Clearly, in-migration and out-migration of labor-force members have immediate impacts on local labor supply. As long as local labor demand is not perfectly inelastic, employment will tend to grow in areas of in-migration and decline in areas of out-migration. Moreover, labor-force participation rates differ between age, racial, education, and earnings classes. Bowen and Finegan (1969) demonstrate a strong tendency for participation rates of prime-age (25-54) males to rise with education. Table 2 shows that such rates are higher for white males than for black males. Because prime-age population groups, whites, and the better-educated tend to have higher labor-force participation rates, migration streams composed of relatively large numbers of persons in these categories tend to have greater impacts on labor supply in sending and receiving areas. Other things being equal, employment should grow most rapidly in localities experiencing relatively high rates of (net) in-migration, as well as relatively high rates of in-migration of prime-age, white, and well-educated persons.

The labor-demand effects of migration are similarly dependent on both the numbers and the characteristics of the migrants. Two types of labor demand that are affected by migration should be distinguished: the demand for labor in the production of private goods and the demand for labor in the production of public goods. The demand for locally produced and consumed commodities will tend to rise with the population increase resulting from in-migration. Furthermore, other things being equal, the higher the income or wealth of the migrants and the better their education, the greater will be the increase in the derived demand for local labor.

Another factor that may be important is the entrepreneurial ability of the migrants. Allaman and Birch (1975) argue that the interstate migration rate of firms is relatively low. What distinguishes states and regions with rapidly growing employment from other states and regions is the rate at which new firms are established. They conclude by emphasizing the role of entrepreneurial activity in encouraging employment expansion and by suggesting that the locational choices of persons with entrepreneurial ability are critical for differential employment growth, such as has recently occurred in the South.

Net in-migration of retired persons is concentrated in

TABLE 10 Gross In-Migration and Out-Migration and Net Migration of the Population by Region, 1940-1975 (in thousands)

Year	Northeast			North Central			South			West		
	In	Out	Net	In	Out	Net	In	Out	Net	In	Out	Net
1940-1947	819	1,084	-265	1,817	2,099	-282	1,280	2,803	-1,523	2,767	697	2,070
1949-1950	256	391	-135	515	569	-54	688	574	114	470	395	75
1953-1954	364	408	-44	827	654	173	682	1,083	-401	671	399	272
1954-1955	360	439	-79	724	683	41	814	993	-179	752	535	217
1955-1956	398	418	-20	778	651	127	811	1,091	-280	687	514	173
1956-1957	388	445	-57	575	968	-393	961	821	140	734	424	310
1957-1958	551	465	86	672	944	-272	984	1,003	-19	738	533	205
1958-1959	419	522	-103	748	719	29	759	985	-226	739	439	300
1959-1960	466	463	3	662	797	-135	867	1,078	-211	877	534	343
1960-1961	433	524	-91	677	994	-317	1,088	1,027	-19	979	552	427
1961-1962	479	493	-14	723	874	-151	806	1,089	-283	969	521	448
1962-1963	451	594	-143	962	1,170	-208	1,002	1,216	-214	1,163	598	565
1963-1964	517	611	-94	671	985	-314	1,036	1,143	-107	1,101	586	515
1964-1965	582	623	-41	687	854	-167	1,115	1,082	33	998	823	175
1965-1966	569	509	60	838	860	-22	1,036	1,214	-178	905	765	140
1966-1967	514	652	-138	943	919	24	1,056	1,307	-251	1,022	657	365
1967-1968	545	717	-172	1,038	1,055	-17	1,283	1,311	-28	944	777	217
1968-1969	557	594	-37	887	899	-12	1,079	1,313	-234	961	678	283
1969-1970	521	827	-306	868	1,007	-139	1,279	1,247	50	1,085	690	395
1970-1971	609	804	-195	870	1,183	-311	1,425	1,171	254	1,032	780	252
1970-1975	1,057	2,399	-1,342	1,731	2,926	-1,195	4,082	2,253	1,829	2,347	1,639	708

SOURCES: U.S. Bureau of the Census, *Current Population Reports*, Series P-20, Mobility of the Population of the United States, 1948-1976.

a few states, such as Florida and Arizona. Although the destinations of retired persons are largely chosen for reasons other than job opportunities, retirement migration has important implications for employment growth and subsequently induced labor-force migration. The in-migration of retired persons increases local labor demand without coincidentally increasing labor supply. The increased demand for local labor may be satisfied in part by increased local labor-force participation, but immediate local demands, such as in the construction industry, are unlikely to be completely satisfied by local sources. In-migration of labor-force members is, therefore, likely to occur, further fueling the growth of the area.

Thus, other things being equal, greater excess labor demand is created by the retired migrant than by the labor-force migrant. This factor may help explain the observation that areas of retirement in-migration also experience appreciable nonretirement migration. Much of the nonretirement migration may be caused by the same amenities that cause retirement migration, but a great deal of nonretirement migration also appears to be responsive to growing job opportunities.

Migrant numbers and characteristics influence the demand for public services and the revenues that support their provision. The extra local revenues provided by many low-income migrants are likely to fall short of the extra costs of the public services they consume. The opposite is true for many high-income migrants. Fiscal plight is likely when a locality simultaneously experiences net in-migration of low-income persons and out-migration of high-income persons. This situation is typical of many of the central cities of the nation's major metropolitan areas.

Interregional Migrants: Their Numbers and Characteristics

As indicated in Table 10, during the years between 1940 and 1969, the Northeast, the North Central, and the South regions generally experienced net out-migration, while the West experienced net in-migration. Note that in most years net migration is a small fraction of gross migration, and thus that relatively small changes in gross in-migration or out-migration, or in both, can cause relatively large year-to-year changes in regional net migration. Especially for the regions experiencing net out-migration, substantial year-to-year fluctuations are evident in the volume of net migration. However, as noted in Table 4, regional population

has continued to rise in spite of the net out-migration from the Northeast, North Central, and South regions. These population increases are, of course, due to natural increase and to net immigration (from abroad).

The observation has frequently been made that migration rates rise with education (Lansing and Morgan 1967). From the point of view of regions of net out-migration, this observation has relevance because it may mean that these regions suffer disproportionately heavy losses of their best educated manpower. Similarly, regions of net in-migration may experience disproportionately heavy gains of such persons. Present value estimates of the returns to better educated people who migrate are higher than estimates of the returns to less educated people who migrate; this fact has important implications for regional development (Wertheimer 1970). Important spillover benefits accrue to areas in which the better educated reside. Among other factors, the educated may contribute to technological change and may breed entrepreneurship, both of which would tend to foster more rapid employment growth.

For each of the nine Census divisions, Table 11 shows 1965-1970 interdivisional net migration rates of nonnative college graduates. With the exception of New England, each division that experienced net out-migration had a substantially higher rate of out-migration of college graduates than the overall rate of out-migration. Furthermore, again with the exception of New England, each division that experienced net out-migration had a considerably higher rate for out-migration of college graduates between the ages of 25 and 34 than for college graduates as a whole. Similarly, the three divisions (South Atlantic, Mountain, and Pacific) that experienced net in-migration enjoyed especially high in-migration rates of college graduates. This pattern suggests a "brain drain" from the Middle Atlantic, East and West North Central, and East South Central divisions to the South Atlantic, Mountain, and Pacific divisions.¹²

The South Atlantic division is particularly noteworthy in this respect. The rate of 1965-1970 net in-migration

¹²The brain-drain argument is typically focused on the drain of talent from less developed or less prosperous areas to developed or more prosperous areas. In this context, the net migration of the better educated from more prosperous to less prosperous regions does not fit the conditions established for the brain-drain argument.

TABLE 11 Interdivisional Net Migration Rates of College Graduates, 1965-1970^a (as percentage of division population)

Census Division	All Persons 25-64	College Graduates 25-64	College Graduates 25-34
New England	-0.34	1.00	0.61
Middle Atlantic	-1.96	-3.91	-5.14
East North Central	-0.89	-3.57	-5.37
West North Central	-2.27	-5.34	-9.41
South Atlantic	2.47	6.10	8.72
East South Central	-2.34	-3.72	-9.90
West South Central	-0.54	-1.18	-2.07
Mountain	2.95	3.24	4.20
Pacific	3.39	5.87	11.12

^aRefers to persons who were residing in one Census division in 1965 and in another in 1970 and who were not returning to the division of their birth. Rates are expressed relative to the relevant 1970 Census division population. "College graduates" refers to persons with 4 or more years of college in 1970.

SOURCE: U.S. Bureau of the Census (1973a).

was 2.47 percent, while the rate for college graduates was 6.10 percent and the rate for young college graduates was 8.72 percent. Net in-migration of college graduates to the South Atlantic Census division is not a recent phenomenon. Between 1965 and 1970, this division experienced a net migration gain of 93,680 nonnative college graduates; between 1955 and 1960, when the South in general had reasonably heavy out-migration (see Table 10), it experienced a net gain of 43,203 such persons. Note that the Pacific division also had a substantial net gain of nonnative college graduates and especially of young college graduates.

Despite relatively heavy net out-migration during the years between 1940 and 1969, the South enjoyed sizeable increases in employment. Over the past 15 years, these increases have not only kept pace with those of the West but have frequently exceeded them, despite the fact that the West experienced considerable in-migration during the period. In the past, labor-force participation rates were low in the South and hence a portion of the southern employment increase can be attributed to the rising labor-force

participation of indigenous residents. Moreover, gross in-migration to the South was substantial during the entire period--so substantial, in fact, that in most years the volume of southern in-migration exceeded that of the other regions. Given the favorable balance of migration of the best educated, these observations suggest (although do not prove) that migration may have contributed to changing the South's population composition in a fashion conducive to employment growth.

Kain and Persky (1971) go a step further in arguing that South-to-North migration has, historically, contributed to the problems of the metropolitan North. Rural areas of the South have underinvested in human capital, and when persons raised in the rural South migrate to the urban North, they are ill-equipped to compete effectively for the available jobs.

Intraurban Movers and Their Characteristics

For individual standard metropolitan statistical areas (SMSAs) that had a 1970 population in excess of 500,000, the 1970 Census reports fairly detailed characteristics of those who moved to central cities between 1965 and 1970, and those who moved between central cities and suburban rings during the same time period. These data contribute to an understanding of why the central cities of the major metropolitan areas of the Northeast and, to a lesser extent, those of the North Central states have experienced critical fiscal and economic problems.

Table 12 indicates that relative to their suburbs, the central cities of the major metropolitan areas of the Northeast have difficulty in attracting CLF in-migrants: for every CLF member who migrates to the central city, there are 1.9 who migrate to the suburbs. In other regions, the suburbs also attract absolutely more migrant CLF members than the central cities, but the ratios are somewhat smaller. In the South, for example, for every CLF member who migrates to the central city, only 1.3 migrate to the suburbs.

Relative to the CLF of the central cities and of the suburbs, the movement of CLF members from central cities to suburbs is quite low in the Northeast and North Central states compared with the South and the West. However, in the Northeast and North Central regions, CLF migration to the central cities fails to replace the CLF members who move to the suburbs, while in the South and the West, CLF

TABLE 12 Suburban In-Migration Relative to Central-City In-Migration and Intraurban Relocation of Civilian Labor-Force Members for Major Metropolitan Areas, 1965-1970^a

	Northeast	North Central	South	West
$\frac{IMR^b}{IMCC^c}$	1.9	1.6	1.3	1.5
$\frac{CC \rightarrow R^d}{R \rightarrow CC^e}$	3.0	2.5	2.6	1.7
$\frac{CC \rightarrow R}{CLFCC^f}$	7.2%	12.0%	10.4%	11.7%
$\frac{CC \rightarrow R}{CLFR^g}$	5.8%	9.1%	9.8%	8.4%
$\frac{IMCC}{CLFCC}$	5.6%	9.1%	14.5%	16.2%
$\frac{IMR}{CLFR}$	8.7%	10.8%	18.2%	18.0%

^aAll mobility data refer to place of residence in 1965 and place of residence in 1970 of persons defined as civilian labor-force members in 1970.

^bSuburban-ring in-migration.

^cCentral-city in-migration.

^dMigration from central city to suburban ring.

^eMigration from suburban ring to central city.

^f1970 Civilian labor force of central city.

^g1970 Civilian labor force of suburban ring.

SOURCE: Calculated from data presented in U.S. Bureau of the Census (1973b).

migration to the central cities is considerably greater than central-city losses of CLF members to the suburbs. The major impetus for CLF growth in the suburbs of the South and West is the migration from other regions rather than the movement from central cities, although such movement is of some consequence. In the Northeast and North Central regions, migration from other regions and from central cities contributes more equally to suburban CLF growth.

As indicated in Table 13, the central cities of the

TABLE 13 Suburban In-Migration Relative to Central-City In-Migration and Intraurban Relocation for Major Metropolitan Areas, by Income Class, 1965-1970^a

Region (SMSAs)	$\frac{IMR^b}{IMCC^c}$	$\frac{CC \rightarrow R^d}{R \rightarrow CC^e}$
Northeast (15)		
Income \$25,000+	5.6	5.8
Less than \$25,000	2.9	4.2
North Central (17)		
Income \$25,000+	4.4	2.1
Less than \$25,000	5.2	2.9
South (19)		
Income \$25,000+	1.9	1.7
Less than \$25,000	3.2	3.1
West (12)		
Income \$25,000+	2.4	1.9
Less than \$25,000	2.0	2.1

^aAll mobility data refer to persons in families with 1969 family income as indicated.

^bSuburban-ring in-migration.

^cCentral-city in-migration.

^dMigration from central cities to suburban rings.

^eMigration from suburban rings to central cities.

SOURCE: See Table 12.

Northeast, relative to their suburbs, have had an especially difficult time attracting and retaining high-income residents. Between 1965 and 1970 northeastern central cities attracted one high-income (\$25,000+) migrant for every 5.6 that the suburbs attracted. For every one high-income mover from the suburbs to the central city, 5.8 moved in the opposite direction. By contrast, the central cities of the South attracted one high-income migrant for every 1.9 who located in the suburbs, and for every high-income mover from suburbs to central city, 1.7 such persons moved from central city to suburbs.

When the data of Tables 12 and 13 are compared, it is apparent that in the South and the West the metropolitan location patterns of both in-migrants and intraurban movers are fairly similar for CLF members as a whole and for high-income persons. High-income persons do have a greater tendency than CLF members as a whole to locate in the suburbs,

but this tendency is nowhere near as pronounced as in the Northeast.

Conclusions

Population growth and employment growth are mutually dependent. Each variable reinforces the other, with migration and labor-force participation rates forming the major linkages between the two. Local employment growth is dependent not only upon the number of persons migrating, but also upon the characteristics of the migrants. Among migrants that have particularly great impacts on local employment are the young, the well-educated, the high-income, whites, and retirees. Such persons influence, to varying degrees, local labor demand, local labor supply, or both.

A pattern of self-perpetuating decline has frequently characterized the nation's depressed regions. The better educated, more highly skilled, younger, and higher income residents, all of whom tend to be the most mobile groups in society, have migrated out of depressed areas, thus depriving the local economies of human resources that are essential for sustained development. As conditions further deteriorate, other residents are induced to follow. This pattern has been true in movement from the farm, in earlier migration out of the South, and in the exodus from the central cities of the nation's major metropolitan areas. An opposite set of forces appears to be operating in the nation's expanding areas.

THE EMPLOYMENT POLICY IMPLICATIONS OF POPULATION REDISTRIBUTION

The long-term trends in the regional distribution of population and employment are the result of powerful economic and social forces. Technological change, combined with rising incomes and different life-style expectations, have facilitated and encouraged the westward and southward movements of population and employment. Although these broad movements of population and employment have been somewhat influenced by federal action, they have largely been determined by the major economic and social forces discussed in this paper.

The Rationale for Public Intervention

Various regions of the country cannot reasonably be expected to experience the same rates of employment and population

growth. In a market economy, spatial differentials in real-wage rates and in employment opportunities provide signals to workers that encourage spatial mobility. This mobility not only increases the well-being of the migrants themselves, but also results in improved resource allocation. As Kuznets (1964) emphasizes, migration is not only a consequence of economic growth, but also an indispensable cause of such growth.

Productive resources are, however, not perfectly adaptable to new uses that arise in the natural course of economic growth and change, and, therefore, adjustments in the allocation of resources require time. In certain instances, without public intervention the labor adjustment process would require indefinitely long periods during which socially unacceptable hardships would be borne by the less adaptable (i.e., less mobile) persons in society. Some form of public intervention is appropriate.

What is frequently not recognized is that any migration results in redistributions of income in both the place of origin and the place of destination as well as between the two places. In other words, in both sending and receiving areas, migration benefits certain individuals and groups and has negative effects on others. Broadly speaking, four groups can be distinguished (although in practice the individual members of each group may not easily be identified): the migrants themselves, the employers of the migrants, the consumers affected by the migrants, and the workers affected by the migrants. Let us briefly consider how income redistribution caused by migration might affect each of these groups.¹³

The migrants, as a group, clearly benefit from the migration. After presumably deciding that the expected benefits of their migration outweigh the expected costs, they relocate. A number of factors might underlie the migration decision, such as job and earnings opportunities and location amenities. Several studies have specifically focused on the monetary returns to migration. Generally, the findings have been that the monetary returns are positive for all, but are greatest for the young, the better educated, and whites (Wertheimer 1970). If we are going to have policy concerns about migrants, we should base our concern not on the fact that these people have migrated, but rather on the

¹³For a more detailed discussion of the income redistributions associated with migration, see Gerking and Greenwood (1977) and Romans (1974).

fact that certain of them are poor, old, unemployed, poorly housed, or whatever, despite their migration.

Much interregional and intraurban mobility is a consequence of spatial employment disparities, and such mobility generally tends to alleviate these disparities. However, the migrant, in making the decision to move, takes into account only the private costs and benefits of the move. To the extent that the social costs associated with migration are not internalized by the individual, private migration decisions can result in nonoptimal consequences for society and these may justify public intervention. An obvious example of these social costs is the increased congestion and pollution that result from migration from less densely populated areas to crowded cities.

Thurow (1970, p. 33) describes the problems that derive from migration-induced income transfers between consumers of public goods:

Private incomes may increase enough to more than make up for the costs of moving, but the social costs of accommodating people in a crowded urban area may exceed the net private gain. More public services must be provided, and congestion may increase. Excess capacity, and hence waste, may develop in the production of social services (schools, etc.) in areas from which people are moving, and new investment in social services may be needed in areas to which they are moving.

Whether consumers of public goods benefit from the presence or absence of migrants is a complex question. The answer is dependent upon many factors: the number of migrants, the migrants' demand for public goods, the magnitude of the migrants' tax bill, the costs of producing public goods, etc.

Public goods are typically priced at average costs. When a public good like education or police protection is provided in a large or moderately large city under conditions of rising average cost, a migrant who consumes an average quantity of the public good and pays an average tax bill will impose a burden on the indigenous residents because their tax bills will rise. If the migrants tend to be lower-income individuals and/or to consume disproportionately much of the good, the burden on the indigenous residents will be particularly great. Even if the nominal price of the public good remains unchanged after the influx of the migrants, the real price could still rise because of quality deterioration resulting from congestion.

Based on the increasing number of communities that are adopting "local growth management" policies, we might conclude that more and more localities are interested in protecting their indigenous residents from the social costs of in-migration. Local growth management policies include public acquisition of land, public improvements, environmental controls, zoning techniques, subdivision techniques, tax and fee systems, and restrictive covenants. Although these policies can be extremely effective in controlling local growth, they are likely to affect neighboring communities and to impact relatively heavily on particular groups. The next decade is likely to see a number of legal battles fought over local growth management policies, which are now being implemented in communities across the country.¹⁴

The effects of migration need not be symmetrical in sending and receiving localities. For example, if the migrants were to come from rural communities where certain public goods are produced under conditions of decreasing cost, the individuals left behind in these localities could also experience an increase in their tax bills. Or if the migrants had relatively high incomes, such as those who leave central cities to move to the suburbs, the burden of local taxes could fall more heavily on those left behind--perhaps on individuals who are least able to bear such increased burdens.

With the reversal of the historical trend of net migration out of nonmetropolitan and into metropolitan areas, the social costs of increased congestion, pollution, and provision of public services in large cities should cause relatively less concern. More concern will now be directed at the social costs of increased population densities in nonmetropolitan areas. To the extent that in-migration to nonmetropolitan areas is motivated by the availability of natural resources, such as clean air and water, scenery, recreational amenities, etc., the environmental costs of migration will receive added attention in years to come.

Selected Employment Policy Options

The policy discussion has thus far focused more directly on population than on employment, because, in the interregional

¹⁴For a detailed discussion of the economic and legal issues associated with local growth management, see Evans and Vestal (1977).

and the intraurban contexts, the distinction between population policy and employment policy becomes blurred. The blurring is due to the interdependency between population growth and employment growth. In many instances the best way to influence employment growth is to influence population growth. A number of previously cited papers suggest that the primary cause of spatial employment redistribution had been spatial redistribution of market demand resulting from population redistribution. Reasons for this may be that higher income, better educated, and younger persons tend to have greater migration rates and that the local employment effects of migration tend to be especially sensitive to persons with these characteristics.

Employment redistribution also causes population redistribution. The earlier sections of this paper have emphasized that the state of the national economy largely determines interregional and intraurban employment-growth differentials. Particularly during periods of high national unemployment and slow growth of gross national product, employment growth in the Northeast and North Central regions and in the central cities of the major metropolitan areas appears to be adversely affected relative to employment growth in other regions or in the suburbs. Thus, the use of fiscal and monetary policies to maintain full employment must stand as the cornerstone of any regional or urban employment policy.

Even during periods of full employment, however, the incidence of unemployment falls unevenly on various localities, and within localities on various population groups, and growth in employment and earnings proceeds at differential rates that encourage migration. Employment policy concern need not be directly focused on the migrants. Rather, the most immediate concern should be with the less mobile elements in society, who have difficulty engaging in the mainstream of economic activity.

A number of factors are responsible for lack of mobility, including personal and labor market characteristics. The goal of public policies intended to influence geographic mobility must be to alter the costs and/or benefits of migration as perceived by the less mobile segments of society. A similar goal would be applicable to situations in which the net social costs of migration exceed the net private gain. The means by which private perceptions of the benefits and costs of migration might be altered can be broadly grouped into two categories: direct and indirect.

The following is a partial list of the alternatives included under each category:¹⁵

- I. Policies operating *directly* on individual incentives:
 1. subsidized moving costs,
 2. subsidized housing,
 3. public employment,
 4. tax incentives,
 5. manpower training programs,
 6. employment information,
 7. changes in minimum wages, and
 8. changes in welfare requirements.

- II. Policies operating *indirectly* on individual incentives:
 1. encouragement of private-sector employment growth through
 - a. investments in public infrastructure,
 - b. tax or subsidy incentives to firms,
 - c. government procurement policies, and
 - d. credit institutions;
 2. encouragement of planning for growth or decline;
 3. reducing local disamenities, including pollution, congestion, and crime; and
 4. influencing aggregate labor supply by means of immigration policy.

Some degree of arbitrariness is inherent in this classification scheme. For example, alternative II.3 could be regarded as direct, and alternative I.7 could be regarded as indirect. The distinction is that certain policies operate immediately on the individuals involved, whereas others operate in such a way as to affect the environment in which they live and work or the markets in which they supply their labor services. Clearly, many of the policies that directly influence individuals or families also influence the environment in which they live and the markets in which they participate.

Of the above alternatives, the following can be characterized as employment policy options: I.3, I.5, I.6, I.7, II.1, II.2, and II.4. Let us consider each of these options.

A sound case can be made for developing local institutional planning capabilities. Planning activities should be directed not only at facilitating growth in expanding

¹⁵For a discussion of policies adopted in various European countries, see DeJong (1975) and Sundquist (1975).

local economies, but also at accommodating lagging local economies to lower levels of economic activity. One of the most important aspects of the planning process is forecasting local labor demand by detailed occupational category. This type of information should contribute to the efficiency of the migration mechanism and to the functioning of the local labor market by allowing better informed decisions regarding the occupation and location in which an individual will render his labor services.

Manpower-training programs have a primary objective of overcoming personal characteristics that limit employment alternatives and consequently reduce occupational and geographic mobility. Such programs have traditionally been directed at minority and low-income populations, and hence have had a high degree of geographic specificity (namely, in areas where minorities and the poor reside). Because manpower programs have not in themselves been an unqualified success, as evidenced by the high unemployment and underemployment rates of blacks, an argument can be made for instituting complementary programs that affect labor demand in areas with high concentrations of less mobile persons.

A number of market imperfections prevent local and national labor markets from functioning more efficiently. Many workers and potential workers either do not have access to information regarding job and earnings opportunities in alternative locations and occupations, or they are unable to decipher the complex information that is available. Public intervention to provide information to people who potentially might move and/or change their occupations is appropriate.

For some individuals who receive manpower training, the probability of migrating out of an area rises. This tendency is not undesirable, except inasmuch as the loss of a potential complementary input affects the employment of others in the locality. Policy makers recognize that manpower programs should be coordinated with the planning process if the programs are to achieve a reasonable degree of success. Information generated through the planning process and by other means should be made available to recipients of manpower training so that they can make better informed choices regarding occupation and migration. The combination of planning, training, and dissemination of information is likely to have some impact on migration, but the impacts cannot be assessed at this time.

Immigration policy is an aspect of public intervention that has potentially dramatic effects on labor supply.

Recently illegal aliens have come under special scrutiny because of their apparently large and growing numbers. Various reports in the popular press and by government agencies have placed the number of illegal U.S. residents at between 4 and 12 million persons. In fiscal 1975, 766,000 deportable aliens were apprehended in this country, of which 89 percent were Mexicans. This percentage overstates the percentage of illegal Mexican aliens relative to the total number of illegal aliens, but it does indicate that Mexico is an extremely important source of illegal alien labor.¹⁶ Available information indicates that illegal aliens tend to be young and to have a high degree of labor-force attachment. Moreover, they are concentrated along the southwestern border and in the central cities of the nation's major metropolitan areas. New York City alone is estimated to have over 1 million illegal aliens.

Table 2 indicates that between 1980 and 1985 the expected increase in the labor force is slightly less than 7 million. If the illegal alien labor force increases by 250,000 persons per year, then this increase would be 18 percent of the increase in the domestic labor force. Since projected increases in the male labor force are somewhat smaller than projected increases in the female labor force, and since the preponderance of illegal aliens, at least of Mexican aliens (Dagodag 1975), are young males seeking work, the relative impact on the male labor force would be considerably greater. The influx of illegal aliens could cause the size of the young labor force to increase, rather than decline absolutely as is now projected. Finally, the relative impacts on the civilian labor forces of the Southwest and West, and of the central cities of the major metropolitan areas, would also be great.

Two hypotheses have been advanced regarding the employment effects of illegal alien labor. One hypothesis, referred to as the "segmentation hypothesis," states that labor markets are sufficiently segmented that illegal alien workers do not take jobs that would otherwise be taken by

¹⁶Mexicans are overrepresented in apprehensions because the United States and Mexico have a common border across which Mexicans enter the United States and along which the U.S. Border Patrol can be deployed to apprehend those entering illegally. Furthermore, Mexicans can more easily be distinguished by their physical appearance than many other nationalities that contribute to the illegal alien population.

American workers (Abrams and Abrams 1975 and Nafziger 1975). Illegal alien workers are presumed to occupy low-wage jobs that would not interest American workers. The other hypothesis, called the "replacement hypothesis," states that illegal alien workers do displace American workers (Briggs 1975). It can easily be demonstrated that illegal aliens must displace American workers, although counteracting effects do occur due to the complementarity of illegal and American workers and due to the effects of illegal workers on local demand. Because illegal aliens generally tend to be unskilled, they compete in the labor market with low-wage American workers, principally blacks, Mexican Americans, and teenagers.

The measurement of the net effects of the presence of illegal alien workers must await a detailed empirical analysis of the problem. However, immigration policy directed at greatly reducing the flow of illegal alien labor into this country will have dramatic labor-force effects, and many of these effects will be localized.

Three aspects of policy on the demand-side of the labor market seem particularly relevant: economic development programs, alterations in minimum-wage laws, and public service employment.

Whether inadequate aggregate demand or structural factors play a greater role in causing unemployment has been debated for some time. The Economic Development Administration (1976) financed a study that used National Planning Association state employment projections to estimate the number of state-specific jobs required in 1980 and in 1985 to reduce state-specific unemployment rates alternatively to 6 percent, 5 percent, and 4 percent. If we assume that macroeconomic policies will reduce the unemployment rate of each state to 6 percent in 1985, we may, using these estimates, calculate the number of additional jobs that would be needed between 1980 and 1985 in each region to reduce the region's unemployment rate to 4 percent. This 2-percentage-point reduction would presumably have to be accomplished through structural economic policies.

The estimates indicate that the following number of jobs would be required to reduce unemployment rates from 6 percent to 4 percent in each region for the period 1980 to 1985: Northeast, 978,000; North Central, 1,224,000; South, 1,454,000; and West, 824,000. Nationally, 4,480,000 additional jobs would be required. If we assume an average annual cost of \$10,000 per job, which is a rough estimate of the present average cost of a public service job, almost \$45 billion would be necessary in 1985 alone (assuming no

secondary effects, which is probably unrealistic given magnitudes of this kind) to reduce the unemployment rate by 2 percentage points. Although a number of criticisms can be made of the employment estimates and of the technique used to derive the \$45 billion figure, the expenditures required to achieve even modest increases in employment and decreases in unemployment are tremendous. A similar estimate of the cost of reducing the unemployment and underemployment rate of black males, 16-24 years old, from the current 37.0 percent to 10 percent is \$4.24 billion.

Because programs such as public service employment would require ongoing expenditures of tremendous magnitudes, manpower programs, in combination with economic development programs, are more likely to be used to deal with long-term problems of local distress. The magnitudes so far discussed are slight relative to those that would be required in the unfortunate instance that an attempt were made to reverse the major spatial employment trends discussed herein.

In a recent discussion paper prepared by the Economic Development Administration (1977, p. II-4), economic development programs are defined as "the planned investment of public resources to attract private investment to specific areas and communities in order to create permanent private sector jobs and strengthen local private economies." A distinction is made between "general development programs," which are parts of various federal activities that have primary objectives other than subnational economic development but nevertheless have local economic development consequences as by-products, and "economic development programs," whose primary objective is local economic development. Federal economic development programs are shown to be a relatively small fraction of federal development programs--about 13 percent, as indicated in Table 14.

The Economic Development Administration paper sensibly argues that economic development financing is currently and probably will remain sufficiently low such that when spread across many areas and communities, it produces only minimal effects in any given locality. However, if economic development programs are coordinated with the more sizeable general development programs, such as those indicated in Table 14, significant beneficial effects may be forthcoming. For example, by coordinating economic development programs, manpower programs, and housing programs, the federal government might contribute meaningful relief to central-city minorities.

Harrison (1974) and others have made strong cases for ghetto or for central-city economic development programs

to assist the immobile, or at least the less mobile, central-city minorities. Such programs would probably have the greatest success if they were coordinated with general development programs, as recommended by the Economic Development Administration. The employment impacts of these programs cannot easily be forecast because the impacts differ greatly by specific type of program. Moreover, much uncertainty exists regarding the average cost of job creation through economic development programs. If the average cost were \$10,000 per job, then approximately 446,000 permanent jobs could be created via economic development programs, given the estimated fiscal 1978 expenditures. This average cost must be unrealistically low, for if \$10,000 were a reasonable estimate, Congress would have learned long ago that economic development programs are too good to disregard as a means of relieving unemployment.

Because the decline of the manufacturing sector in the central cities of the major metropolitan areas of the Northeast and North Central regions has contributed appreciably to central-city problems, one is tempted to conclude that central-city economic development programs should be oriented toward manufacturing employment. However, if Steinnes (1977) is correct that people are moving away from manufacturing employment, programs to encourage manufacturing employment growth in central cities could be partially self-defeating.

Finally, alterations in the minimum-wage legislation could have appreciable effects on employment, particularly on teenage employment. Ragan (1977) has concluded that federal minimum-wage legislation significantly reduces youth (16-19 years old) employment and raises youth unemployment rates. Nonwhite males are particularly affected. He estimates that if the 1966 minimum-wage amendments had not been implemented, youth employment would have been 225,000 persons higher in 1972. However, it should be recognized that many illegal alien workers now satisfy the demand for subminimum wage labor. The implications of youth employment for interregional migration are not great. However, the implications for employment of black young people in central cities are potentially great, and thus the issue seems relevant.

Several of the policy alternatives mentioned above would have greater effect on the migration decisions of persons with low incomes than on the decisions of persons with higher incomes. Policies that operate directly on individual incentives frequently are of this type, whereas policies that operate indirectly on incentives generally influence

TABLE 14 Federal Development Assistance: Fiscal 1978 Estimates (in millions of dollars)

Department/Agency	General Development		Economic Development	
	Amount	%	Amount	%
HUD	3,600	12.0	550 ^a	12.3
USDA	5,780	19.4	927 ^b	20.8
DOC				
EDA			400	9.0
OMBE			11	.3
NOAA/OCZM	27	.1		
DOL (CETA)			1,880 ^c	42.2
DOD				
Economic Adjustment			NA	
Corps of Engineers	50	.2		
DOT (FHA, UMTA)	10,500	35.2		
ARC			300	6.7
Title V Regional Commissions			100	2.2
BIA	650	2.2	150 ^d	3.4
CSA	358	1.2	42 ^e	.9
EPA (Sewers)	4,500	15.1		
SBA	3,100	10.4	100 ^f	2.2
FAA	550	1.8		
TVA	45	.2		
GSA	12	.0		
HEW	650	2.2		
Total	29,867	100.0	4,459	100.0

^aAssumes that 10 percent of the Community Development Block Grant (\$4 billion) is used for economic development purposes. Also includes \$150 million of federal disaster assistance. Does not include proposed funding for the Urban Development Action Grant.

^bIncludes emergency adjustment, aid to Indian areas and Community Facilities Loans which include activities not necessarily directed at economic development.

^cExcludes funding for Public Services Employment in Titles II and VI. Includes only Title I which provides funding for job training in the private sector.

^dIncludes only Industrial/Business Development Grant and Loan Program and Disaster Relief Programs.

^eIncludes only the Community Economic Development Program, Emergency Energy Conservation Program, and grants for State Economic Opportunity Centers.

^fIncludes only disaster relief funding and aid to minority/disadvantaged small businessmen.

SOURCE: Economic Development Administration (1977).

the migration decisions of a broad spectrum of society. Subsidized moving costs, subsidized housing, public employment, manpower programs, changes in minimum-wage requirements, and changes in welfare requirements are all likely to have their greatest impacts on the low-income population. The availability of tax incentives and of information would presumably be of some importance to all potential migrants, regardless of income level. Similarly, economic development programs, planning programs, and reductions in local disamenities should benefit both low-income and high-income persons. The labor-supply effects of more restrictive enforcement of immigration laws would be most beneficial for workers in occupations with lower wages, but in a broader sense much of society would be affected, either positively or negatively, by more restrictive enforcement.

Although economic development programs do not directly influence the low-income and disadvantaged populations, such programs do have "trickle down" effects on the target populations. Chinitz (1971, p. 25) makes the case for economic development programs by arguing that the "welfare of an individual...depends on the environment in which he lives as well as his own attributes, assets, and skills." Economic development programs and other programs that yield potential benefits to a broad spectrum of society, if used in conjunction with programs that impact more directly on the disadvantaged population, would result in a more "normal" population composition in the various localities because the programs would appeal to a wide variety of persons.

Localized programs that tend to benefit only the disadvantaged population can have the undesirable side effect of encouraging the disadvantaged to concentrate in specific localities, such as in the central cities of the major metropolitan areas. Such concentrations of low-income persons can spur high-income persons to leave in order to avoid the effects of various local programs on income redistribution. As a consequence, the local public sector is placed under considerable strain. Hence, a balanced policy approach seems essential. This balance must be struck not only within the framework of employment policy, but also between employment policy and other forms of policy.

SUMMARY

The regional changes in population and employment that occurred between 1970 and 1975 are generally consistent

with those that have occurred during the post World War II era. The rates of population and employment growth have been highest in the West and the South and lowest in the Northeast and North Central regions.

However, during the 1965-1975 period, young people and women entered the labor force in far greater numbers than they had in the past. Because there are absolutely and relatively more young CLF members and because migration rates are especially high among the young, during the past 10 years interregional migration streams have been more heavily weighted with young labor-force members. This phenomenon should moderate after 1980.

The recession of 1974-1975 had particularly severe consequences in the older industrial areas of the Northeast and, to a lesser extent, in those of the North Central region. After experiencing unusually rapid employment growth between 1965 and 1969, the Northeast suffered an absolute decline in employment between 1969 and 1975. The large, young, and mobile age cohort in the Northeast thus had the added migration incentive of fewer employment opportunities. Furthermore, migration of southern blacks to the Northeast decreased while migration of northeastern blacks to the South increased. Perhaps partially as a result of employment conditions in the Northeast, the historical net flow of blacks from the South to the Northeast reversed over the 1970-1975 period. It is unclear whether this reversal will continue when more "normal" employment conditions are established in the Northeast.

Differentials in the interregional and intraurban impacts of national recessions emphasize the importance of macroeconomic policies to achieve and maintain full employment. Public policy should not be directed at the reversal of major trends in the interregional or intraurban distribution of employment and population. Not only would such attempts be inordinately costly, but to the extent that they were successful, serious distortions in resource allocation and social well-being could result.

There is, however, justification for public intervention in local or regional economies in order to deal with mobility-related problems. Intervention might appropriately be directed at correcting or preventing externalities that result from migration, at alleviating distress among the less mobile persons in society, and at improving the efficiency of local and regional labor markets and of the migration mechanism. Alterations in minimum-wage legislation have potentially sizeable effects on black teenage employment. More restrictive immigration laws would

probably have important effects on minority employment in the Southwest and the West and in the central cities of major metropolitan areas, such as New York, Chicago, and Los Angeles; but whether more restrictive policies are beneficial for society as a whole is unclear. A combination of employment and other policies that encourages population growth that is demographically and economically balanced seems appropriate.

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DEMOGRAPHIC CHANGE, NEW LOCATION PATTERNS, AND TRANSPORTATION POLICY

Gary R. Fauth and Jose A. Gomez-Ibanez

INTRODUCTION

Location and demographic changes may have a substantial effect on federal policy formulation over the next 10-20 years. Geographic shifts of jobs and residences from the central cities to the suburbs, from larger to smaller metropolitan areas, and from the Northeast to the Sun Belt cities of the West and South are expected to continue. Important demographic changes anticipated include declining average household size, due to higher divorce rates, lower fertility, and other factors; increasing average age of household members due to the passing of the postwar-baby boom and to declining fertility; and increasing labor-force participation, particularly of women.

These expected changes have two potential implications for U.S. transportation policy. First, the changes might aggravate or mitigate particular U.S. transportation problems and thus influence the policies designed to solve them. Second, U.S. transportation policies might be called upon to arrest or slow the shifts in population between central cities and suburbs and among regions because such shifts are viewed by many analysts as having undesirable consequences.

We expect neither of these potential impacts to be realized. In brief, we argue that the effect of expected geographic and location changes on transportation problems in the near future is likely to be relatively modest and that the response of transportation policy should be

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correspondingly small. Future transportation policy will be molded principally in reaction to other developments, such as rising per capita incomes. We also argue that transportation policy should not be used to control or arrest these new location trends. Whether such control is socially desirable, it cannot be effectively established through transportation policy, which has very limited leverage over decisions governing residential and business locations.

These arguments are developed in the following two sections. The first section assesses how the demographic and location changes will affect the basic transportation trends or problems and thus the transportation policies designed to solve these problems. Because urban transportation, intercity freight, and intercity passenger sectors each have distinct trends that require different policies, each will be considered separately here. The second section critically examines the reasons for using transportation policy to control or reduce the expected shifts in population location.

THE IMPACT OF DEMOGRAPHIC AND LOCATION PATTERNS ON URBAN PASSENGER TRANSPORTATION

Recent Urban Travel Trends and Policy Reactions

Two important travel trends have influenced postwar urban transportation policy: (1) the rise in automobile ownership and use, and (2) the decline in patronage of public transit systems. As Figure 1 shows, the number of automobiles registered in the United States grew from 25.7 million to 106.1 million between 1945 and 1975. The rate of growth in registration was highest in the late 1940s and early 1950s, when it averaged 7.3 percent per year. But even in the 1960s and 1970s automobile ownership was increasing at the rapid pace of about 3.7 percent per year. The number of vehicle-miles of automobile travel has kept pace with automobile registrations, growing (as Figure 1 illustrates) from 250 billion in the 1940s to 1,028 billion in 1975.

The decline in urban mass transit patronage has mirrored the rise in automobile use. Between 1946, when patronage was at its postwar high, and 1975, annual transit ridership fell from 19 billion revenue passengers to 5.6 billion revenue passengers. As Figure 2 shows, the sharpest declines in transit patronage occurred before 1955. In the

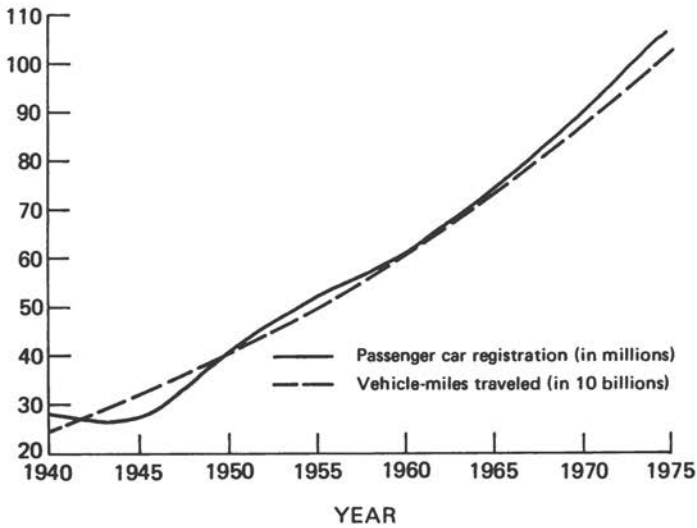


FIGURE 1 Passenger car registration and passenger-car-miles of travel in the United States, 1940-1975.

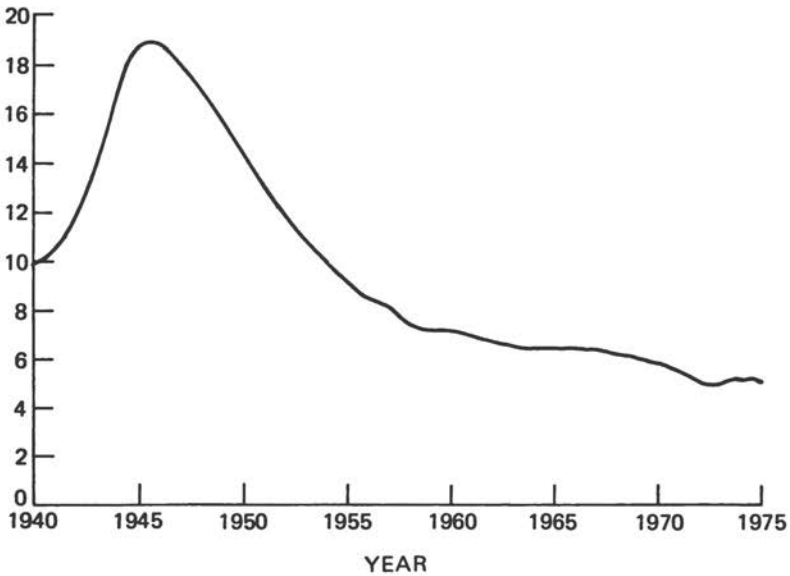


FIGURE 2 Transit revenue passengers carried (in billions), 1940-1975 (American Public Transit Association, various years).

1960s ridership declined at an average annual rate of 2.2 percent per year and since 1973 patronage has been holding roughly stable.

As a result of these trends, the automobile has come to dominate urban passenger travel. The automobile is by far the most popular mode for the journey to work: in 1970, 82 percent of all work trips were made by automobile while only 14 percent were made by public transit. (The remaining 4 percent of commuters walked or used other modes of travel) (U.S. Bureau of the Census 1972). Automobiles are used for an even higher percentage of urban trips that are not related to work.

Government policies pertaining to increased automobile use and declining transit ridership have evolved over the postwar period. In the 1940s and 1950s, the principal policy for ameliorating growing traffic congestion was expansion of the highway system. Disenchantment with this approach spread in the late 1950s, largely because highway construction often involved the destruction of urban neighborhoods and because the new highways still suffered from congestion (although they also carried much higher volumes of traffic). The early 1960s saw increased efforts to support urban mass transit, with the initiation of federal assistance for transit and the planning and construction of new rail transit systems in several metropolitan areas. The emphasis on mass transit was reinforced when automobile air pollution and energy consumption were identified as problems in the late 1960s and early 1970s. Recently, however, there has been growing skepticism about relying on transit to solve urban transportation problems, largely because of the failure of transit subsidies and new transit systems to attract appreciable numbers of automobile users from their vehicles. Current urban transportation policy incorporates an increasingly sophisticated blend of prescriptions to ameliorate the problems of increased automobile use, including support for modest improvements to highways, aid to mass transit, and direct regulation of new car pollutant emissions and energy efficiency.

The federal government still provides substantial assistance for urban highway construction but now requires that states and cities show they are efficiently using and managing their existing facilities before they receive aid for new construction. Management techniques encouraged by the federal government include reserved bus and car-pool lanes and other techniques to give high-occupancy vehicles priority in traffic, metering the ramps of limited-access highways to prevent the development of stop-and-go-traffic,

and higher parking charges or other restraint measures in severely congested downtown areas.

To assist the declining transit industry, the federal government currently has two major grant programs: one for capital expenses and the other for operating expenses. Capital grants are distributed on a project basis and pay up to 80 percent of the cost of transit capital improvements. Local governments applying for capital grants to fund expensive new rail transit systems or extensions must show that they have adequately examined less costly alternatives, such as bus transit systems. Operating grants are distributed among metropolitan areas according to a congressionally mandated formula and require at least 50 percent matching assistance from local governments. The federal government also sponsors demonstrations of innovative services, such as demand-responsive transit (dial-a-ride), to explore new methods of competing with the automobile in low-density areas.

Among the most significant recent urban transportation policies are federal regulations governing the emissions and energy consumption of new cars. The federal government began regulating pollution emissions in 1965, when Congress passed legislation requiring that 1970 model-year cars emit only 50 percent of the HC and CO per mile emitted by 1957-1967 uncontrolled models. The Clean Air Act of 1970 set a staged timetable for further pollution reductions, with a 90-percent reduction in 1970 model-year emissions of HC, CO, and NO_x to be achieved by 1976. Congress has extended the deadlines of the 1970 Clean Air Act several times, but substantial progress has been made. The 1977 cars emit only 17 percent of the HC and CO and 57 percent of the NO_x of 1957-1967 model-year vehicles.

In 1975 Congress passed mandatory average fuel-efficiency standards for each manufacturer's new-car fleets, which would raise average new car fuel economy by 80 percent in 10 years --from about 15 miles per gallon (mpg) in 1975 to 27.5 mpg in 1985. Debate about the practicality of the congressional timetable has been heated but there is mounting evidence that by 1985 significant gains in new-car fuel economy will be feasible through reduction in the weight of standard and large cars, improvement in drivetrains and gearboxes, and some substitution of smaller automobiles for larger ones.

Future Urban Travel Trends

Both the increase in overall urban travel and the shift from public transit to automobile are likely to

continue at about the same rates as in the recent past because the underlying factors that caused these travel trends are long-standing and likely to be present in the future.

Two important factors that will continue to encourage overall growth in urban travel are population expansion and increases in real income per household. Although the growth in the number of households residing in urban areas is expected to be slower than the 2-percent average annual gains experienced in the 1950s and 1960s, some growth is still expected. Most forecasts assume that the number of urban households will increase at a rate of around 1.7 percent per year in the future. Households with higher real incomes, all other things being equal, travel more frequently within metropolitan areas. Although the future rate of growth in household real income is uncertain, gains over the long term are likely to be similar to those experienced in the past. Therefore, real income per household will probably grow at an average annual rate of 2-3 percent.

This increase in real income, along with shifts in the locations of residences and employment, will continue to encourage growth of automobile travel rather than growth of mass transit. The steady increase in real incomes over the postwar period is considered the most important cause of the decline of public transit and the rise of the automobile. Between 1947 and 1975, real incomes per household grew by a remarkable 88 percent. As incomes grow, people are willing and able to pay for the amenities more commonly associated with the automobile than with public transportation. Especially important are door-to-door convenience, instant availability, and faster speeds that conserve on traveler time. Moreover, rising incomes affect public transportation operators adversely by increasing the wages necessary to attract drivers and other qualified personnel. Public transportation costs are more sensitive to wage increases than are the costs of automobile use, because public transportation drivers must be paid.

The second cause of the shift from mass transit to automobiles has been the shift in the location of residences and employment: population and employment are growing more rapidly in the suburbs than in the central cities, in smaller metropolitan areas than in larger ones, and in the South and Southwest than in the Northeast. These shifts in population are caused by a variety of complex factors: growth in real income, which encourages the purchase of larger and newer homes, particularly in the suburbs; changes in production technology, such as the one-story

plant; and transportation developments, such as widespread use of the truck and the postwar construction of highways. The shift of residences and jobs from the central cities to the suburbs has contributed to the shift from public transportation to the automobile because conventional mass transit is not well suited for serving families that live and work in dispersed locations. In addition, the suburbs, smaller metropolitan areas, and the cities of the Sun Belt generally have newer and more extensive highway systems with lower levels of congestion, which encourage automobile use.

Some analysts have argued that future increases in energy prices and government regulations governing the emissions, energy consumption, and safety of new cars may increase the cost of automobile use and thereby slow the growth in urban travel in general and the shift from mass public transit to auto in particular. The role of energy, air pollution, and safety problems in determining automobile ownership and use has probably been exaggerated, especially for the near future. The cost of owning and operating an automobile may be only slightly increased, and the fundamental attractions of the automobile, such as shorter travel time, door-to-door service, instant availability, and privacy, will remain unchanged. Energy problems are likely to have a greater impact on urban passenger travel patterns in the long run; even then, however, improved energy sources and propulsion technologies may make continued dominance of some auto-like transportation mode possible.¹

¹Energy problems may not have a large impact on car sales for the next 10 years. It appears that new-car fuel economy will be greatly improved over the next decade, as a result of the law passed by Congress in 1975. Because the fuel economy improvements add relatively little to the purchase price of the car and because reduced gasoline consumption will at least partially offset expected increases in fuel prices, the cost of owning and operating an automobile may be only slightly increased.

Air-pollution and safety regulations may have a similarly modest effect on automobile ownership in the near future, although it is difficult to be sure because of uncertainties about the exact policies that the government will pursue, the technologies that will be available, and their costs. The only major pending pollution regulation change is

The Role of Expected Demographic and Location Changes

Although population and income growth will have major effects on automobile and mass public transit use, expected demographic changes will have only minor impacts. Demographic changes may contribute to small increases in urban travel and may slightly offset the general shift from automobile to mass public transit. The declining average household size, the increasing average age of households, and the increased rates of labor-force participation all cause increases in the number of trips made per capita. Increasing numbers of elderly households and increased labor-force participation may shift travelers away from automobile use because many members of elderly households are too old to drive and because the second worker in a two-worker household often uses mass public transit instead of buying a second car.

A recent study for the U.S. Department of Transportation confirms our conclusion that anticipated location and demographic changes will be relatively unimportant, compared with income and population growth, in determining future urban passenger travel (Kain et al. 1977). A sample of 307,000 households in the 125 largest U.S. standard metropolitan statistical areas (SMSAs) was analyzed to determine the extent to which particular variables influence the number of cars a household owns and the mode of transportation that household workers use for commuting. The variables examined in the study are: real household income; family structure (such as household size, the age, race, and sex of the head of household, and the numbers of workers and driving-age adults; the location of residence and employment (central city or other); and the amount of highway and transit service in the metropolitan area. Results

imposition of a stricter NO_x standard, which has already been delayed several times and is now scheduled for the 1981 model year. The costs of meeting the new standard will probably not exceed several hundred dollars per new car. The only major new automotive safety requirement being contemplated for the near term is the airbag, which, according to current timetables, will be required in all new models by 1984. The auto industry and the government differ in their estimates of airbag costs, but it is likely to be only \$200. (Federal Task Force on Motor Vehicle Goals Beyond 1980, 1976, Wildhorn et al. 1975).

from this analysis were used to forecast the number of cars per household and the number of workers commuting by automobile between 1970 and 1990.

The forecasts, shown in Table 1, indicate that between 1970 and 1990, location shifts will cause slight increases in the average number of cars per household and the percentage of persons commuting by automobile, while demographic changes will decrease automobile dependence, although by a smaller amount. As a result of both location and demographic changes, the number of automobiles per household can be expected to increase by 1 percent (from 1.24 to 1.25), and the proportion of workers commuting by automobile can be expected to increase by 1 percent (from 78.6 to 79.5).

The estimated effects of the demographic and location shifts on automobile use are relatively small when compared with the effects caused by increases in income. Growth in real household income, assumed to be 3 percent per year, will cause the number of cars per household to increase by 13 percent (from 1.24 to 1.42).

The calculations in Table 1 are averages for a typical household. If the number of households increases at an annual rate of 1.7 percent per year, as anticipated, then increases in the numbers of households alone should cause

TABLE 1 Projected 1970-1990 Changes in Household Automobile Ownership and Percentage of Workers Commuting by Automobile

	Average Number of Autos Owned per Household	Percentage of Workers Commuting by Auto
1970	1.24	78.6
1990 Change caused by location shifts	+0.03	+1.4
1990 Change caused by demographic factors	-0.02	-0.5
1990 Change caused by income gains ^a	+1.165	+3.4
1990 With all changes	1.42	82.9

^aGrowth in real household income was assumed to be 3 percent per year.

SOURCE: Kain et al. (1977).

automobile ownership to rise by 40 percent from 1970 to 1990.

Policy Implications

The anticipated demographic and location trends will have some impact on urban transportation policy, since they will affect the urban travel patterns that condition that policy. However, since the demographic and location changes are not the prime determinants of urban transportation patterns, they should not play a primary role in determining transportation policy.

The current population trend toward less centralized living patterns will reduce transit ridership, and probably increase transit operating deficits. As a result, pressure will be directed at federal, state, and local governments to provide additional operating subsidies. Public policy should respond to this pressure cautiously, because there is increasing evidence that transit operating subsidies are not effective means to reduce pollution and congestion, conserve energy, or generate other claimed social benefits (Hilton 1974, Ingram and Fauth 1974).

Government should respond to pressure for added transit subsidies with programs that encourage operators to improve productivity and control costs. Numerous opportunities to improve the productivity of urban mass transit can be identified and could be facilitated by appropriate federal responses (Gomez-Ibanez and Meyer 1978). For example, benefits might be derived from increased federal support for bus priority measures that permit more express operations.

Trends toward more dispersed residential locations may decrease pressures on federal and local governments to construct new rail transit systems or extend old systems in larger metropolitan areas. If there is little or no growth in the population and, especially, in the number of downtown jobs in larger metropolitan areas, then the potential ridership on rail systems is likely to be small and, as a result of income gains, ridership may possibly decline. The lower the projected ridership, the more difficult it will be to justify the massive investments required by rail transit and the more likely it will be that a bus system will be able to provide comparable or better transit service at lower cost.

Growth in population in smaller metropolitan areas, many of which currently have little or no public transportation

service other than taxi, may also increase pressure for transit service in these areas, particularly in the form of dial-a-ride or demand-responsive services. Like taxis, dial-a-ride vehicles usually provide door-to-door transportation in response to telephoned requests, but like buses and rail transit, they also carry different passengers to different destinations on the same trip. Proponents of dial-a-ride argue that the mode may be able to compete effectively with the automobile in low-density areas. However, experience with existing demand-responsive systems needs to be carefully examined to determine if this promise can be realized. Frequently, these systems have cost more than private taxi service even though they have provided lower levels of service.

Although the shift of population to the suburbs and smaller metropolitan areas will increase automobile use, it may also, paradoxically, decrease some of the pressures on federal and local governments to regulate the impact of the automobile. For example, if, as newer cars are introduced into the U.S. urban automobile fleet, the populations of large metropolitan areas and the numbers of persons traveling to downtown grow only slowly, automobile air-pollution concentrations should decrease, thereby reducing pressure for tighter emission standards on new vehicles. Evidence suggests such a move may be socially desirable (Harrison 1975). Present national targets for mobile sources, especially for NO_x , could be relaxed if stationary sources were more stringently regulated or if a national two-car strategy were adopted. Such a strategy would require tight emissions control only on that portion of the total automobile fleet that operates in the most polluted air-quality control regions.

Future trends may also result in lower levels of traffic congestion in large, older metropolitan areas. Such a change might reduce demands for more intensive use of existing facilities, such as priority for buses and car pools in street and expressway traffic (Interplan Corp. 1976). U.S. policy, however, should continue to pursue more efficient facility management since capacity problems may begin to appear in smaller metropolitan areas, and since appropriate prices for use of central-area streets encourage commuters and shoppers to organize their travel patterns.

THE IMPACT OF DEMOGRAPHIC AND LOCATION PATTERNS ON
INTERCITY FREIGHT TRANSPORTATION*Recent Freight Trends and Policy*

Like current urban transportation policy, policy toward intercity freight can be seen largely as a reaction to a few important trends in intercity freight transportation. Specifically, postwar intercity freight policy has been preoccupied with the poor financial performance of the railroad industry. During the postwar period, the rate of return on capital earned by the railroad industry has been lower than that earned by most other industries. In recent years, the industry's return has been below 3 percent, less than one-third the average for all private industry (Meyer and Morton 1974).²

A major part of the railroad industry's problem is that rail traffic has been growing relatively slowly and that the growth that has occurred has been profitless. Between 1950 and 1975, revenue ton-miles carried by class I railroads increased by 32 percent, but operating revenue in real terms increased by 8 percent and railway operating income (operating revenue less operating expenses) declined in real terms by 56 percent.

The slow growth in rail traffic is due partly to slow growth in freight traffic carried by all modes. Between 1950 and 1975, freight traffic has grown more slowly than the gross national product (GNP). The number of ton-miles shipped increased by only 102 percent (from about 1,084 billion to 2,213 billion), while the real GNP increased by 123 percent (from \$533 billion to \$1,192 billion in 1972 dollars).

Nonetheless, as Table 2 shows, the railroads have failed to maintain their share of intercity freight traffic, particularly of shipments of highly valued commodities for which profit has traditionally been highest. Although railroad traffic increased from 597 billion ton-miles in 1950 to 858 billion ton-miles in 1973, the railroads' share of total intercity freight traffic dropped from 56 percent to 38 percent. During the same period, the portion of intercity freight ton-miles carried by trucks increased from 16 percent to 23 percent, and the portion carried by pipelines increased from 12 percent to 23 percent.

The government, concerned that the declining role of the railroads may not be socially desirable, has become

²For an excellent discussion of the problems of the railroads and the underlying freight trends, see Morton (1973) and Task Force on Railroad Productivity (1973).

increasingly involved in helping the railroads. Railroads may be at a disadvantage in competing with trucks for freight, because truck operators may not pay the full social costs of the highways and energy they use or the pollution they produce. Moreover, the Interstate Commerce Commission's regulation of railroad and truck tariffs and operating rights are thought by some to have unduly crippled the railroads' ability to compete with other modes. Finally, even if some contraction of railroad shipments and services is desirable, the burdens of the transition, particularly the loss of rail freight service in small communities, may require some government involvement.

Over the past 20 years, the federal government has assisted the railroads primarily by relaxing government regulatory restrictions that might hamper the railroads' ability to compete with other modes. The Transportation Act of 1958, for example, limited the power of state regulatory authorities to require the continuation of passenger service, which, according to the railroads, lost money and acted as a drain on freight operations. The "3Rs" and "4Rs" Rail Regulatory Reform Acts of the 1970s simplified the procedures under which railroads can abandon unprofitable branch lines and slightly reduced the Interstate Commerce Commission's authority to dictate rail rates.

More recently, the federal government has become directly involved in subsidizing some rail operations. The federal government's initial capitalization and subsequent subsidization of Amtrak, the quasi-government corporation now responsible for operating almost all intercity rail-passenger service, was the first form of direct government subsidies. Since then a second government-created and -subsidized corporation, Conrail, has been established to take over the operations of the Penn Central and several other bankrupt railroads in the Northeast. The "3Rs" Act also established a program of grants to allow local governments to subsidize the continued operation of branch lines that the railroads wish to abandon.

Although federal government has been concerned with assisting the railroads, it has also continued to provide substantial assistance to competing modes, especially trucks and barges. During the postwar years, annual expenditures by federal, state, and local governments for highway construction and maintenance grew from less than \$10 billion to more than \$20 billion. Over that same period the Army Corps of Engineers has spent an average of approximately \$650 million per year in constructing and maintaining the inland waterway system, which is used mainly for freight

TABLE 2 U.S. Intercity Freight Traffic: 1940-1973

Mode	Billions Ton-Miles					Modal Share of Traffic				
	1940	1950	1960	1970	1973	1940	1950	1960	1970	1973
Railroads	379	597	579	771	858	61.3	56.2	44.1	38.7	38.5
Motor trucks	62	173	285	412	505	10.0	16.3	21.8	21.3	20.6
Great Lakes	36	112	99	114 ^a	126	15.5	10.5	7.5	6.9	6.6
Inland waterways	22	52	121	205 ^a	232	3.6	4.9	9.2	10.6	10.4
Pipelines	49	129	229	431	507	9.5	12.1	17.4	22.3	22.7
Airways	nil	nil	1	3	4	nil	nil	.1	.2	.2

^aExcludes traffic moving on these waters in ocean-going vessels when part of domestic deep-sea movements.

SOURCE: Transportation Association of America: *Transportation Facts and Trends*, December 1974, p. 3 (as cited in U.S. Department of Transportation 1974, p. 33).

transportation.³ Barge operators pay no special user fees or taxes to help for the costs of the inland waterway system.

There have been some signs, however, that support for federal programs that assist the intercity trucking and barge industries may be weakening. Over the past decade or more, there has been increasing pressure to assess whether intercity truckers are paying (through license fees and gas and excise taxes) their fair share of the costs of constructing and operating the interstate highway system. Perhaps more significantly, Congress recently refused to authorize an Army Corps of Engineers' proposal to expand a major lock facility on the Mississippi River at Alton, Illinois; and many observers believe that this project will never be authorized unless the barge operators agree to pay fees to help defray some of the costs of constructing and operating the inland waterway system.⁴

Future Freight Trends

Rising per-capita income has been, and probably will continue to be, the major reason that growth in intercity freight has been modest. As per-capita incomes rise, freight grows more slowly than the GNP because a declining share of total income pays for goods with high raw-material inputs, such as agricultural commodities, construction materials, and durable manufactured goods. An increasing proportion of the GNP is used for services that require few material inputs. Furthermore, the weight and raw-material inputs per dollar value of manufactured goods declines, because rising per-capita incomes generate improvements in the quality, design, and variety of such goods but generally do not generate weight.

Rising per-capita incomes and the resulting changes in the types of commodities produced and shipped have also contributed to the decline in the railroads' share of the intercity freight market. Railroads are at a disadvantage in competing with trucks for manufactured goods that have undergone high levels of processing because shippers of such high-value goods generally require frequent, fast, and reliable service that is more commonly associated with trucks. Moreover,

³The inland waterway system is also used for recreation; see U.S. Department of Transportation (1977).

⁴After this paper was written, Congress enacted legislation approving the Alton locks and imposing for the first time a system of waterway user charges to help finance the construction and maintenance of waterway systems.

the railroads have had a difficult time competing for bulk commodities because the major growth in bulk-commodity movements in the postwar period has been in petroleum shipments; and pipelines are often better suited for transporting petroleum.

The movement of manufacturing and other plants from central-city to suburban locations has also contributed to the railroads' declining share of traffic. This trend, which is expected to continue, is caused by a variety of factors, including the shift of residences from the central city to the suburbs; the increases in wage rates that encourage substitution of floor space for labor; and highway construction that makes suburban locations accessible to trucks. Suburban plants tend to use trucks rather than railroads because suburban highways tend to be less congested and the plants are usually far from major rail yards, which tend to be located in the inner city.

Although the primary causes of slow traffic growth in the railroad industry are likely to remain, several secondary factors that have slowed railroad traffic growth in the past may be operating with less force in the near future. One such factor is the trend toward dispersal of manufacturing plants. As plants become more dispersed, the distance that final goods must be shipped decreases. (These freight losses are, however, at least partially offset by longer raw-material hauls.) The reasons for the dispersal of manufacturing plants are only poorly understood, but some analysts speculate that demographic trends may have been one of many contributing factors. In particular, the increasing size of the population and its concentration in urban areas may have encouraged dispersal by increasing the number of metropolitan areas that are sufficiently large to be profitable as plant locations. To the extent that concentration of population and population growth encouraged dispersal of plants in the past, the anticipated shift of population to smaller metropolitan areas may, in the near future, slow dispersal and slightly encourage freight traffic. Railroads, however, are not likely to attract more than a small portion of the added traffic because the smaller metropolitan areas are probably well served by highways and trucks.

Another factor that contributed to the past difficulties of the railroads, but may be slightly less important in the future, is government assistance for the construction of highways and inland waterways. As noted earlier, there is some pressure to reduce government expenditures in this area or to make increased expenditures contingent on higher user fees. Whether this pressure will result in any substantial change in government policy is problematic. It is unlikely

that over the next 10 years public policy will change to such an extent that the competitive advantages of truckers or barges will be strongly affected.

In the future, rising energy prices may help the railroads somewhat, but the effect is likely to be small. For many types of shipments, railroads use somewhat less energy per ton-mile than trucks. However, increasing energy prices probably will be of little aid to the railroads in attracting manufactured goods because energy costs are only a small fraction of total transportation costs for these goods. Rising energy prices are not likely to help the railroads attract bulk commodities either because, for many of these commodities, railroads compete with relatively energy-intensive modes, notably barges and pipelines. Furthermore, increases in the price of energy may be sufficient to encourage alternatives to transportation, such as processing at the mine mouth.

Thus, freight movements will probably continue to grow slowly and the share of freight carried by the railroads will probably continue to decline in the near future. Although several factors may encourage somewhat higher freight growth and a slightly more competitive position for the railroads, the underlying causes for the decline--especially rising incomes--are likely to continue into the future.

The Influence of Expected Location and Demographic Changes

Although it is unlikely that expected demographic trends will have much influence on freight patterns, expected locational changes may have significant effects, particularly on the railroads. The greatest damage will probably come from the most long-standing of the location shifts--the movement of manufacturing and other types of plants from central-city to suburban locations. The suburbanization of employment will further diminish the ability of the railroads to attract freight because suburban plants generally are served by less congested highways and are located further from rail lines and rail yards.

The movement of population away from the Northeast and to the West and the South may reduce the volume of bulk-commodity shipments on which the railroads are increasingly dependent. Since the postwar period, the West and South have become the principal sources of raw materials used for manufacturers. The movement of population to these regions will probably be accompanied by a shift of manufacturing and a resulting reduction in the distances that bulk commodities are hauled.

Finally, the shift of population to smaller metropolitan areas may slightly increase not only total freight shipments but also the share of freight that goes to trucks. If, in the past, the concentration of population in large metropolitan areas contributed to the dispersal of manufacturing and the decrease in shipping, in the future the growth of smaller population areas may, to some degree, concentrate manufacturing and increase the amount of manufactured goods that are transported. However, because these goods have high values and because these shipments are destined for areas served by relatively uncongested highways, the railroads are unlikely to capture this new traffic.

Because location changes will have only modest effect on the railroad industry, they are unlikely to alter intercity freight policy significantly. To the extent that the new location trends increase the difficulties of the railroads and improve the prospects for trucks, they have two possible implications for current public policy. First, they slightly diminish the chances for success of recent government attempts to improve the financial position of the railroads. Conrail, in particular, may be hindered if a reduction in raw-material shipments into the Northeast accompanies the shift in population to the West and South. Second, the increase in truck traffic that may result from greater dispersal of population and manufacturing may strengthen the pressure to spend substantial sums on highway improvements, particularly in smaller metropolitan centers and nonmetropolitan areas.

THE IMPACT OF LOCATION AND DEMOGRAPHIC CHANGES ON INTERCITY PASSENGER TRAVEL

Recent Travel Trends and Policies

The postwar trends in intercity passenger travel that have received the most attention from the federal transportation policy makers are the steady increase in the total volume of intercity travel and the changes in the distribution of passengers among the principal intercity modes. In the postwar period, total domestic intercity passenger-miles grew at an average annual rate of 4.1 percent: from approximately 508 billion in 1950 to 1,357 billion in 1973. The automobile continued to be the dominant intercity passenger mode (especially for shorter-length trips): between 1950 and 1973 the automobile's share of intercity passenger-miles remained reasonably steady at about 87 percent. During the same

period, the airlines' share of passenger-miles grew from 2.0 percent to 10.2 percent while the railroads' share dropped sharply from 6.4 percent to 0.7 percent and the bus companies' share fell from 5.2 percent to 2.0 percent (U.S. Bureau of the Census 1976).

Recent public policy toward intercity passenger travel has been concerned with preserving a minimum level of railroad passenger service and controlling some of the congestion and noise pollution caused by the rapid growth of air travel.

Pressure to preserve railroad service is based partly on the premise that the competing intercity passenger modes, especially automobiles and airlines, pay only a small share of the costs of the facilities they use (e.g., the highway, airports, and airway systems) and the social, environmental, and energy problems they cause.

Initially, federal and state regulating agencies attempted to maintain passenger service by denying railroad petitions to abandon service and by forcing the railroads to cross-subsidize passenger losses with profits from freight. The limitations of forced cross-subsidization became apparent in the 1950s as the railroads' position in the freight market weakened. In 1972, the federal government created the National Railroad Passenger Corporation, known as Amtrak, to take over the remaining rail passenger service. Although Amtrak was expected to break even in a few years, operating deficits have increased.

The federal government has been active in reducing both airport congestion and noise. Federal agencies operate the airport and airways navigation systems and regulate safety, fares, and other conditions of airline service. Airport congestion has been abated somewhat through government grants for airport and landing-system improvements (although greater improvements resulted from reduced traffic during the recent recession and the introduction of wide-bodied jets). Airport noise is being reduced by government regulations that set noise standards for new aircraft and, to a lesser extent, by newly required procedures for landings and approaches.

Although federal, state, and local governments all encourage intercity automobile travel through the construction and upgrading of intercity highways, the federal government has recently made efforts to reduce some of the social costs of intercity automobile use. The federal standards governing air-pollutant emissions and energy conservation for new cars along with the 55 mph speed limit on the interstate highway system are the principal policy initiatives in this area.

Future Trends in Intercity Passenger Travel

Many of the factors that caused the recent rapid growth in intercity passenger travel are long-standing and likely to continue. The single most important factor accounting for the rapid postwar growth in passenger travel has been the growth in per capita income. Households with higher incomes tend to make many more person-trips, as the figures in Table 3 show. Population growth has also played an important role in travel growth, accounting for perhaps one-seventh of the total postwar increase in travel.⁵ Substantial reductions in intercity travel times and travel costs have also contributed to the increase in travel. As Table 4 shows, time and cost reductions were particularly large for airlines, automobiles, and buses. These reductions were due primarily to postwar highway construction and technological developments in aircraft, such as the introduction of pressurized cabins and jets.

TABLE 3 Intercity Passenger Travel by Family Income Level

Family In- come (\$)	Percent of All Fami- lies in 1965	Percentage of All Intercity Per- son-Trips in 1967	Relative Trip- Making Rates (less than \$4,000 = 100.0)
Less than 4,000	23.8	11.7	100
4,000-5,999	17.2	15.9	188
6,000-7,499	33.7	16.2	227
7,500-9,999		21.4	
10,000-14,999	17.7	22.3	256
15,000 or more	7.6	12.5	335

SOURCE: Calculated from data in U.S. Bureau of the Census (1970, pp. 19,20).

⁵Between 1950 and 1973 the U.S. population increased by 38 percent while intercity passenger-miles increased by 267 percent. If population growth causes a proportionate growth in intercity passenger travel, then population increases would account for 14 percent of the gain in intercity travel during postwar years.

TABLE 4 Time Series Characteristics of Automobile, Bus, Rail, and Air Travel, 1950-1970

Characteristic and Year	Auto	Bus	Rail	Air
Average price per passenger-mile in current cents ^a				
1950	NA	1.89	2.74	5.56
1955	NA	2.05	2.70	5.36
1960	9.76 ^b	2.71	3.03	6.09
1965	11.02 ^b	2.88	3.14	6.06
1970	11.89	3.60	4.02	5.96
Average speed (mph)				
1950	48.7	49.8	37.4	180
1955	52.0	52.3	39.8	208
1960	53.8	55.5	40.7	235
1965	57.8	57.4	41.3	314
1970	60.6	58.8	40.3	350

^aAuto entries are not in current (1972) cents.

^bThe 1965 automobile entry is based on a report for 1968.

SOURCES: U.S. Bureau of the Census (1972, p. 548), and U.S. Department of Transportation (1972) as cited in Miller (1975).

Rising per-capita income also is probably the most important factor in the automobile's continued dominance of intercity travel. Another factor has been the improvements in intercity highways, which resulted in increased speeds for intercity trips. The growth of suburban areas has also been a factor, because as the result of such growth, the origins and destinations of increasing numbers of intercity trips are distant from center-city train and bus stations.

The recent rapid growth in airline travel is also due in large part to postwar increases in per-capita income. These increases have permitted more people to take advantage of the higher speed and convenience offered by air service, especially for longer trips. Technological improvements that have greatly improved travel speeds and reduced capital and operating expenses for airlines have also made significant contributions.

Because of rising incomes and other factors, railroad passenger service has become unprofitable in all but a few markets. The most important of these potentially profitable markets is the Boston-New York-Washington corridor, in which

central cities are large and close to each other. Railroad service remains competitive in that corridor because the high volumes of traffic allow convenient, frequent train service, and because the short distances and congested highways make airlines and automobiles less attractive alternatives, especially for trips between central cities.

In the near future, intercity passenger travel is likely to continue to grow although the rate of growth may decrease, and automobiles and airlines are likely to continue to be the dominant modes. Continued gains in per capita income will favor automobiles and airplanes. Growth of airline and automobile use may be slowed somewhat by reduced rates of technological improvement, higher energy prices, and perhaps lower rates of intercity highway investment, but these impacts will not be sufficient to offset the growth that will result from rising real income.

Implications of Expected Location and Demographic Trends

Recent location and demographic trends are unlikely to affect significantly the growth in intercity travel and the dominance of auto and air. Moreover, any small effect such trends may have will reinforce existing travel trends.

The dispersal of population to smaller metropolitan areas may well require persons to make more intercity trips for business, shopping, and recreational purposes. In 1967, for example, residents of metropolitan areas averaged only 1.7 person-trips and 1,440 person-miles of intercity travel per year while residents of nonmetropolitan areas averaged 1.9 person-trips and 1,738 person-miles.⁶ Although part of this difference is probably accounted for by factors other than location of residence, some small increase in intercity travel would probably accompany a shift of population out of larger metropolitan areas. Most of this new traffic would likely be carried by automobiles or airlines, rather than by the railroads.

The movement of population to the West and the South might also slightly decrease intercity travel in the Northeast corridor and thus result in a small decrease in railroad passenger traffic and a slower growth of airline traffic in Northeast airports, where congestion and noise problems are generally greater.

⁶Intercity trips are defined as trips of more than 100 miles that include one or more nights spent away from home. The data were calculated from U.S. Bureau of the Census (1970).

Demographic changes probably have very minor effects. Slower population growth due to reduced fertility may reduce intercity travel growth somewhat. However, the effects of slower population growth may be offset by the expected increase in the number of people between the ages of 30 and 65 because this age-group shows a greater propensity toward travel.

The new location patterns and demographic changes are unlikely to affect intercity passenger policy in any significant way, because their effects on travel are probably minor and reinforce the travel trends that policy currently addresses. These changes conceivably have two implications for policy: if the relatively more isolated and modern Sun Belt airports are used more intensively than congested northeastern facilities, noise and congestion at airports may be slightly easier to control; and demands for highway and airport expansion may increase in smaller metropolitan areas.

TRANSPORTATION POLICY AS A MEANS FOR AFFECTING LOCATION TRENDS

In the past, transportation policy has been viewed largely as a means of solving problems within the transportation sector. Increasingly, however, policy makers have been tempted to use transportation policy to try to correct other problems, including some that have been created by recent location trends. The particular location trends that are most often suggested as appropriate targets for transportation policy are the migration of people and jobs from larger metropolitan areas to smaller ones and the migration from central cities to suburbs. Public investments in new rail transit systems, operating subsidies for bus or rail transit, and higher tolls or other restraints on automobile use are examples of transportation policies that are sometimes advocated as means to reduce or reverse migration from larger metropolitan areas and from central cities.

The use of transportation policy to encourage growth of large metropolitan areas and central cities is probably undesirable, if only because the current range of transportation policies appears to be relatively ineffective in determining the actual rates of city and suburban growth. Many policy analysts find this hard to believe, because transportation changes are thought to have been the single

most important factor in shaping the general patterns of metropolitan development and regional growth. In the past 2 centuries, transportation facilities, such as ports, navigable waterways, and railroads were often decisive determinants of the location of major cities and the rates of regional growth. The spread of horse and electric street railways between 1870 and 1910 is credited with being the first stimulant to extensive suburbanization, because it allowed workers to travel greater distances to jobs at the center of the city. The automobile was also an important stimulant to residential suburbanization, and the truck enabled businesses to locate farther from railroad and port facilities, which tended to be in the city center.⁷

It is important to keep in mind that these past transportation developments, widely credited with shaping central-city and suburban growth, represented, in their time, enormous changes in transportation technologies, costs, and accessibility. Because of these changes, accessibility is extremely high in major metropolitan areas: one can travel very rapidly between any two points in most metropolitan areas--often within 20-30 minutes, even in the rush hour. However, the transportation policies currently being contemplated by U.S. policy makers would not change the general levels of accessibility and transportation costs nearly as much as past developments did. Many current transportation policies, such as the regulation of new-car emissions, fuel economy, and safety standards, change the out-of-pocket costs of travel only modestly and leave travel speeds unaffected. Even public policies or projects that are widely regarded as having major effects on accessibility, such as the construction of a new freeway or a new rail transit line, usually alter travel costs and times for only a fraction of the metropolitan population--those who live or work close to the facility and choose to use it. And even for those persons, the new facility often reduces travel times by only 20-40 percent during the rush hour and by less, or not at all, during the remainder of the day (Weber 1976). Because the effect of current transportation policies on accessibility will be much smaller than that of past transportation developments, the impact of current policies on the shape of metropolitan development should be proportionately less.

Furthermore, the effects of changes in accessibility on central-city and suburban growth rates are likely to be

⁷The history of technology is summarized from Harrison (1976).

mitigated by a number of factors. Changes in the costs and time of travel encourage households and businesses to relocate their residences, offices, and plants. However, in the short term, the possibilities for relocation are severely limited because houses and commercial buildings are extremely durable and expensive to move or replace. The enormous expense of moving, demolishing, or abandoning an existing building is reflected in the fact that a high percentage of the buildings standing today are the first and only structures that ever stood on their sites.

The high costs of moving or abandoning and replacing existing structures might not impede location changes if some households and businesses could respond to transportation policy changes by moving from their present buildings to other existing structures in different locations. Substantial changes in residential and business location patterns might be possible using the existing building stock if some occupants of existing structures could exchange positions instead of moving or abandoning the structures. However, the possibilities for such exchanges are limited by the fact that the existing stock of buildings is composed of distinct types that are expensive to alter. The buildings vary in important structural characteristics and these characteristics are difficult to change; for example, in residential buildings it is costly to alter the number of units per building, the number of rooms per unit, and the sizes of the rooms and lots. The characteristics of neighborhoods, such as crime rates, racial composition, and quality of public services, are also often important to potential occupants and difficult to alter. Because of the heterogeneity of the existing stock of buildings and the expense of altering their critical structural or neighborhood characteristics, households and businesses have difficulty responding to transportation policy changes by relocating within the current stock of buildings.

The ability of transportation policy to shape central-city and suburban growth rates is weakened by the importance of considerations other than those of transportation in determining household and business location decisions. The effects of these other factors may more than offset the effects of transportation policy. The steady postwar growth in real per capita income is thought to have played an especially significant role in encouraging residential suburbanization. As per-capita incomes grow, households usually purchase more and better quality housing. Because large lots are frequently considered an important quality of housing, many households locate in the suburbs where land

prices are lower. Furthermore, new housing is often considered more desirable than older housing, and most new housing is located in the suburbs. Thus, the effects of a future transportation policy designed to discourage residential suburbanization would be offset in part, if not entirely, by the continued rise in real per capita incomes.

The factors other than transportation that influence business locations decisions are probably more numerous (and more poorly understood) than those that influence residential changes (Straszheim 1977). Rising wage rates and consequent changes in production technologies, for example, are thought to have been important factors in suburbanizing the location of businesses. As per-capita income and wage rates increased, it became profitable for manufacturers to substitute capital for labor by using production lines and one-story plants; since these new plants were space extensive, suburban locations, where land was cheap, proved to be advantageous. Improvements in communications technologies, which made it more possible to locate central office, clerical, manufacturing, and other functions of a single firm on separate sites, may have also encouraged suburbanization of employment.

Whereas transportation policy may be a relatively ineffective means of increasing growth of central cities and slowing suburbanization, there may be other much more effective means of achieving these goals. Development of central cities is seldom seen as an end in itself, but rather as a means toward some other end. Many of those promoting growth of central cities are really concerned about improving the welfare of poor and minority persons who are trapped in the central city because of racial discrimination in suburban housing markets or the lack of affordable suburban housing due to restrictive zoning. Growth of central cities, it is hoped, would help these populations by bringing additional jobs into the city and by expanding the tax base available to support social services. Promoting central-city growth through altered transportation policies would seem an unnecessarily indirect and cumbersome means of helping low-income and minority central-city residents. Other more direct mechanisms deserve serious consideration. These alternatives include more direct attacks on the institutions that trap poor people in cities, such as racial discrimination in housing or restrictive zoning. More feasible and effective, perhaps, would be measures to help poor persons who remain trapped in cities. Such measures might include job training or wage subsidies to help long-term unemployed persons find jobs. An additional consideration might be

an increase in federal revenue sharing to central cities to provide the expanded tax base needed to support public services.

SUMMARY

Transportation policy has traditionally been conditioned by a few major transportation trends and problems: urban transportation policy has been largely shaped by the growth in automobile use and the decline of mass transit; intercity freight policy has been shaped by the relative decline of the railroads; and intercity passenger policy has been shaped by increases in travel by airline and automobile and decreases in travel by railroad and bus. Although expected demographic and locational developments will have a modest effect on major transportation trends, other factors, particularly rising real incomes, will be far more important determinants.

There is increasing pressure to use transportation policy to alleviate the effects of anticipated locational changes, largely because transportation changes are thought to have greatly shaped location patterns in the past. However, the leverage of transportation policy over future location decisions is likely to be small, partly because past transportation developments have already made transportation costs so low. In addition, there are more appropriate policy tools that could be used if development control seems warranted.

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POPULATION REDISTRIBUTION:
IMPLICATIONS FOR ENVIRONMENTAL
QUALITY AND NATURAL
RESOURCE CONSUMPTION

Dale L. Keyes

INTRODUCTION

Historically, patterns of human settlement have mirrored the spatial distribution of nature's bounty. Fertile land, clean water, navigable rivers, accessible mineral deposits, and abundant forest resources have worked singly or in concert to define those sites best suited for habitation. Though where we choose to reside is now less a function of resource location, we are no less dependent on our natural resource base.

The magnitude of population redistribution in this country has been amply documented. A major shift in settlement patterns both within and among regions is surely under way. In the main, considerations other than the availability of natural resources are fueling these movements. But the impact on the supply and quality of these resources may well act as a servomechanism reinforcing certain shifts and throttling others.

Organization

For purposes of exposition, it is expedient to treat the spatial redistributional trends occurring at the metropolitan scale separately from those that are taking place among regions, although the two scales of migration are surely interrelated; a move from New York to Tucson probably entails a concomitant move from city to suburb. Where these

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interrelationships appear important, the distinction between interregional and intraregional population shifts will be blurred. For the most part, however, the scale of the observed relocation pattern will serve to organize the discussion.

In exploring the environmental implications of population redistribution, three types of scarce natural resources are featured: energy (in its various forms), clean water, and clean air. We will look at the stress that this redistribution places on the provision of these resources, either by increasing demand or by decreasing quality. Alternatively, population movements may spatially separate the demand from the scarcity. Both resource stress and relief will be considered. Finally, the ways in which environmental or resource allocation policy may impact on migration patterns will be explored.

New Terms

Many of the terms used elsewhere in this volume appear in this paper as well. New terms that may be unfamiliar to the reader appear below.

Energy

Btu British thermal unit, a unit measure of energy in the form of heat (therm = 100,000 Btus)

VMT Vehicle-miles traveled

Air Pollution

SO₂ Sulfur dioxide

TSP Total suspended particulates

REDISTRIBUTION AT THE METROPOLITAN LEVEL

Berry and Dahmann have already identified the major dimensions of population redistribution observed at the metropolitan scale during this decade. The major thrust continues to be from central-city to suburban areas, although significant movement to settlements outside standard metropolitan statistical areas (SMSAs) is also apparent. This centrifugal dynamic may carry with it important ramifications for natural resource consumption and environmental quality.

Evidence is now accumulating that ties together levels of resource use and the spatial patterning of development within (and, by extension, outside) metropolitan areas. Because population decentralization suggests profound changes in the mosaic of metropolitan-wide development, changes in the availability and demand for natural resources are inferred.

Mills discusses in this volume the changes in population density that have accompanied redistribution. Density is a useful statistic for describing development patterns. It conveys a sense of the propinquity of people and the clustering of urban activities. However, it can obscure the unevenness of development in any spatial direction and does not necessarily reflect the accessibility of people to activity centers.

Other commentaries on metropolitan development patterns, although often qualitative and limited in the number of metropolitan areas discussed, give a fuller sense of changes in the urban development fabric (Mayer 1969, Ward and Paulhaus 1974). Suburbanization frequently brings with it a proliferation of metropolitan subcenters as well as dispersion of the population. Commercial and employment centers evolve at points with access to principal transportation arterials and they spawn secondary development around these nuclei. Movement to areas outside SMSA boundaries frequently leads to development of new metropolitan subcenters, or to growth in older, pre-existing satellite towns. The degree of suburban multinucleation varies among SMSAs, and the evolving development patterns are far from homogeneous within SMSAs.

Energy for Transportation

Shifts in development patterns may bring about significant changes in metropolitan travel patterns and thus alter the demand for gasoline and other transport fuels. First, because population decentralization has historically preceded employment decentralization, commuting trips have been significantly lengthened. In SMSAs with mass transit systems that primarily serve the inner city (typically the larger, older ones), suburbanization has frequently siphoned commuting trips from transit to the less efficient automobile. Shopping and other discretionary travel may also increase, especially where circumferential highways facilitate trips among clusters of retail activity.

The magnitude of these changes can be seen in the travel patterns of households living at various distances from

the urban core. A recent study by The Urban Institute (Neels et al. 1977) found considerable variation among sample households from six SMSAs. Using both population density and distance from the urban core as classifiers of neighborhoods, the authors found that in any SMSA, people living in low-density fringe neighborhoods took about 1.5 times as many trips and traveled about twice as many miles as their counterparts in high-density inner neighborhoods. These trends apply to both work and nonwork trips, although the differentials for work trips were more pronounced. Transit use also dropped off with distance from the core, although transit failed to account for more than 5 percent of the travel in any neighborhood.

Variations in travel suggest similar differences in gasoline consumption, even though travel at more efficient speeds in suburban and exurban areas may narrow the gap somewhat. George Peterson and I have investigated variations in gasoline consumption among 50 SMSAs, and related these variations to differences in development characteristics (Keyes and Peterson 1977). After controlling for gasoline price and household income, we found a significant relationship between the amount of gasoline consumed per person and various development and transport system characteristics of the SMSAs sampled. Large metropolitan areas with low population densities, relatively high levels of employment in the central business district (implying long commuting distances), and extensive highway networks produce higher levels of per-capita gasoline consumption. In magnitude, the differences are quite impressive. SMSAs that score in the top 16 percent on each of these variables (one standard deviation above the mean) show per-capita consumption levels of 65-80 gallons (20-25 percent) above the average. Because these are metropolitan-wide averages, the consumption differentials between individual households living at the SMSA fringe and those at more central, higher density locations must be even larger.

These findings accord with the mainstream of evidence in the transportation literature. They tend to be somewhat lower than energy consumption levels predicted by simulations of future growth in specific metropolitan areas (Edwards and Shofer 1975, Roberts 1975), but the latter often assume worst-case conditions rarely observed in U.S. SMSAs (such as the most extreme separation of new residences from new employment opportunities).

Based on these observations, it is possible to conclude that metropolitan population redistribution poses a threat to scarce energy resources, specifically

petroleum-based fuels. But the seriousness of this threat should be judged in terms of the likely increase in demand relative to national consumption levels as a whole, and against possible ameliorating factors. If current low-density settlement patterns were replaced by high-density ones, I have estimated that energy savings could eventually exceed 2 quadrillion Btus per year, or less than 2 percent of the estimated yearly U.S. consumption by the end of the century (Keyes and Peterson 1977, U.S. Bureau of Mines 1975). However, gasoline consumption is clearly sensitive to the efficiency of automobiles and the price of gasoline. Acting alone, either one of these factors would deflate gasoline consumption and thus reduce the differences between decentralized metropolitan areas and more compact, higher density ones. The Federal Energy Administration (1974), now part of the Department of Energy, has estimated that achieving a sales-weighted 20 miles per gallon fuel efficiency by 1980 would result in an annual savings of approximately 0.4 quads by 1985, whereas doubling the real price of gasoline may reduce gasoline consumption by over 50 percent in the long run (4 quads or more).¹ Cast in this light, the impact of population redistribution trends at the metropolitan level are significant but not alarming.

Energy for Space Heating and Cooling

The amount of energy needed to heat and cool our homes is determined in large part by the size of the dwelling and the insulating characteristics of the outer shell. Both factors typically come into play when central-city residents move to suburban or nonmetropolitan locations. First, such moves are often associated with the purchase of more living space. And secondly, these moves may be from townhouses or apartments, where shared walls minimize heat loss to the outside, to detached dwelling units, with six exterior surfaces. Of course, not all decentralization moves entail such changes. Single-family detached units can still be

¹This is based on estimated long-run price elasticities of gasoline demand of -0.5 to -0.9. (Chase Econometric Associates 1974, Wildhorn et al. 1975). These elasticities account for the purchase of more efficient automobiles as one strategy consumers would use to offset higher gasoline prices. The estimates incorporate the effect of improvements in automobile efficiency cited above.

found in built-up central-city areas, and duplexes, town-houses, and multifamily structures appear with some regularity in suburban locations. But as Table 1 demonstrates, dwellings with at least one shared wall are found much more frequently in central cities.

Whether the movement toward single-family detached homes is significant for energy use depends above all on the relative efficiency of the alternative structural types. Simulations of heat loss from prototypical and real dwellings (Anderson 1973, Tokmanhekin and Harvey 1974), cross-sectional comparisons of jurisdictions with different housing inventories (Keyes and Peterson 1977, Regional Plan Association, Inc., and Resources for the Future 1974), and surveys of individual households (Keyes and Peterson 1977, Response Analysis Corporation 1974) consistently show the superior energy efficiencies of units with shared walls. The only exceptions are extremely tall buildings for which the energy requirements to light and heat common areas and to operate common facilities outstrip the gains from thermal insulating characteristics of the individual units (Sweet 1974).

TABLE 1 Percent of Housing Types Within and Outside SMSAs by Age of Structure

	Housing Type (Units per Structure)			
	1 Unit		2-4	5 or
	Detached	Attached	Units	More
Existing (1970)				
Central cities	45.0	5.6	21.0	27.6
Suburbs	72.6	2.3	10.3	11.5
Non-SMSAs	81.3	0.8	8.5	4.1
New (1970-1976)				
Central cities	36.0		11.8	49.2
Suburbs	56.2		6.7	26.4
Non-SMSAs	62.1		5.3	7.1

SOURCES: U.S. Bureau of the Census and U.S. Department of Housing and Urban Development (1978); U.S. Bureau of the Census (1972).

Figure 1 summarizes the results of four key studies. Although the absolute values of energy consumed for heating and cooling similar types of structures vary among the four studies (due primarily to climatic variations and differences in insulation properties of the individual buildings), a similarity in the trend lines is observed. Single-family detached dwellings are about 1.5 times less energy-efficient than units of the same size in small to medium multi-family structures. When typical size differences are considered, single-family units would be expected to consume at least twice as much energy as units in apartment buildings.

As impressive as these differences in efficiency may be, the significance of the implied increase in energy demand remains to be established. In doing so, the amount of new residential construction over the next several decades must be considered. If it is assumed that 1.35 million units will be built annually in metropolitan areas,² and (unrealistically) that all these units could be small multi-family structures as contrasted with the current mix of about 50 percent single-family detached dwellings, 20 percent townhouses, 30 percent mid-rise units, and 1 percent high-rise units,³ then the increase due to current patterns in annual energy consumption by 1985 (using 1975 as the base year) would be about 0.5 quadrillion Btus. By the year 2000, the increase would be about 1.2 quadrillion Btus per year.⁴ When these increases are viewed in the context of total annual energy demand, the first equals about 0.5 percent of estimated energy consumption in 1985, and the second equals about 1.0 percent of estimated energy consumption in the year 2000 (Federal Energy Administration 1974, U.S. Department of Energy 1979).

This "excess" demand can be cut by energy price increases or by improvements in end-use efficiencies, such as more

²During the period 1970-1973, when housing construction rates were high, 1.51 million new units were added each year (U.S. Bureau of the Census 1975).

³This is the distribution estimated for the period 1973-1975 by the National Association of Homebuilders (1974).

⁴These calculations further assume that the average annual fuel consumption is 1,600 therms for single-family detached units, 1,200 therms for townhouse units, and 960 therms for small multi-family units.

liberal application of wall insulation or energy-saving design features. Savings of 0.8 quads per year by the year 2000 have been estimated for the implementation of upgraded insulation standards (this assumes application to all new dwellings but is especially effective for single-family detached units). Annual savings that could result from substantial increases in the price of natural gas, electricity, and fuel oil have been estimated at 4 quads or more per year by the year 2000 (Hirst 1978).⁵

Because of these counterbalancing factors and the increase in two-person households, many of which favor small townhouses or apartments, increases in energy demand accompanying the outward movement of metropolitan populations will be less substantial than they first appear to be.

Water Consumption

The lower population densities characteristic of current settlement patterns portend upward shifts in the demand for another increasingly scarce resource--water. Low residential densities are created by large lots supporting thirsty lawns. Sprinkling requirements together with other outdoor water uses account for substantial portions (up to 60 percent) of many household water bills. Conceivably, population movements from residences with small lots or shared lawns (common areas) to homes with extensive private yards could create an expanded demand for water.

However, evidence pointing to the highly discretionary nature of outdoor water use has been accumulating for many years. As far back as the early 1950s, studies of homes with and without metering indicated differences in water use of from 25 to 50 percent (Hanke and Flack 1968, Porges 1957). As a further indication of how sensitive this portion of household water use is to price level, price elasticities of demand have been estimated to range from -0.7 to -1.6. Thus, an increase in the price of water could give rise to a more proportional decrease in consumption.

Suburbanization and exurbanization of metropolitan populations will likely lead to some increase in water use. But

⁵Hirst simulated rapid increases in fuel prices between 1975 and 1990, with less rapid increases thereafter. The ratios of 2000 to 1975 prices (in 1975 dollars) were: 1.9 for gas, 1.2 for electricity, and 1.4 for oil.

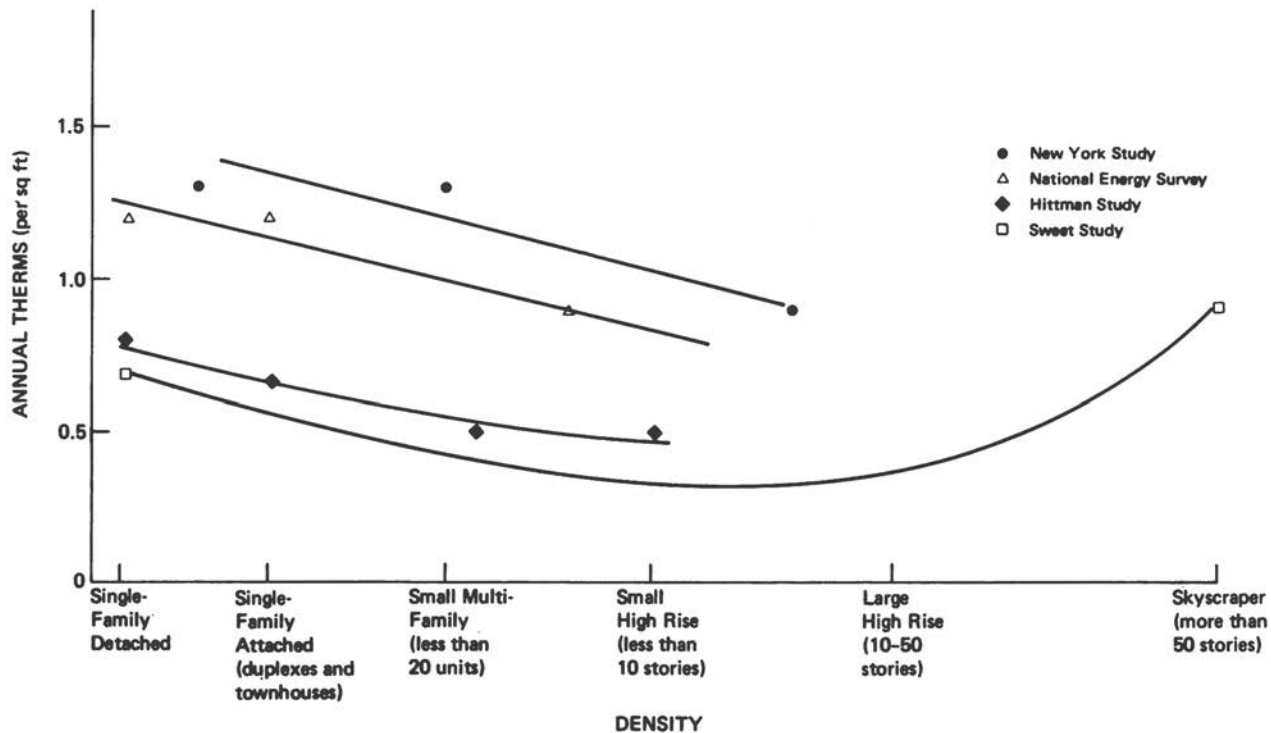


FIGURE 1 Relative energy efficiency by type of dwelling (Anderson 1973, Keyes and Peterson 1977, Regional Plan Association, Inc., and Resources for the Future 1974, Sweet 1974).

the increment is not likely to be large once water is priced at its scarcity value.

Water Quality

If migration to the suburbs or beyond entails an increase in a household's demand for selected economic goods, it is not difficult to envisage a similar rise in the volume of waste material generated as a result of this inflated consumption. Where these wastes are waterborne, further degradation of local water resources may result. However, only small differentials in domestic wastewater production are observed between central-city and suburban households (probably due to income differences). Instead, whatever impact on water quality may result from metropolitan decentralization will arise from differences in the quantity and waste content of stormwater runoff.

Research has shown that stormwater runoff from developed areas is highly polluted, and, in some cases, can seriously degrade the quality of local surface water (Hydroscience, Inc. 1975). Moreover, the extent of paved surfaces in an urban area is believed to affect the volume and perhaps pollutant strength of the runoff (i.e., more pavement, more pollution). Since dispersed, low-density urban areas have more paved surface per capita than compact SMSAs, one can argue that decentralization increases runoff and reduces water quality. Unfortunately, the evidence is less than definitive (Keyes 1977b). In general, the data on rates at which waste materials accumulate in urban areas (and are thus available for washoff during storms) are unreliable or have been collected with little documentation of the relevant environmental conditions.

However, even if waste materials were deposited at higher rates per capita in low-density, dispersed settlements, it does not necessarily follow that these areas would discharge greater quantities of pollutants. The lower density of paved areas in dispersed settlements often makes feasible the use of natural drainage networks instead of storm sewers to convey runoff to receiving waterways. As the runoff passes over fields and other vegetated land, the flow of water is slowed, debris settles out, and water begins to percolate through the soil. These natural processes provide a degree of pollutant removal that may compensate for whatever greater initial pollutant loadings may be caused by dispersed development. Thus, clear differences among types of development patterns should not be expected.

The findings of a recent water-quality study in Sonoma County, California bear this out (Association of Bay Area Governments 1976). The study found that metropolitan-wide variations in land-use intensities and arrangements have little effect on water quality. Thus, water-quality dis-benefits are likely to be conferred equally on all development patterns.

Air Quality

It could also be argued that air quality should deteriorate as a result of population redistribution at the metropolitan level. Again, the argument centers on travel behavior; as automobile trips become longer and more frequent, total emissions of air pollutants rise. However, air quality is not necessarily a simple function of air-pollutant emission levels. The spatial distribution of sources, characteristics of the terrain, and meteorological factors such as predominant wind directions interact to determine the concentration of pollutants in the atmosphere. Moreover, the space between residential and employment centers, on one hand, and sources of air pollutants, on the other, will affect the ambient pollutant levels to which people are exposed.

Harvard researchers who simulated the effect of various land-use patterns on auto-related air pollution in the Boston region (Ingram and Fauth 1974, Ingram and Pellechio 1976) found that decreasing population densities by dispersing people and jobs from the urban core decreases the atmospheric concentration of automobile-related pollutants (specifically carbon monoxide) throughout the core, despite the fact that SMSA-wide emissions of automobile pollutants are increased. Although more automobile trips are taken and the average trip is longer, the trips are more highly dispersed spatially. This allows for greater atmospheric dilution of pollutants and lower population exposure levels.

I have extended this line of analysis to cover emissions from stationary sources, using an air-quality simulation of alternative development patterns in a hypothetical metropolitan area (Keyes 1977a). In general, the results are strikingly similar to the findings of the Boston study: the air is less polluted, as measured by levels of population exposure, where sources and people are dispersed throughout the region or where sources or people are isolated at remote locations. And in the case of stationary sources, population dispersal

does not result in increased emission levels that partially offset the dilution factor.

These findings lead inexorably to the conclusion that dispersed, not compact, land-use arrangements are more desirable from an air-quality perspective. But a cautionary flag must be raised. This conclusion seems obvious for pollutants that are relatively inert (i.e., carbon monoxide from mobile sources, particulates and sulfur dioxide from stationary sources). For pollutants such as photochemical oxidants (the constituents of smog) that are formed in the atmosphere as a result of chemical reactions among other pollutants, the situation is far more complex. Ambient concentrations of photochemical oxidants arise following the emissions of precursors (from both mobile and stationary sources) in ways that are imperfectly understood at the present time. Some experts believe that the level of photochemical oxidants observed at any location within an urban region is most closely associated with area-wide levels of precursor emissions. Others believe that the spatial pattern of emissions is also important. This uncertainty prevents us from drawing firm conclusions about the effect of settlement patterns on air pollution caused by photochemical oxidants. However, only in the case of photochemical oxidants could metropolitan decentralization possibly lead to lower levels of air quality.

Continued decentralization of congested urban cores would appear to be an effective goal for air-quality strategists. Even though the implementation of mobile and stationary source emission standards as mandated by the 1977 amendments to the Clean Air Act (Public Law 95-95) will reduce the size of the net air-quality benefit from population dispersal, previous analysis has demonstrated that this approach to achieving clean air may prove to be a useful adjunct to direct emission control of stationary sources, especially, for those pollutants for which source controls alone may be insufficient to attain the National Ambient Air Quality Standards (Keyes 1977a).

Summary and Policy Implications

Whether the trends in population redistribution on the metropolitan scale signal an ominous upswing in resource demands remains unclear. On one hand, a more widely distributed population base implies greater water consumption and greater energy consumption for both personal travel and residential space conditioning. However, the extent of these increases

is uncertain. On the other hand, the net effects of lower density, metropolitan (and nonmetropolitan) development are beneficial to air quality and, at worst, are not detrimental to water quality.

Even for energy and water supplies, alternative means to mitigate the effects of population redistribution are available. Increases in the prices of fuel and water could effect large and rapid decreases in the demand for these resources. Regulations on end-use efficiencies or, in the extreme, bans on particular activities, such as lawn sprinkling or outdoor lighting, are other alternatives.

Whether any environmental, energy, or water-use policy currently in effect influences the pattern of metropolitan-scale migration is highly questionable. These policies would affect migration patterns only if environmental and natural resource considerations are important to migrating households, and if public policies in these areas create differentials among central cities, suburbs, and nonmetropolitan jurisdictions. Neither seems probable.

INTERREGIONAL MIGRATION

Although the trend toward metropolitan decentralization promises to occupy the attention of urban scholars, the impact of regional migration patterns may well prove to be more significant. Berry and Dahmann have documented the major feature of these patterns--a shifting of the population to the South and the West. The South Atlantic, East South Central, West South Central, and Mountain regions all have experienced a recent spurt in population growth, largely at the expense of the North Central and Northeast regions. As a result of interregional migration alone, the South has experienced a net population gain of 1.8 million from 1970 to 1975. Moreover, this shift has altered the stress on clean air and water resources, relaxing demands in some areas, and heightening them in others.

Energy

A net flow of households to warmer climes should result in a reduction in the total energy used for space heating and cooling. Reduced heating expenditures have, in fact, been proffered as a key motivational factor for migrants to the South and the Southwest. But these interregional shifts in population also hold importance for the mix of fuels employed to satisfy national energy demand.

Energy Demand Roughly two-thirds of the average American household's residential energy bill results from heating and cooling. Of this, heating costs far outpace cooling costs. In the far South cooling demands rise somewhat, but the savings in space heating are substantial enough to lower the total energy bill.

Table 2 shows regional variations in average per capita energy consumption for on-site uses in 1972. Climatic effects are clearly evident; a typical home in New England requires about twice as much energy to heat and cool as one in the South Atlantic region. These numbers may also reflect regional variations in income levels, energy prices, housing characteristics, and other factors related to residential energy consumption. But the energy differentials do not appear to diminish when standardized housing units (and, implicitly, similar households) are compared. Arthur D. Little, Inc. (1974) has estimated that a gas-fueled single-family detached home in Detroit would require about twice

TABLE 2 Net Population Change (1970-1975) and Regional Variations in On-Site Household Energy Use (1972)

Region		Net Population Change, 1970-1975 (millions of people)	On-Site Energy Use (millions of Btus per capita)	
North-east	New England	-1.34	75.0	69.3 ^a
	Middle Atlantic		67.5	
North Central	East North Central	-1.20	70.7	65.9 ^a
	West North Central		63.9	
	South Atlantic		38.5	
South	East South Central	+1.83	44.2	41.6 ^a
	West South Central		45.0	
	Rocky Mountain Pacific		53.9	
West	Rocky Mountain Pacific	+0.71	45.4	47.6 ^a

^aPopulation weighted averages.

SOURCES: Berry and Dahmann (this volume); Hoch (1977); Murray and Reeves (1975).

as many Btus per square foot to heat and cool as would an identical home in Pine Bluff, Arkansas.

From the data presented in Table 2, we can derive a rough approximation of the residential energy savings created by interregional migration between 1970 and 1975. Assuming that the in-migrants and out-migrants did not differ appreciably from the average residents of the appropriate regions, the net flux of population southward and westward probably saved approximately 60 trillion Btus per year. These savings are small by national standards (less than 0.1 percent of the national total in 1975), and they will be eroded by improvements in both the efficiency of heating and cooling equipment and the insulation of new homes. Even with accelerated migration to the South and the West and without improvements in end-use efficiencies, the savings in residential energy probably will not be much above 0.5 percent per year by the end of the century. For comparison, Hirst (1978) estimates that a 0.8 percent reduction could be effected through upgraded building standards by the year 2000.

Energy used for personal travel is even less affected by interregional migration patterns. Table 3 shows per-capita expenditures for gasoline and lubricating oil taken from recent household surveys conducted by the Bureau of the Census. The greatest variation among regions is about 20 percent, and, more importantly, variations are even smaller when the two regions of net in-migration are compared with the two regions of net out-migration. The travel-economizing effect of population clustering in the East is apparently offset by the region-wide dispersal of population in the North Central region. This is not to diminish the importance of energy savings to individual households. But on a national scale, the economies are not large.

TABLE 3 Regional Differences in Expenditures for Gasoline per Household

Region	1972 (1972 dollars)	1973 (1973 dollars)
Northeast	303	332
North Central	336	402
South	345	386
West	346	378
Average	333	376

SOURCE: U.S. Bureau of the Census (1976b).

Energy Supply A full accounting of energy implications associated with national patterns of population redistribution should include the availability of different forms of energy as well as changes in aggregate energy demand. Table 4 displays patterns of energy use in the residential sector (and thus, indirectly, the availability of energy supplies) by fuel type for the nine Census regions. Although the percentages refer only to energy used in single-family detached dwellings, they illustrate the general trends in the entire residential sector. The variations are striking. Distillate fuel oil supplies over half of the household energy used in the East while gas predominates in the other regions, especially in the West and the West South Central regions. Except for the East South Central region, electricity supplies only a small fraction of total household energy consumption.

TABLE 4 The Distribution of Residential Energy Consumption by Fuel Type and Region, 1970 (single-family detached homes)

Region		Percentage Distribution of Fuel Use			
		Gas	Oil	Electric	Coal & Wood
North-east	New England	20	76	3	1
	Middle Atlantic	46	45	3	6
North Central	East North Central	71	23	2	4
	West North Central	76	20	2	2
South	South Atlantic	41	39	13	7
	East South Central	60	4	20	16
	West South Central	93	--	4	3
West	Rocky Mountain	81	8	5	6
	Pacific	76	12	10	2

SOURCE: Oak Ridge National Laboratory (1975, Figure 11).

TABLE 5 Percentage Distribution of New Homes by the Fuels Used for Heating and Cooling, 1975

Region	Gas	Electric	Oil	Other
Northeast	27	37	46	--
North Central	49	38	9	4
South	29	66	4	1
West	59	39	--	2

SOURCE: U.S. Bureau of the Census and U.S. Department of Housing and Urban Development (1976).

As shown in Table 5, fuel shares for new homes differ considerably from these patterns. Shortages of natural gas and uncertainties about future oil supplies have given a large boost to all-electric homes. Still, the greater reliance of eastern households on oil continues to hold.

These patterns are largely the result of local fuel availability. Natural gas is abundant in the Gulf Coast area and in the Southwest. And despite the concomitant availability of petroleum, the lower price of gas (\$1.40 per million Btu for gas and \$3.25 per million Btu for oil in 1974) makes it the number-one choice for residential uses. Northerners are simply unable to obtain sufficient quantities of gas; oil is selected over electricity, again on the basis of relative cost (\$3.10 per million Btus for oil and \$11.10 per million Btus for electricity).⁶

If prices were held constant and new demands went unchecked, a new movement of people to the Southwest would result in increased use of gas relative to oil. Neither condition is probable, however. Moratoria on new gas connections are a reality and a schedule for natural gas price increases was recently passed by Congress. Moreover, if the President's original energy proposals were to be adopted,

⁶These prices are approximate averages for the states in the regions indicated. The data are taken from Edison Electric Institute (1975) and American Gas Association (1975, 1977), as reported in Energy and Environmental Analysis (1977). Prices are expressed in terms of usable Btus, taking typical efficiencies of furnaces and heaters and, in the case of electricity, generation and transmission losses, into account.

alternative fuels would eventually reach the same price level on an equivalent Btu basis. As a result, the demand for increasingly scarce supplies of natural gas would ease somewhat, although only total deregulation of market prices would allow gas to be priced at its scarcity value. The net effect of recent legislation and the relative availability of fuel stocks should be to lessen the disparities in fuel shares among regions.

But the major energy impact of growth in the South and the West may be totally obscured by the information in Table 5. As important as the distribution of total demand among alternative fossil fuels may be in the near term, satisfaction of consumer demand in the long term clearly depends on the development of alternative forms of energy. The South and especially the Southwest, blessed with abundant supplies of solar energy, stand ready for application of emerging solar technologies. Figure 2 quantifies the relative advantage of a southern climate in this respect.

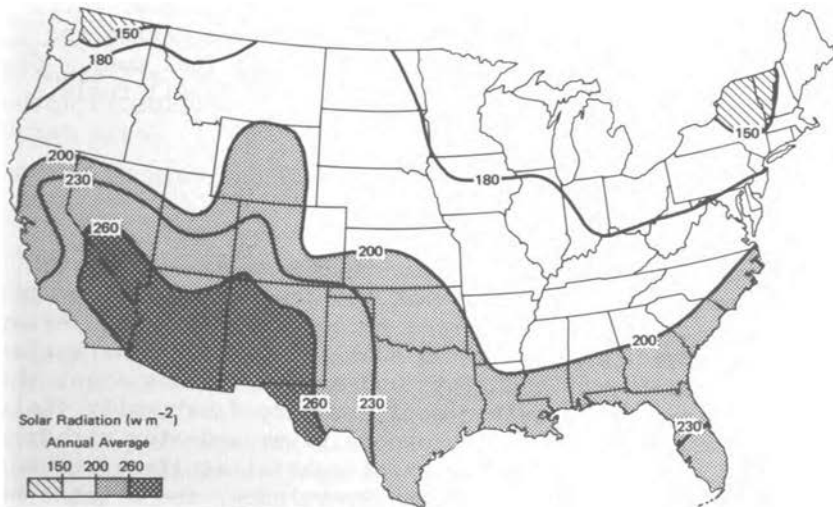


FIGURE 2 Annual levels of solar insolation in the United States (watts per square meter) (Calvin 1974, Figure 1).

Regardless of whether the technological breakthroughs needed for large-scale application of solar energy in all economic sectors occur soon, the potential for extensive use of currently available technologies in the residential sector is considerable from now until the end of the century. The physical requirements (i.e., space for collectors and storage facilities) are satisfied by almost all newly constructed single-family detached units (Office of Technology Assessment 1977). Currently, initial costs may preclude large-scale application. However, when the price of fossil fuel increases to such a degree that a consumer could install solar facilities, knowing that in a period of perhaps 5 years the amount he would save in fossil-fuel costs would equal the cost of installation, the use of solar energy should increase dramatically. The Sun Belt stands to benefit above all other regions once this occurs.

If it is assumed that the rate of migration from the North and the East will continue at the current level, that a solar option will be only available to homes in the South and the West, and that every migrating household will eventually install a solar heating and cooling unit, the savings in fossil-fuel consumption due to interregional migration between now and the end of the century could reach over 1 quadrillion Btus per year (about 0.9 percent of total projected annual consumption for the entire nation and more than 2.0 percent of projected fossil fuel use). Given the anticipated increase in the price of fossil fuels, savings of this magnitude may be feasible.

Water Use

In stark contrast to the solar abundance and associated temperate winters of the South and the West, water scarcity looms ever larger as a threat to continued growth. Arizona has already tapped all but a small fraction of the surface water available in the state and annually pumps about three times as much groundwater as is recharged naturally (Kelso et al. 1973). In Florida, excessive groundwater withdrawal has led to seawater intrusion of coastal aquifers, steadily decreasing water levels in the Everglades, and a total ban on new construction in the Keys. Even though these trends cannot be extended to all southern and western areas, they are alarming enough that the wisdom of permitting unbridled growth in these regions should be seriously questioned. The drought of 1977 served to sharpen the horns of the apparent dilemma.

TABLE 6 Water Withdrawn by Type of Use (in millions of gallons per day)^a and Land Use (in square miles) for Three Sun Belt States, 1975.

	Water Withdrawn		
	Arizona	California	Florida
Residential (mgd)	372	3,129	1,130
Public supply	340	3,000	930
Self-supply	32	129	200
Industrial and commercial (mgd)	410	2,620	2,810
Public supply	60	720	210
Self-supply	350	1,900	2,600
Agricultural (mgd)	7,043	35,100	2,963
Livestock	43	100	63
Irrigation	7,000	35,000	2,900
	Land Use		
Irrigated area (sm)	2,200	14,000	3,100
Developed area (sm) ^b	859	5,863	4,330

^aWithdrawals include water consumed and water returned to bodies of surface water or groundwater in usable form.

^bUrban area.

SOURCE: Murray and Reeves (1975, Table 10).

A review of current patterns of water use can bring the problem into better focus. Table 6 shows the amount of water withdrawn in 1975 for three Sun Belt states disaggregated by economic sector. Water demand is clearly dominated in both Arizona and California by the agricultural sector, specifically by irrigation uses. On a per-acre basis, crop irrigation far outstrips residential, commercial, and industrial uses of water--2.59 million gallons per day (mgd) per acre compared with 0.95. In Florida, however, the uses per acre are about equal, with urban uses averaging 0.91 and agricultural uses 1.02 mgd per acre. These differences are apparently due to variations in precipitation levels between Arizona and California, on one hand, and Florida, on the other.

These patterns of water use suggest that population growth should have quite disparate effects on water demand. In California and Arizona, the displacement of farmers by urban development should create net reductions in overall demand, but in Florida, urban growth that pre-empts agricultural land uses will have little impact on the demand for fresh water.⁷ In either case, however, shrinking water supplies are likely to favor urban over agricultural uses, since the former usually can outbid the latter.

Kelso et al. (1973) have gauged the economic impact on Arizona of rising water prices created by increased pumping costs as groundwater levels fall. They conclude that water withdrawal will closely approach replenishment by the end of the century even with a continued growth in population of over 2 percent per year: the least valuable crops per gallon of water required for plant growth will be replaced by more valuable, less water-demanding ones. Increased urbanization should also contribute to balancing the water budget, although Kelso et al. did not include this effect in their calculations.

Where more rapid movement toward depressing water demand is deemed necessary, the various policy tools discussed in the previous section can be employed. Increases in water utility prices or bans on particular uses have proven effective tools for curbing consumption during drought conditions. A pricing approach may be useful in a state like Florida, where urban uses account for a large percentage of total demand. In most southwestern states, however, use curtailments in the agricultural sector will have to be effected. Unfortunately, direct price control is typically infeasible for the vast majority of self-supplied farm users. Instead, public authorities must rely on increasingly difficult-to-reach sources of water or resort to land-use pre-emptions to throttle demand. In any case, there is no reason to believe that urban growth is primarily responsible for water shortages or that it should be necessarily inhibited by concern for future availability of supplies in water-short regions.

⁷Arizona law allows municipalities to secure water supplies by eminent domain. Thus, the tools to implement an urban growth strategy are already in hand, even though they have seldom been used.

Air and Water Quality

The movement from North and East to South and West, from old, heavily industrialized metropolitan centers to smaller, less concentrated urban areas, suggests a major shift in environmental stresses. At a minimum, air and water pollution will be more evenly distributed geographically. To the degree that a redistribution of people also signals the development of a new, less polluting industrial base or the replacement of old capital stock with new and better controlled facilities, net improvements in air and water quality should be experienced nationwide. And to the extent that growth regions are better able to assimilate or dissipate waste loadings, ambient levels of air and water pollutants to which many people are exposed will be lowered even further.

As a test of the deductions articulated above, we can examine the current status of localities with respect to recorded levels of three air pollutants--sulfur dioxide, particulate matter, and photochemical oxidants--for each county in which valid measurements were made between 1974 and 1976. (See U.S. Environmental Protection Agency 1977, Figures 4-1, 4-2, and 4-3.) Although air quality in more than half of all counties is not monitored, most of the unmonitored counties are sparsely populated. Such an examination shows, first, that pollution from sulfur dioxide is not as geographically pervasive as pollution from photochemical oxidants or particulates. Less than 10 percent of all counties monitoring SO₂ reported violations of the national standard,⁸ and those that do show that violations are fairly evenly distributed among the four major Census regions.⁹

Violations of total suspended particulates, on the other hand, are recorded in almost 30 percent of all counties monitoring air quality (U.S. Environmental Protection Agency

⁸Updated lists of areas not attaining the National Ambient Air Quality Standards are now available (U.S. Environmental Protection Agency 1977). However, the geographic unit used to designate nonattainment areas varies among the states; some used subcounty areas as the minimum unit, others used entire counties, and still others, the entire state. Regional comparisons based on these nonuniform definitions have little meaning.

⁹The greater coverage of nonattainment areas in the South west is due to the large size of the counties in this region, not to a greater number of reported violations.

1977, Figure 4-2). Again, violations are found in each region, although some increased incidence of nonattainment may be observed in arid climates where windblown dust raises background levels. Conversely, when wind speeds are low, visibility in the West is far greater than in the East. Finally, a study of photochemical oxidants reveals a serious problem in almost all counties where data are available (U.S. Environmental Protection Agency 1977, Figure 4-3). Even a few rural counties record high concentrations, indicating that oxidants can be formed and transported over large areas.

A similar lack of regional distinction emerges when individual cities are compared. Major growth centers such as Los Angeles, Denver, Phoenix, Houston, Atlanta, and Miami have all recorded violations of the particulate or oxidant standard, or both, in recent years. Declining urban areas such as New York, Boston, Buffalo, Chicago, and Detroit have also been unable to attain the standards. The examples cited here are all fairly large urban complexes, each with an array of major emissions sources. Other cities, such as Phoenix and Tucson, suffer the burden of one particular heavy industry--copper smelting in this case. Still others, such as Los Angeles and Denver, are dominated by emissions from automobile travel.

It would appear that very little in the way of net air quality improvement can be realized from population shifts among metropolitan areas, even if such shifts are from one region to another. Only when migrations are from large to small SMSAs or, better yet, to nonmetropolitan areas will appreciable air-quality benefits accrue to the migrants.

In large part, geographic patterns of water quality are similarly undifferentiated among the four major Census regions. The annual report of the U.S. Council on Environmental Quality (1976) shows a broad distribution of high levels of several water pollutants or water-quality indicators. Some predominance of water pollution in "middle America" is apparent, but low-quality streams and lakes are abundant in every region. Some correlation between urban size and water quality is observable, as was the case for air quality. But examples of seriously degraded bodies of surface- and groundwater can be found in sparsely populated areas as well, due in large part to agricultural and feedlot activities. There is simply no guarantee that moving from one region to another or from SMSAs to nonmetropolitan areas will improve access to clean water.

For most of us, however, access to any water body, whether clean or polluted, is limited. On the other hand,

we all must share the cost of removing sewage and other contaminants before wastewater is discharged into receiving water bodies. The Environmental Protection Agency (EPA) is currently moving toward a third level of wastewater treatment as a means of achieving the level of water quality mandated in the Clean Water Act (Public Law 92-500, 1972). One promising approach to tertiary treatment is a technique known as land application, by which effluent from treatment plants is sprayed or allowed to flow over cropland (Hall 1975, Stewart 1973). As the wastewater percolates downward, soil particles trap bacteria and nutrients contained in the effluent, destroying the former and making the latter available to cultivated crops.

This technique is ideally suited for arid climates; the lack of waterlogged soils and a long growing season allow for continuous application of sewage plant effluent. Based on EPA's avid interest in land application, it is reasonable to speculate that additional funds for sewage treatment may soon be available to communities in arid regions--primarily the Southwest. To the extent that increased funding levels materialize, the southwestern states (primarily Texas, New Mexico, Oklahoma, Arizona, Nevada, Utah, and California) stand to benefit.

Summary and Policy Implications

That millions of families continue to move southward and westward within the United States is undeniable. Why they move is more problematic. Whereas environmental considerations probably are not major motivational factors, a desire for more temperate winter seasons and fresh air and clean skies may be important for some migrants. Presumably, concerns about water shortages may discourage others. Whatever the causes for the observed migrational patterns may be, it is the environmental and resource consumption effects of migration that concern us here.

Of the three major effects examined, the impact on fossil-fuel consumption appears to hold the largest payoff for society. Even though some lowering of per capita energy-use levels can be anticipated as the result of regional migration, the impact will be modest. But the opportunity to tap direct solar radiation for a substantial portion of residential energy use promises to lessen the national demand for fossil fuels.

The impact of interregional migration on scarce water supplies would appear, initially, to cancel whatever energy

benefits may be reaped. For states such as Florida, where farming and nonagricultural activities are about equally water-intensive, continued development may lead to overuse of available supplies, the destruction of valuable wetland areas, and eventual water rationing. However, in some areas where water supplies serve mainly to support agricultural activities, urban development can actually lead to reductions in water demand. This will be the case if the effect of urban growth is to replace crop irrigation with urban land uses that consume less water on a per-acre basis. A second effect that may be experienced where water supplies are shared between urban and nonurban users is an economic one: because water is valued more highly by most urban users, the price of available water supplies will be bid upwards, causing farmers to switch to less water-intensive crops and thereby reduce their consumption.

Finally, the effects of migration among metropolitan areas in different regions on the quality of air and water resources is probably negligible. Relocating in some parts of the West will provide more opportunities to enjoy clean air, especially as measured by visibility criteria, but households can experience the greatest improvement in air quality by moving from urban areas to nonmetropolitan sites within any region, or from SMSAs in one region to nonmetropolitan areas in another.

Regional differences in water quality, if they do exist, are even less obvious. Evidence of water pollution can be found throughout the country. Future improvements in water quality will depend on the application of more advanced (tertiary) levels of wastewater treatment. Herein may lie the basis for distinguishing among regions. Arid climates are believed to offer the best opportunity to use land-application techniques for tertiary treatment. Full exploitation of these techniques could be a cost-effective means for improving the quality of surface- and groundwater while simultaneously augmenting water supplies for irrigation purposes.

On balance, then, the present patterns of interregional migration confer an environmental and natural resource benefit to society as a whole. However, conclusion is not drawn from a detailed review of development pressures on sensitive environmental areas in any of the regions. Nor have the growing environmental and resource (especially water) demands of fuel extraction in the West been considered (Harte and El-Gossier 1978). Measures taken to protect areas of environmental or cultural value in the South and West combined with competition for scarce resources due to coal

mining, oil-shale extraction, and the like may work to limit urban growth in these regions. The "prevention of significant deterioration" provisions of the Clean Air Act (1977 amendments), for example, place severe limitations on new sources of air emissions in the vicinity of wilderness areas, national monuments, and other classified areas. Several proposed power plants in the West may be adversely affected by these requirements. Conceivably, some restraint on urban growth could result if utilities and industrial corporations are unable to find a sufficient number of suitable sites. It is more likely, however, that these amendments and similar protective measures will serve to channel growth within western states rather than to restrict it.

Other environmental and natural resource policies may bear either directly or indirectly on the current trends in population redistribution. Policies that affect the price of fossil fuels (taxes or price deregulation) or the economics of harnessing solar energy will influence migrating households in proportion to the importance that such households place on energy expenditures. Water resource development projects, such as the Central Arizona Project, will subsidize additional growth in the Southwest. At the local level, successful use of eminent domain to wrest water supplies from nonurban users may ease the concern of some who contemplate a move to the South or the West.

Air- and water-quality policies enacted at the federal level seem fairly evenhanded with respect to their geographic application. For example, all new sources of air and water emissions covered in the Clean Air Act and the Clean Water Act must meet the same emissions standards. But recent policy interpretations and emphases promise to produce subtle distinctions among regions.

The Environmental Protection Agency's nonattainment policy is illustrative. It requires all new sources of air emissions wishing to locate in areas currently violating the air-quality standards to buy emissions offsets or credits from existing sources (Public Law 95-95, Clean Air Act Amendments of August 7, 1977). However, President Carter's proposed urban policy would relax these rules for older urban areas by allowing local governments to accumulate offset credits as old sources are closed down and to offer them as inducements to new sources at a later date. If enacted, this would put declining urban areas at a decided advantage in bidding for new industrial growth.

Water-quality policy remains geographically neutral in

its application. The one exception could be EPA's emphasis on a thorough investigation of land application for tertiary wastewater treatment. To the extent that EPA's interest in this method of treating liquid wastes is translated into preferential funding of wastewater projects, southwestern states, where an arid climate provides optimal conditions for land application of wastewater, would stand to benefit.

State and local environmental laws may also create incentives or barriers to growth. California, for example, has enacted more restrictive automobile emissions standards than those imposed by the federal government. Colorado may follow suit. These regulations increase the price and operating costs of automobiles. How onerous these costs may be to prospective in-migrants is difficult to judge, but for most households, they are unlikely to be a critical element in the decision to migrate.

SUMMARY

We have seen that population redistribution at the metropolitan level is fairly neutral, on balance, with respect to environmental and resource consumption effects. Current redistribution patterns at the regional level, however, appear to convey a net social benefit, defined largely in terms of fossil-fuel savings. Selected environmental and resource policies at federal, state, and local levels may exert some influence on current redistributive patterns, but the impact is not likely to be major. Possible exceptions are policies that affect the price of energy. If prices are deregulated or if substantial energy taxes are enacted, the pace of migration to the South and West is likely to quicken.

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SOCIAL SERVICES AND POPULATION REDISTRIBUTION

Robert Perlman

INTRODUCTION

In view of the significant place that the social services occupy in the lives of Americans and in the politics and economics of the country, it is remarkable that so little study has been devoted to the relationship between social services and the distribution and movement of population. Health and welfare programs now account for one-fifth of all goods and services produced in the United States and expenditures in this field exceed 40 percent of all funds spent by federal, state, and local governments.

This paper seeks to relate social services to the population movements of the 1970s. It focuses mainly on vulnerable populations, such as the elderly or the poor, on the assumption that these groups generate the heaviest demands for health and welfare services. As background the paper notes briefly the constraints within which policy makers typically respond to changes in the demand for services. It describes the present geographic distribution of services and the extent to which it coincides with the distribution of vulnerable populations. The population movements of this decade are then considered and the paper concludes with a discussion of social service policies in this context.

It should be noted at the outset that policies governing the allocation of social service resources apparently have had little impact on the movements of people in this country. The critical issues revolve instead around the ways

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in which social welfare policies will respond to the population redistribution that is taking place in the 1970s.

There is no generally accepted definition of what constitutes the "social services." This term will be used here to refer to programs concerned with health, income maintenance, and personal care.¹ These programs cover a large and varied field and it becomes hazardous to make generalizations about programs as disparate as retirement benefits, general hospital services, public assistance, and rehabilitative services for the disabled.

Notwithstanding the differences in purpose, target population, organization, and financing, all the services have one characteristic in common that is especially relevant to this inquiry: the social services are usually directed at categories of people with a particular condition or status related to their age, income, physical or mental state, employment, or family situation. These conditions provide the legal basis for eligibility for most benefits; they generate the demand for others. Frequently the conditions overlap in the same individual, family, or geographic area. The most important instance of this overlap is the combination of deprivations and needs that are characteristic of many blacks, Hispanics, and other minorities.

This link between demographic characteristics and the demand for social services provides the main tool for analysis in this paper. We shall assume that the demands for services vary directly with the proportion of the old, the very young, the physically and mentally impaired, and the poor in a population.

¹The major programs in each of the three areas are:

Health services. Medical, dental, hospital, and nursing services provided or paid for by private insurance, consumers, the Veterans Administration, the Public Health Service, and the Social Security Administration, which administers Medicare and Medicaid.

Income maintenance. The social insurances (primarily old age, survivors, disability, and health insurance; and unemployment compensation) and the income-tested programs (Aid to Families with Dependent Children, Supplemental Security Income, food stamps, etc.).

Personal care services. Supportive and rehabilitative programs for children, the aged, families; group services; and information and access services.

Sometimes the demand for services by a vulnerable group is almost automatically translated into use or consumption of social service benefits, as in the case of elderly individuals receiving social security retirement benefits. At other times, the demand is present but is not met and continues as an unfulfilled need, as when many poor pregnant women do not receive adequate prenatal care. For the purposes of this paper, we shall assume that as families and individuals who are vulnerable move from place to place, they bring about increases and decreases in the demand for services, whether or not their needs are in fact met.

The connection between membership in a vulnerable population and the demand for services can be illustrated by reference to the elderly. They are heavy consumers of retirement benefits and Medicare. Because there is a high proportion of low-income people among the aged and because health and physical needs generally increase with age, the elderly consume large amounts of subsidized nursing, medical, and hospital care.

The responses of policy makers to shifts in the demand for social services will be shaped by the dynamics of decision making and financing in the health and welfare systems. In recent decades tremendous expansion has taken place in the social services. Between 1950 and 1975, public support alone increased tenfold. Significant elements in American society are now balking at the continued growth of social programs and are pressing to reduce some of them from their present levels. Other forces are working for further development of programs, such as national health insurance. Which programs will be cut, which will be frozen, and which will be expanded in the next decade or so will significantly affect the extent to which the distribution of services coincides with the geographic distribution of vulnerable populations.

Which programs and target populations will gain or lose support will depend, in part, on who pays the bill. The financial resources of states and localities, together with the willingness of voters to support services, account for great variation. Thus, as Orr (1976) points out: "public assistance (welfare) benefits in the most generous states are over six times as large as those in the least generous states." The main thrust in recent years has been for localities to shift the cost of social services upward to state governments, who in turn press Washington to assume more and more of the financial burden.

It should be noted that "politically unattractive" groups, such as poor female-headed families, generally fare

better under federal financing and federal minimum standards than they do under state funding. Other groups, such as those with physical disabilities, have been more successful in exerting pressures on state legislatures and governors. The formulas by which costs are divided among levels of government have become major political issues, calling into being coalitions along both interest and geographic lines and producing profound impacts on the distribution of social service resources among areas of the country and among consumers of the services.

A few other characteristics of the social services require brief comment. Except for cash transfers, most social services are delivered from physical facilities by specialized personnel. Location, access, and transportation, therefore, become important considerations, especially for people in areas of low population density and for the aged, the sick, and the disabled. These considerations raise a number of questions: To what extent will the population movements of the 1970s require new locations for service? Will professional personnel move to areas of population growth? Will the rising cost of energy inhibit travel to centrally located facilities?

Changes in the technology and organization of services affect the siting of facilities, the location decisions of professionals, and patterns of use. One example is the recent movement to deinstitutionalize the mentally ill, the retarded, and other groups and to relocate them in their homes or in facilities within the community. Other examples are the new communication technology for the diagnosis and treatment of illness and the reassignment of tasks to health professionals with less training than that of a physician; these open up possibilities for decentralizing health services and serving populations over larger areas.

However, institutional rigidities and political resistance often retard the adoption of new organizational and technical developments. In the first example, deinstitutionalization has led to severe difficulties because communities receiving people from institutions were not prepared to provide essential services. In the other examples, the flow of Medicare and Medicaid funds, training policies, and the personal preferences of physicians may inhibit the decentralization of health and hospital services.

The choice of target populations and of goals for the social services is essentially a political process, resting ultimately on collective evaluations of what is desirable and possible. Two primary and recurring issues concern the

respective roles of the family and the state and the determination of those conditions and problems that are morally "worthy" of public intervention. Fundamentally, however, decisions about the purpose, quality, quantity, and location of social services in American society are very much interlaced with choices concerning racial and ethnic matters, income redistribution, economic development, and social control. Political decisions about these issues will largely determine which people and which geographic areas will be given priority in the social services.

SPATIAL DISTRIBUTION OF SERVICES

Social services in the United States were first developed in densely populated urban centers where there were greater needs and a stronger economic base to support these services than in rural areas. As a consequence, the North, the East, and metropolitan areas in general have provided more services and better benefits--in terms of gross and per-capita expenditures--than the West, the South, and non-metropolitan areas. It should be kept in mind that almost half the residents of the South live in nonmetropolitan areas, but almost 8 out of 10 persons in the Northeast and the West live in metropolitan areas. The North Central area population is two-thirds metropolitan.²

The long-standing pattern of stronger services and higher benefits in the Northeast and in urban areas is illustrated in Table 1 in terms of payments in Aid to Families with Dependent Children (AFDC), preventive medical care, hospital beds, and the availability of physicians. Comparisons of the Northeast with the South and the West reveal the sharpest contrasts.

Since World War II, shifts have been taking place in the distribution of services in response to a combination of forces: the movement of population, changes in per-capita income and tax revenues, federal intervention and support, and the personal preferences of professional personnel. In some instances, court decisions concerning "the right to service" have accelerated the development of services in states that were previously poorly served.

One illustration of the redistribution of services is

²The percentage of the population living in metropolitan areas in 1974 was 79.2 in the Northeast, 66.5 in the North Central region, 56.4 in the South, and 77.9 in the West.

TABLE 1 Availability of Selected Resources by Region and Metropolitan and Nonmetropolitan Areas

	Average AFDC Payment per Recipient (\$) ^a	Percent of Population under 17 Years with Routine Physical Exam. in Past 2 Years	Nonfederal Hospital Beds per 1,000 Population ^b	Nonfederal Patient- Care Physicians per 100,000
Northeast	74-111	72.6	7.9-8.2	--
North				
Central	39-86	62.3	6.5-7.3	--
West	36-76	60.5	4.7-5.1	--
South	14-61	56.4	5.8-6.5	--
Metro- politan	--	66.7		149
Nonmetro- politan	--	53.3		68

^aIn part, these payments reflect differences in the cost of living. Only three states fall outside these ranges: Maine's average payment was \$50, Hawaii's was \$93, and California's was \$94.

^bThe ranges represent the divisions within each region, e.g., the Pacific and Mountain divisions in the West.

SOURCES: Column 1--Social Security Administration (1976); Columns 2 and 3--National Center for Health Statistics (1976); Column 4--Kindig (1976).

the trend toward more equal distribution of hospital beds. Since 1948, when the Hill-Burton program became operational, "the distribution over the country of hospital beds has become more nearly balanced. States such as Mississippi, Alabama, Arkansas, Georgia, and Tennessee, which had the lowest bed-population ratios in 1948, now are at the national average or above it. Some of the states with particularly high bed-population ratios in 1948 have actually experienced a decrease. Within states there is also evidence of an improved balance in hospital facilities between the less and more affluent areas" (U.S. Bureau of Health Resources Development 1975).

Another example of the shifting of resources is the

TABLE 2 Selected Characteristics of Population by Region and Metropolitan and Nonmetropolitan Areas

	Year	North- east	North Central	West	South	Metro- politan Areas	Nonmetro- politan Areas
1. Infant mortality rate (per 1,000 live births) ^a	1975	15.5	15.8	14.1	17.8	--	--
2. Percent of population 65 years and over	1975	11.2%	10.6%	9.5%	10.5%	9.2%	11.4%
3. Percent of population below poverty line	1975	10.2%	9.7%	11.7%	16.2%	9.7%	14.0%
4. Percent of families headed by females	1970	11.8%	9.3%	10.3%	12.0%	11.5%	9.3%
5. Average number of days of disability	1973	13.9	15.5	18.1	18.4	16.3	16.9
6. Incidence of acute conditions ^b	1973	153.3	185.4	192.3	171.7	177.4	170.1

^aDeaths of infants under 1 year.

^bRate per 100 persons of all ages.

SOURCES: Item 1--National Center for Health Statistics (1977, p. 6). Item 2--U.S. Bureau of the Census (1975, 1976). Item 3--U.S. Bureau of the Census (1977, pp. 23, 38-40). Item 4--U.S. Bureau of the Census (1973, pp. 1-312, 1-413). Items 5 and 6--National Center for Health Statistics (1976).

movement of physicians to the suburbs. In 1943, the physician/population ratio for America's inner cities was 1 to 500 and for suburban areas it was 1 to 2,000. Twenty-five years later, in 1968, the inner cities had a ratio of 1 to 10,000 and the suburbs had a ratio of 1 to 500 (National Center for Health Statistics 1976).

Notwithstanding these trends, the more heavily populated North and East continue to have a proportionately larger share of health and welfare resources than the South and West. The share for metropolitan areas is greater than for nonmetropolitan areas. However, it would be erroneous to consider all deviations from an equal per capita distribution of resources as "maldistribution" because the need for services is not equally or randomly distributed in the general population. We pointed out earlier that virtually all social services are delivered to categories of people distinguished by income, age, health condition, and family status and that the characteristics that are critical in terms of need for services are concentrated in certain areas.

This distribution of needs must be taken into account before we can evaluate the distribution of services. In Table 2, we have selected six indicators of need and shown their distribution by region and by metropolitan/nonmetropolitan areas. These indicators are infant mortality, the percentage of the population 65 and over, the percentage of the population living below the poverty line, the percentage of households headed by females, the number of days of disability, and the incidence of acute conditions.³

These indicators are ranked by area in Table 3. What do they suggest about the distribution of vulnerable populations? The South evidences the greatest needs in terms of infant mortality, poverty, female-headed families, and disability. The rankings in each of the other three regions are mixed.

On three of five measures, nonmetropolitan areas reveal greater potential need for services; only in terms of

³Acute illnesses are of relatively short duration, although they account for about 60 percent of all bed disability days. The definition of acute illness is an illness that "must have caused the person to seek medical attention or to miss work or school, go to bed or cut down on other activity" National Center for Health Statistics 1976, p. 239.

The data in Table 2 refer to the number of incidents of acute illness in a year, presented as the rate per 100 persons of all ages.

TABLE 3 Ranking of Areas by Vulnerable Populations

Indicators	North- east	North Central	West	South	Metro- politan	Non- metro- politan
Infant						
mortality	3	2	4	1	--	--
Percentage elderly	1	2	4	3	2	1
Percentage in poverty	3	4	2	1	2	1
Percentage female- headed families	2	4	3	1	1	2
Days of disability	4	3	2	1	2	1
Acute con- ditions	4	2	1	3	1	2

SOURCE: Based on Table 2.

female-headed households and the incidence of acute conditions do the metropolitan areas exceed the nonmetropolitan areas. However, data on central cities and areas outside central cities must be added to give a more complete picture of metropolitan areas. Within metropolitan areas, central cities rank significantly higher than the outlying areas with respect to the percentages of the population over 65 years of age, people living in poverty, and female-headed families.

A comparison of services and population, as shown in Tables 1-3, shows that the South has the greatest extent of poverty but the lowest AFDC payment levels, the highest infant mortality rate, and the lowest proportion of population under 17 years of age who had been given a physical examination in the past 2 years. The Northeast rated highest in benefits and next to lowest on two indicators of need--poverty and infant mortality. Similarly, metropolitan areas are currently endowed with more plentiful health resources than nonmetropolitan areas but are apparently less in need of them on a per capita basis, although differences between inner-city areas and suburbs should be kept in mind.

The data suggest that there is a mismatch between the distribution of social services and populations that are vulnerable. Moreover, the areas that are least able financially to support services need them the most. Of course, the situation is not static--both people and services move--and, as we noted above, shifts in health and welfare resources are evident. Some of these shifts, such as the building of hospitals in underserved areas, tend to diminish the inequalities; some, such as the movement of physicians out of the central cities to the suburbs, exacerbate the imbalance between human needs and available resources.

RECENT DEMOGRAPHIC AND ECONOMIC CHANGES

Before considering the population movements of the 1970s, we must take note of changes in the demographic profile of the United States that have a direct bearing on the size of vulnerable populations and therefore on the level of demand for social services. We touch only briefly on a few aspects here.

The number and proportion of the elderly have been rising steadily. Between 1950 and 1974, for example, the number of persons 65 years of age and over almost doubled--from 12.3 million to 21.8 million. In 1950, they were 8.1 percent of the total population; by 1974, they had become 10.3 percent of the population. The demand for social services has been increasing among the elderly not only because their numbers have increased but also because they are living longer and a greater percentage of them use these services. Nursing homes offer a good illustration. There were approximately 500,000 people 65 years and over in nursing homes in 1964, constituting 3 percent of the elderly population. Ten years later the number had increased to 1,000,000, constituting 5 percent of the elderly (U.S. Bureau of the Census 1976, p. 204).

The birthrate has been declining for some time. Between 1950 and 1974 it dropped from 24.1 per 1,000 population to 15.0, so that the increase in the number of children has been declining. Children 0 to 14 years of age increased by 3.2 percent between 1950 and 1960 but by only 0.4 percent between 1960 and 1970.

The number of children who live in families with only one parent or with both parents working has been increasing rapidly and, as a result, the demand for day care and other services has presumably increased. Between 1954 and 1975,

the number of female workers who had ever been married and who had one or more children under 6 years of age rose from 2.2 million to 5.4 million. The proportion of these women who are working rose dramatically from 17.0 percent in 1954 to 38.9 percent in 1975 (U.S. Bureau of the Census 1976, p. 375). The estimated number of children involved in divorces and annulments more than tripled between 1953, when it was 330,000, and 1974, when it reached 1,099,000. Similarly the proportion of children living with only one parent has grown from 9.3 percent in 1960 to 17.1 percent in 1975 (U.S. Bureau of the Census 1976, p. 67).

A combination of factors may be contributing to increased economic independence among women and thereby to their mobility. Greater participation in the labor force by women, the continuing rise in the divorce rate, and the redefinition of sex roles may lead to greater mobility of women, including those with children.

There have been some fluctuations in the number and percentage of persons living below the government's estimate of a poverty level, with the number falling from 28.5 million (14.7 percent of total population) in 1966 to 25.9 million (12.3 percent of total population) in 1975. For the population over 44 years of age, the proportion of people living below the poverty level decreased during this period. However, it remained stable for those under 14 years (18%) and those between the ages of 14 and 21 (14%) (U.S. Bureau of the Census 1976, p. 467).

Thus, although it is true that the birthrate is declining and children comprise a smaller part of the population, currently, nearly one child in five lives with only one parent and one child in five lives in poverty. The distribution of these children and their families has weighty implications for the demand for social services.

The implications of demographic trends for the AFDC program have been explored by Wertheimer and Zedlewski (1976), who point out:

that the growth in the AFDC caseload will be greatly affected by the birth rate, the marriage rate, and the divorce rate prevailing during the next ten years. If society moves toward greater family stability and AFDC benefits are increased only at the same rate as the cost of living, the AFDC caseload may not increase at all. If society moves toward less stability, the AFDC caseload may grow by more than 50 percent even if AFDC benefits increase only at the same rate as the cost of living.

The number of families headed by women is likely to grow under a wide range of demographic assumptions. . . . The number of families with low incomes is highly sensitive to the divorce rate.

In our discussion of population redistribution in the 1970s we assume that the demographic trends noted above will continue. In addition, we assume that economic conditions generally will remain at roughly the 1976-1977 level and that regional trends will continue, directly affecting both the need for services and the financial resources to support them. The tendency toward some equalization among regions, already noted with regard to services, is closely related to economic changes. From 1969 to 1976, per capita income in the South Atlantic and Rocky Mountain areas rose 20 percent faster than per capita income in New England and the Middle Atlantic states. Over that period, more than one-third of the differential in per-capita income between those two regions of the country was eliminated. These economic changes are directly reflected in programs of income support in the various regions.

Writing about regional patterns in the 1965-1975 period, Renshaw and Friedenbergl (1977) note that in the Northeast and Great Lakes regions:

a long-term reduction in job opportunities, aggravated by the cyclical downswings in 1970 and 1974-75, accelerated in the seventies. The redistribution of manufacturing and related activities away from these highly industrialized regions led to the rapid growth of public assistance and unemployment compensation payments. The transfers contributed to financial difficulties, because they increased faster than the State and local tax base. In contrast, in the southern and western regions . . . economic activity grew rapidly and was relatively unaffected by recessions. Therefore personal income required relatively little supplementation by transfers.

Another variable, energy, must be taken into account among our assumptions. It is assumed here that in the short term energy will continue to be available at approximately current levels, but it is recognized that both short-term and long-term changes in the energy situation can affect the distribution and use of social services. It was found in the 1973-1974 energy crisis that serious difficulties arose for small numbers of people who had to travel

long distances for highly specialized services. For example, instances were reported in Connecticut of a leukemic child who needed to be taken regularly by car to a hospital in New York and of a Vietnam War amputee who had to travel weekly to rehabilitation services in another city. In both situations the inability to buy gasoline created problems that could magnify in number and severity in a more prolonged energy shortage (Perlman and Warren 1977).

Population Redistribution in the 1970s

Between 1970 and 1975, approximately 9 million people moved from one region of the country to another and 12 million moved between metropolitan and nonmetropolitan areas. (These groups are not mutually exclusive.) Little information is available on the characteristics of the interregional migrants. The data in Table 4 below have two limitations: they are based on only 1 year's experience and they pertain to only small percentages of the total populations of the regions. Nevertheless, they provide an indication of net changes in the numbers of persons who are vulnerable within each region as well as shifts in the number of persons financially capable of supporting social services.

TABLE 4 Net Regional In-Migration and Out-Migration by Selected Characteristics 1975-1976 (in thousands)

	North- east	North Central	South	West
Under 5 years of age	-29	-16	+21	+22
65 Years or over	-18	-18	+27	+8
Below poverty level	-40	-100	+78	+63
Unemployed				
Male	+1	-7	-20	+30
Female	-13	-10	+19	+4
4 College years	-42	-18	+17	+41
Professional, technical workers				
Male	-7	-34	+16	+25
Female	-4	-15	+7	+13

SOURCE: U.S. Bureau of the Census (1977, p. 108).

The general pattern is consistent except for unemployed men. With respect to such vulnerable groups as the old, the young, the poor, and unemployed women, the Northeast and North Central regions have experienced net decreases and the South and the West have experienced net increases. This is most striking in terms of the number of persons living below the poverty line.

The net changes in the movement of poor people suggested by the data above are confirmed in a recent study in which Long (1978) concludes:

the most important empirical result was to detect the southern region's shift from annual net out-migration to net immigration of the poor between 1967 and 1977. Concomitantly, the Northeast, where many migrants from the South had gone in previous decades, came to have a small annual net outmigration of persons below the poverty level. The West and North Central regions appear to be continuing patterns in existence in the late 1960's, with the West having net immigration and the North Central region net outmigration of persons below the poverty level.

The growing tendency of men to leave the labor force not only at age 65 but also between the ages of 55 and 64 can be expected to increase the number of retirees moving to the warmer states of the South and the Southwest. By comparison, labor-force participation rates for females over 65 years of age have remained quite stable since the mid-1950s and have increased for women between the ages of 55 and 64 (U.S. Bureau of the Census 1976, p. 373).

The tendencies cited above must be seen in juxtaposition with indications that while the South and the West showed a net increase in the number of more educated, highly skilled, and higher income adults, the North and the East showed a decline in groups that strengthen the capacity of an area to provide services to vulnerable and dependent populations. It would appear, therefore, that although the burdens of providing services may have declined somewhat in the Northeast--at least in terms of population movements--and increased in the South and West, the latter regions may be acquiring more resources for assuming those burdens.

Available information concerning the influx of undocumented or illegal aliens into the United States is extremely inadequate. The number of illegal Mexican aliens in the

Southwest is estimated in the millions. It can be safely assumed that a large part of the illegal immigration consists of a low-income, high-need population. However, no systematic effort has been made to assess the actual or potential impact on health and welfare services.

The character of the movements in and out of metropolitan areas, central cities, and suburbs has been documented in the paper by Berry and Dahmann in this volume. The metropolitan areas have been growing more slowly than the non-metropolitan areas and have been losing migrants to the areas outside the standard metropolitan statistical areas (SMSAs), especially those with manufacturing, higher education institutions, and retirement centers. However, the movements to cities and to suburbs continue. According to Berry and Dahmann: "More blacks, more poor, and greater numbers of young persons are moving to, rather than from, central cities. The suburbs receive proportionately more whites, the more affluent, and families rather than single persons." Additional data appear in Table 5.

Clearly, in 1974, central cities and nonmetropolitan areas had the highest proportions of the elderly, the poor, and female-headed families. The changes that took place in the preceding 4 years reveal a mixed picture. The percentage of older people and female-headed households increased most rapidly outside the central cities in the

TABLE 5 Selected Characteristics of Population in Metropolitan and Nonmetropolitan Areas in 1974 (in percent)^a

	Nonmetro- politan Areas	Metro- politan Areas	Central Cities	Outside Central Cities
Population 65 years and over	11.4 (+8.1)	9.2 (+5.8)	10.8 (+0.2)	8.0 (+11.6)
Population below poverty line	14.0 (-30.0)	9.7 (-11.7)	14.0 (-9.0)	6.4 (-16.3)
Families receiv- ing public aid	0.7	0.9	1.7	0.5
Female-headed families	7.8 (+12.9)	10.4 (+23.9)	13.5 (+22.4)	7.7 (+26.1)

^aFigures in parentheses represent percentage changes between 1970 and 1974.

SOURCE: U.S. Bureau of the Census (1975).

suburbs and outlying towns and cities. Increased demand for services in outlying areas could, therefore, be expected. Some of the pressure on income programs may be lessened in the nonmetropolitan areas, which registered the largest drop in the proportion of people living below the poverty level. Poverty declined least in the inner cities.

Another way of gauging the impact of recent movements in and out of metropolitan areas is to compare two populations: the almost 7 million people who moved from SMSAs to nonmetropolitan areas between 1970 and 1974 and the 5 million people who moved in the opposite direction. Unfortunately, data are available only on the ages of the two populations. The nonmetropolitan areas received a higher proportion of the old and the young in these shifts than did the metropolitan areas. Between 1970 and 1975, of the 6,721,000 persons moving from SMSAs to locations outside SMSAs, 23.2 percent were 5-14 years of age and 7.3 percent were 65 or older. Of the 5,127,000 in-migrants to SMSAs, 19.2 percent were 5-14 years old and 3.9 percent were 65 or older (U.S. Bureau of the Census 1975).

Because nonmetropolitan areas and the South are receiving larger numbers of the old and the young, pressures on services related to these age-groups are increasing. Early warnings of inadequacies can be seen in retirement communities. Elderly but healthy populations have moved into retirement communities that provide only a minimum of social services for the aging. As these people grow older and require considerably more health and social services (for example, nursing care, meals on wheels, hospitalization, etc.), current service provisions will prove to be seriously inadequate both in quantity and type of program.

The need for income-related programs will likely increase in the South and the West, but will continue to be keenly felt in all urban areas of the country, particularly in the cities of the North and the East that continue to receive black migrants from the South whose incomes are only half as large as the incomes of blacks already living in the cities.

The demand for the full range of health and welfare services in the cities of the Northeast will increase if current unemployment rates among blacks and Hispanics persist, if substantial numbers of old people and poor people remain in these cities, and if the number of one-parent families increases in these cities. As a side effect, a strong demand for urban social services (for example, greater use of city hospitals) provides an opportunity for employment of low-income residents of the city.

The movement of moderate- and middle-income families to the suburbs will probably be accompanied by a shift of service resources. The suburbs, having the strongest political and economic position, are likely to get the services they feel they need from both public and private sources and through direct consumer purchases. In this context, sectarian service organizations, primarily Catholic and Jewish, will continue to face choices between their responsibilities in the cities and their growing constituencies in the suburbs. The latter are not likely to suffer in the process.

In the absence of policy changes or major shifts in economic development, there will be a tendency toward equalization of particular benefits between regions. The improvement in economic conditions in the South and the West and the erosion of tax resources in the North will particularly contribute to equalization of public assistance and related benefits, because much of the recent growth in these expenditures has been financed by state and local governments (Friedman and Hausman 1977). This has intensified pressures on some of the northern, industrialized states to reduce their welfare costs. Because per-capita income is one of the principal determinants of the level of welfare benefits, rising income levels in states with traditionally low benefits can be expected to result in higher welfare benefits (Orr 1976).

We should note that mobility itself may generate demands for social services because it involves uprooting, strains, and readjustments for most people who migrate from one area to another. Although there is evidence that people with incipient or active mental disorders are overrepresented in the group that migrates, Berliner (1977) finds support for the assertion that "migration does contribute in some measure to mental illness."

Nonetheless, the vast body of evidence shows that migration is "an important vehicle of social mobility. . . . The generally positive experience of blacks who left the rural South, and of ethnic groups that left city ghettos, confirms the value of geographic mobility as a means of access to conditions that foster improvements in personal status" (Morrison 1977).

SOCIAL SERVICE POLICIES AND POPULATION REDISTRIBUTION

How can policy changes in the health and welfare field affect population movements in the 1970s and the years

beyond? The question rests on the debatable assumption that these policies influence population distribution. They do not seem to. Nor is there evidence that they have been designed in the past to play a part in influencing population movements.

Research on these issues is meager. The literature on mobility and motivations for moving reports that most people move from one area to another primarily to improve their incomes or jobs. Housing, schools, and environmental amenities are secondary considerations. The quality of health and welfare resources in a particular area does not seem to be an important factor, even where services and benefits vary widely. In many programs, such as services to veterans, federal financing and administration have largely eliminated regional and local differences.

The belief that higher public welfare benefits attract low-income people to certain cities and states is not supported by the evidence. Morrison (1977) indicates that people who have migrated to New York "start using the welfare system only gradually, not immediately; the delay is more easily interpreted as due to discouragement in finding work after the migrant arrives than to prior motivation for moving to New York deliberately to claim benefits." Morrison also points out, however, that high benefits may retard out-migration, causing welfare recipients "to pile up" in such areas.

Deliberate efforts to shape the distribution of population are not characteristic of the social services. One of the few studies, conducted for the Department of Commerce, that touches on this subject, found that the following programs had no impact on population movement or economic growth: Head Start, Comprehensive Health Planning, Health Facilities Construction, Medicaid, and Vocational Rehabilitation Services (Center for Political Research 1970).

This subject leads logically to a basic policy issue that has recently surfaced with renewed urgency: Should public policies be addressed to "places" or to "people"? Should social-service resources be allocated, for example, to economically declining areas with abandoned, aging populations or to growing areas with young families? Should facilities and personnel be directed, through administrative decision or incentives, to people in economically backward, low-density rural areas? It seems to this observer that a stronger case can be made for directing social resources to vulnerable populations than to geographic areas as such. To favor "places" over "people" is to put vulnerable groups in double jeopardy; they will have been bypassed by the

workings of the market economy and then subjected to deliberate neglect by public policy.

There are, of course, political constraints on the use of policy to promote specific population goals. Muller (1975) argues:

The older metropolis cannot reverse most of the conditions causing its fiscal problems, although some adverse effects can be mitigated. To attract middle-income families, socially controversial positions would have to be adopted, such as reversing long-standing public education policies and curtailing programs aimed at redistributing income. The political feasibility of either action is questionable, as their implementation would project an image of cities turning their backs on minorities and low income households.

In short, it is questionable whether public policies in the social services can or do influence population movements, but it is clear that policy affects the geographic distribution of health and welfare resources. The distribution of these resources depends greatly on the answers to the following questions:

1. Given the strained finances of localities and states and the greater taxing ability of the federal government, how will financial responsibilities for the services be divided between the federal government and the states?

2. Will the authority to set standards be exercised to ensure minimum, if not uniform, benefits across localities and states?

3. To what extent will services be organized and delivered on a categorical basis (for example, by age-group, income, type of disability, veteran status, etc.)? The influence of interest groups representing these consumer categories can affect the quality and the distribution of services.

4. How will policies concerning the social services be shaped by fundamental value choices in American society concerning racial and ethnic discrimination, income redistribution, economic development, and social control?

5. Will public policy be used explicitly to direct health and welfare resources to geographic areas with needs that are not being met?

We can hardly deal adequately in this paper with these issues. Most of our comments will be addressed to the

first area--the locus and level of financial support--but we pause to take brief notice of the effort to use public policy to steer resources to areas of special need.

In terms of research and policy initiatives, far more work has been done on the distribution of health manpower than on the distribution of other social services. Attention has been largely focused on that costly and most independent of health resources, the private physician. Efforts have been directed toward encouraging doctors and other health personnel to practice in inner-city neighborhoods and rural areas. Federal support for professional education has been used toward this end, as have experiments and demonstrations in new forms of organizing services and reallocating tasks among professionals. The literature abounds with recommendations for policies to equalize the distribution of physicians and other health professionals.⁴

This example stands out as one of the few instances for which policy has been deliberately geared to improving the fit between human needs and the geographic distribution of social welfare resources. Resource distribution is generally far more influenced by the political decisions that are made about the financing of social services.

IMPLICATIONS OF ALTERNATIVE POLICIES

It is clearly impossible to weigh the implications of the thousands of policy choices in the social services that might affect their location, quantity, and quality. We shall concentrate here on the federal financing of services. Cities, counties, states, and regions continually compete for federal funds for health and welfare in order to lighten their own financial responsibilities and, at the same time, secure better services and benefits for their residents.

Practically every important decision in Washington about the support of social services calls into play coalitions of cities or states, increasingly banded together on a regional basis, to protect their interests in the shaping and implementation of social programs. An example is provided by the Northeastern-Midwest Coalition, a bipartisan group of 204 members of Congress from 16 states, who

⁴See, for example, U.S. Bureau of Health Resources Development (1975) and National Center for Health Statistics (1975).

commissioned a study of the food-stamp program and in May 1977 mounted an offensive to modify the Carter administration's proposals to reform that program so that their areas would not lose funds to the South, which they thought was favored by the proposed modifications.

In order to illustrate the implications that federal financing has for the distribution of social services, we shall examine three policy alternatives. The first assumes a major extension of federal responsibilities and an expansion of services. The second assumes a contraction of both the federal role and the scope and level of social services. The third assumes only small, incremental changes in federal participation.

Under the first alternative, the federal government would take over the financing of public assistance in all its forms, would institute a national health program, and would further develop supportive and rehabilitative services for vulnerable populations. This would entail the infusion of large resources into the health and welfare system. Of equal importance to the concerns of this paper, this policy would minimize intrastate, interstate, and interregional differences in benefit levels and quality of services.

Under these circumstances, the social services might have a greater impact on population redistribution than they have had in the past, but would still not approach the attraction power of local economic conditions as reflected in job opportunities and income levels. Health and welfare services are currently becoming more important in the lives of Americans and may figure more prominently in decisions to move, particularly if resources are increased and geographic differences are more nearly equalized. This will be the case particularly for those families and individuals with clearly established needs for social services. The relevance for the elderly has already been noted. Because greater emphasis will be placed on non-institutional, community-based care for the retarded, the mentally ill, and other individuals who were formerly institutionalized, their families will be even more sensitive to the availability of services in the areas in which they live or to which they plan to move.

This alternative would primarily help those cities, counties, and states that now have minimum resources for social services. It would provide the greatest benefits to the most socially and economically disadvantaged groups. It could be expected to reinforce the slowdown in the migration of blacks from South to North because income

support programs and other social services in the South would provide greater benefits than they have in the past.

Indeed, these conditions might increase the flow of migration to the South, the West, and to nonmetropolitan areas because people with low or moderate incomes might take greater risks in seeking better jobs and living conditions if they knew that their income maintenance, health, and other needs would be met more fully than in the past. The effects on mobility of greater assumption of responsibility by the federal government for functions and burdens now primarily carried by the family, such as the cost of health care, are unclear.

The second alternative presupposes that it is impossible to maintain social services at their current levels or to redistribute the financial costs upward to the federal government. This would tend to further depress social services in the areas that traditionally provide low benefits. However, the improving economic situation in the South and West would partly offset this effect. States in those regions are already better positioned than they have been, in comparison with the North and the East, to meet the costs of health and welfare programs.

The northern and eastern states, with further weakening of their economies and the diminution of federal support for health and welfare, would have difficulty in maintaining the higher benefits they currently provide. The effects would again be felt most keenly by the most dependent population groups, certainly the minority groups in urban centers. If the expansion of services might be expected to facilitate population mobility, the contraction implied in the second alternative would be likely to impede mobility among vulnerable populations.

Realistically, the probable course of events would include neither of these extreme scenarios, but most likely would result in a series of small, incremental changes. These would include a modest welfare reform that would reduce differences in benefits among states and regions and the beginnings of a national health insurance program that would deal with the most pressing problems, such as the cost of catastrophic illnesses. At the same time, many states would probably trim some of their social service programs in order to reduce rising costs, although they would also be pressed by well-organized interest groups to maintain and expand other programs. The net effects on population mobility would be minimal.

The policy alternatives discussed here are highly speculative because there are large gaps in our understanding

of the relationship between the social services and population redistribution. The most basic kind of research on these alternatives is needed.

SUMMARY

Historically, programs concerned with health, income supports, and personal care have been heavily concentrated in the North and the East and in urban areas with the greatest population density. However, needs for these social services are generated not by the population at large, but by specific groups that are vulnerable: the very young, the old, the poor, the sick, the disabled, the unemployed. These groups are not evenly distributed on a geographic basis.

Viewed in this light, the distribution of health and welfare programs and benefits has not coincided with the needs of geographic areas, especially the South and rural places. This is due largely to the weaker economic base in those areas, which accounts for both the higher level of need and the lower capacity to support social services.

Recently, the relationship between services provided and the needs of geographic areas has changed. There has been a trend toward equalization of services and benefit levels among the regions of the country. This trend is related to shifts in population, improved economic conditions in the South and the West, a declining tax base to finance services in the North and the East, and greater participation by the federal government. Simultaneously, health and welfare resources have been moving from central cities to suburbs.

Although the data are limited, there are indications that in the early 1970s the numbers of potentially dependent persons, such as the aged and the poor, were increasing in the South and the West and decreasing in the North and the East. However, it must be emphasized that inner cities, particularly in the North and the East, continue to have tremendous needs for social services.

Policies governing the social services apparently have not significantly affected population movements. However, this may change as health and welfare services become more important in the lives of all Americans--as they already have for the aged.

Decisions that will be made in the next decade or so about the financing, organization, and delivery of social services will substantially determine their geographic distribution and, in turn, the extent to which this distri-

bution will coincide with the distribution of vulnerable populations. Probably the most critical element in these decisions will be the extent to which the federal government assumes greater responsibility for supporting the services and the degree to which federal standards move toward equalization of benefits.

What those decisions will be and how they will affect the people who depend most heavily on the social services will be closely intertwined with the ways in which this country confronts issues of racial and ethnic discrimination, income redistribution, economic development, and unemployment. Those decisions will also reflect implicit national goals concerning the minimum conditions of life that the nation wants to ensure for all of its people.

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IMPLICATIONS OF POPULATION REDISTRIBUTION FOR EDUCATION

Martin T. Katzman

OVERVIEW

Population redistribution has always been with us. Many of the trends observed today have their roots in the 19th century or earlier. The westward movement and relative decline of the Northeast began before the first Census in 1790 fixed the center of population slightly west of Baltimore. As soon as significant urbanization commenced, suburbs were linked to the downtown by horse-drawn streetcars (Warner 1962). The 1970s, however, have brought two related and unprecedented phenomena: an end to metropolitanization in many parts of the country and a turnabout in the chronic decline of many rural areas. Although many central cities lost population in the 1960s, entire metropolitan areas appeared to lose population in the 1970s. Although most of the metropolitan decline occurred in the largest cities and in the Northeast, a slowdown in metropolitan growth is apparent throughout the nation (Berry and Dahmann in this volume).

It is impossible to understand the implications of population redistribution without taking account of the decline in fertility to replacement levels. Population redistribution during periods of aggregate population growth results in more rapid growth for some areas than for others. In the slow-growing areas, newspaper circulation, bank deposits, and utility consumption may not expand as fast as in the boom areas and land values may not increase as much; nevertheless, all areas share in the expansion that American society associates with progress.

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When aggregate population growth approaches a standstill, population redistribution is a zero-sum game; growth in one area is an inevitable concomitant of decline in another.

In general, American society has not yet learned to cope, either psychologically or politically, with decline. While there have been pockets of poverty left by declining sectors, such as textiles and coal mining, decline is largely beyond the American experience.

If decline were symmetric to growth, then public policy makers could simply replace a strategy of more building and more hiring with one of less. Because there are major irreversibilities in the behavior of the public sector, particularly in the disposal of public buildings and in firing personnel, a mere shifting of gears from forward to reverse is insufficient. Decline demands innovation because it is a new phenomenon, whereas the problems of growth have been confronted since the birth of the nation.

EFFECTS OF DEMOGRAPHIC CHANGES ON PUBLIC SERVICES, INSTITUTIONS, AND POLICIES

The demographic changes of the 1970s have aggregate, distributional, and compositional dimensions of relevance to the educational sector. The aggregate dimension reflects the absolute number of children of various ages in primary- and secondary-school systems; the distribution reflects their spatial location; and the composition reflects their racial and class attributes.

The Recent Trends

Aggregate Effects Anticipating the impact of aggregate demographic trends is, in principle, easier for education than for other sectors. The reason is that the number of children entering, for example, kindergarten in 5 years can be ascertained by applying mortality tables to the number of 1-year-old children living today. Surprisingly, recent demographic changes and the problems they entail were not widely anticipated by educators and were experienced for several years before they were generally acknowledged.

Aggregate enrollments in primary and secondary schools had increased continuously until 1970. Since then, elementary enrollments have declined at a rate of more than 0.5 percent per year and will continue to decline into the early 1980s and at an even faster rate. If current patterns

TABLE 1 School-Age Population, 1950-1990

	School-Age Population, Age 5-17 (thousands)		
	Elementary Age 5-13	Secondary Age 14-17	Total
1950	22,423	8,444	30,867
1960	32,985	11,219	44,204
1970	36,836	15,910	52,746
1974	34,002	16,878	50,880
1980	30,246	15,753	45,999
1985	30,380 ^a	14,388	44,768
1990	34,643 ^a	12,941	47,584

^a Projected from Series II.

SOURCE: U.S. Bureau of the Census. Series P-25, No. 601, in *Current Population Reports*, Tables E, 6 and 8 [as reported in Davis and Lewis (1976, Table 3)].

of fertility persist, these declines will persist through 1990 or beyond. Because of the inertia of the age profile, secondary-school enrollments will continue to decline at least through the late 1980s regardless of any changes in fertility in the next 10 years (see Table 1).

Distributional Effects Because of population redistribution, some school systems have faced or are likely to face more rapid enrollment declines than others. Between 1970 and 1975, enrollments grew between 5 and 8 percent in Arizona, Florida, Alaska, Nevada, and New Hampshire (a state experiencing exurban growth from Boston). While enrollments grew by less than 5 percent in Colorado, Idaho, Virginia, and the remaining northern New England states, they declined in every other southern and western state (Davis and Lewis 1976; National Association of State Boards of Education 1976, Table 2). In Texas, the decline was 1 percent; in California, it was 5 percent.

Within all states, of course, there are growing and declining school systems. Paralleling the overall patterns of population redistribution, net migration of elementary-school-age children (5-14 years old) tends to flow from the central cities to the suburbs and nonmetropolitan areas (Davis and Lewis 1976, Table 6). In the central cities, net out-migration reinforces the change in the age structure and accelerates decline; however, even in suburban

school systems in the aggregate, net in-migration was insufficient to forestall decline. Enrollments declined in 73 of the largest urban districts in the nation from fall 1971 to fall 1975, a phenomenon that affected such Sun Belt cities as Houston and Dallas (National Association of State Boards of Education 1976, p. 5). Because of the preponderance of individuals of child-bearing age among interregional migrants, schools in metropolitan areas with stable or declining populations are likely to decline in enrollments for some time to come (Morrison 1976).

Compositional Effects Declining fertility alters the age distribution of the population. In 1950, only 18 percent of the population was of school age (5-17 years). This percentage continually increased until 1970, when a peak of 26 percent was reached. This percentage will almost certainly decline to 21 by 1980 and if current patterns of fertility persist, the proportion will fall to the level of the 1950s sometime during the 1980s (see Table 2).

Although the trends in age composition among whites and nonwhites are similar, the percentage of the nonwhite population between 5 and 17 years of age is greater. In

TABLE 2 Age Structure of Population, 1950-1990

	Percent Population, Age 5-17			Percent Nonwhite of Total Population, Age 5-17
	White ^b	Nonwhite ^c	Total	
1950			18	
1960	24	28	24	13
1970	25	31	26	15
1974	23	29	24	16
1977	22	28	23	16
1980	20	26	21	17
1985 ^a	18	24	19	18
1990 ^a	19	23	19	18

^aProjected from Series II.

^bAs percent of total white population.

^cAs percent of total nonwhite population.

SOURCES: Davis and Lewis (1976, Tables 3,5), U.S. Bureau of the Census (1978).

1960, 24 percent of the whites were of school age; 28 percent of the nonwhites were in this age bracket. This suggests that communities with higher proportions of nonwhites are likely to have relatively greater educational burdens due to demographic factors alone. More important, the relative share of the nonwhite school-age population has been increasing since 1960 due to differential rates of fertility decline for whites and nonwhites. In 1960, before significant desegregation occurred in either the North or South, nonwhites comprised only 13 percent of the school-age population. In 1970, when massive desegregation began in the South, blacks comprised 15 percent; in 1974, when major desegregation began in northern big cities, nonwhites comprised 16 percent. This percentage is likely to be 17 in 1980 and 18 by 1990 (Davis and Lewis 1976).

The differential migration trends of blacks and whites indicate that between 1970 and 1977, the proportion of blacks has been increasing in metropolitan areas, while remaining stable in nonmetropolitan areas. Within metropolitan areas, the proportion of blacks rose in the central cities and their suburbs. In all regions except the Northeast, the black population in central cities increased absolutely, while in all regions but the West the white population declined. In all regions, the black population in the suburbs is growing faster than the white population (U.S. Bureau of the Census 1978).

The U.S. Commission on Population Growth and the American Future extrapolated these trends to the year 2000 (Morrison 1976, Table 6). In the cities, the percentage of population under age 15 is expected to drop from 26.4 percent to 23.2 percent in the period 1970-2000, while the percentage of nonwhite children is projected to rise from 29 percent to over 43 percent in the same period. In the suburbs, the percentage of population under age 15 is expected to fall from 29.7 to 22.7. In other words, suburbs are expected to become less child-centered than before and in fact less different from the central cities in this respect. The percentage of suburban children who are nonwhite is expected to rise slightly from about 7 percent to about 9 percent.

The observed trends of the 1970s and their extrapolation to the year 2000 suggest that central-city school systems are likely to become overwhelmingly black. To the extent that suburban school systems remain immune from pressures to integrate and that whites resist sending their children to schools with near black majorities, the likelihood of stable integrated central-city school systems remains dim.

IMPLICATIONS OF DEMOGRAPHIC CHANGE

For the educational sector, the distributional dimension of demographic change--whether one area is growing faster than another--is of less importance than the aggregate and compositional dimensions. The aggregate dimension refers to the relative and absolute decline in the number of school-age children in the population; the compositional dimension refers to the changing location of class, race, income, and subcultural groups.

Changing Age Composition

The changing composition of family types and age-groups in American society may have a great impact, not yet totally discernible, on support for public schooling. The decline in fertility, the protracted period of childlessness among the married, and the general aging of the population affect both the supply and demand for educational funds. In terms of demand, the obvious implication is that the number of children requiring elementary and secondary education is declining as a proportion of the population. In terms of supply, the effects of these trends on electoral support for public education are much more difficult to fathom. Perhaps the recent elimination of the mandatory retirement age and refinancing of the social security system portends greater concern with senior citizens' issues and less concern with youth-oriented issues.

Clearly, families with school-age children derive much greater benefit from well-funded school systems than households without children. Nonetheless, a relative increase in the share of households without children need not necessarily result in a reduction in electoral support for public education on a per-pupil basis, because, as the number of school-age children decreases, the tax rate necessary to raise a given level spending per pupil also falls.

It is useful to distinguish between households whose members have not yet borne children, primarily comprised of young adults that are unmarried or married, and households past the childbearing age. Young, childless households are generally highly mobile both economically and geographically. As a consequence, they tend to rent rather than to own housing and concomitantly tend to have relatively low voting turnout. Older couples, with or without children, have a high propensity for owning their own homes and voting.

Housing tenure has an enormous impact on the support for public expenditures, as indicated by results of referenda and actual community expenditures. Apparently because renters perceive the property tax to be borne largely by the landlord, they are considerably more likely than homeowners to favor local expenditures for education (Bloom 1976, Davis and Haines 1966, Kee 1965, Peterson 1975, Wilson and Banfield 1964). The increasing proportion of younger, childless households, therefore, has offsetting effects on electoral support for public schooling: some households may react with indifference or hostility as a result of receiving no direct benefit, whereas others may demonstrate support as a result of perceiving no direct cost. The increasing proportion of older, childless households, however, would appear to lessen support for public education because among this group are many homeowners who would perceive both the lack of direct benefit and the incidence of the costs.

If all voters in a metropolitan area were collectively to vote on school expenditures, the changing age composition and concomitant tenure composition might or might not result in a decline in support per school child. The nature of school finance and organization in most American metropolitan areas adds a dimension of complexity. The differing interests of each age-group create an incentive for residential segregation. Young households may locate with little attention to public spending; families with children may seek education-oriented suburbs, just as they do today; and older families may seek communities that spend little per pupil but devote taxes to public services of greater interest to their own age cohort.

Support per pupil in the long run does not necessarily diminish, so long as financing is largely local. To the extent that broad-based, statewide taxes are relied upon, the macro-demographic changes may result in reduced support; younger households are probably aware of the impact of school spending on their own sales tax and income tax payments. These results are not inevitable; they can, to some degree, be manipulated by tax policy. For example, property-tax circuit breakers for citizens over 65 may reduce antipathy to educational expenditures.

Surprisingly, there is little definitive evidence that the age composition of a community affects its support for public schooling. Studies on this subject rarely produce significant or easily interpretable results. For example, in a cross-sectional analysis of states, McMahon (1970) finds that for every 1-percent increase in the share of

school-age population, the share of state income spent on schooling, which includes both state and local funds, increases 0.15 percent; time series produce comparable results. In other words, support per pupil appears to fall as the percentages of students in the population rises. One would have expected that opinion in states with a high proportion of families with children would favor greater expenditures per student, but that such preference might be offset by the taxes necessary to support higher costs. In a study of local support for schooling in suburban Boston, Bloom et al. (1975) find that the change in the number of children per household over a 10-year period results in a proportional change in school expenditures per household. This means that school support per child is similar in communities with widely varying shares of school children, when other factors are held constant. Attitudinal surveys by Bloom (1976), however, produce results that contradict the observed patterns; he finds that the elderly, as compared with younger child-bearing households, are much less willing to support public-school expenditures.

Needless to say, more research is required into patterns of preference for public expenditures by people at different stages in the life-cycle. It is becoming apparent, for example, that the elderly, despite their greater likelihood of home ownership, support higher local public expenditures than do younger groups; however, they are more interested in police protection and recreation than in education (Bergstrom and Goodman 1973). Nevertheless, voting decisions are not always based on narrow self-interest and preferences are not polarized along the life-cycle. The elderly often provide *some* electoral support for educational expenditures, from which they derive no conceivable direct benefits, whereas all childbearing families are not invariably staunch supporters of high expenditures (Barzel 1973).

Implications of Enrollment Growth and Decline

Because the phenomenon of enrollment decline is new and psychologically unsettling to Americans, dealing with decline demands greater managerial capacity than dealing with growth.

Anticipated Growth When growth in enrollments is anticipated, educators have the opportunity to set aside land for future school construction, or at least to take an

option on such land. Actual construction can be phased with attention to the overall capital budget of the municipality. Not only can recruitment be orderly, but the continual hiring of young teachers (at the low end of the salary scale) ensures that average salaries per teacher remain low. With expansion of the school system, opportunities for upward mobility are high among the teaching staff, and administrative promotions attainable.

Unanticipated Growth When growth has not been fully anticipated, new students begin to crowd the existing classrooms, which may in fact result in decreasing costs per student. The schools facing these growing pains may shift to double sessions until new classroom space can be completed. While school taxes may rise to meet these capital expenditures, the tax base may also rise in proportion, thus maintaining the historical tax rate. The problems of growth are transitional; moreover, educational managers have a whole body of experience to draw upon, as growth has been common to most school systems in the recent past. Planning for growth may ease the transition, but the outcome--more teachers and increased facilities--will be the same regardless of whether planning occurs.

Unanticipated Decline Although a growing school system can expand the teaching staff by hiring, a declining school system cannot so easily contract because of the institution of tenure. Teacher-pupil ratios and hence costs per pupil are likely to rise even though hiring ceases.

In a school system that has ceased hiring, the average age and experience of teachers is likely to rise. On one hand, some evidence suggests that experience can generate substantial pedagogical benefits for students in certain circumstances (Katzman 1971, Murnane 1977). On the other hand, average nominal salaries will rise because teacher salary schedules are stepped. It is not clear on balance whether costs rise faster than benefits.

Confronted with the per-student cost increases created by declining enrollment and an aging faculty of fairly constant size, a school board might foster attrition by freezing the salary schedule. In the face of inflation, a nominally fixed salary schedule suffers a real decline. To the extent that a school board wished to foster attrition among the more experienced teachers, it might freeze salaries at the more senior end of the scale while granting increases to the more junior teachers. What effect such a policy would have on faculty morale is unclear.

Even if teacher attrition keeps pace with the decline in enrollment, there may be pension expenses that cannot be reduced. Because few teacher pension systems have been fully funded, school systems must annually appropriate funds for past teaching service (Tilove 1976). In a growing system, the burden of pensions may not prove excessive, especially because the hiring of new faculty keeps the average teacher age low, but declining systems face a proportionately higher burden of pension payments per active teacher.

In addition to pensions, school plant and equipment are overhead items that are difficult to reduce in the face of enrollment declines. The debt service and maintenance cost of school buildings are more difficult to reduce in the public sector than are similar costs in the private sector. When a national chain wishes to close a branch supermarket, it attempts to find a willing buyer for its building, without regard for the loss or inconvenience to its customers. In contrast, when a school board wishes to close a building, a small group of parents who face severe inconvenience can influence the decision, often outweighing the larger number of parents for whom the benefits are more diffuse.

Anticipated Decline Had school systems correctly anticipated decline, they might have altered their administrative practices by employing more temporary teachers or including severance-pay clauses in contracts, by leasing rather than purchasing school buildings, and by fully funding their pension plans. Because they failed to alter their practices, school systems face higher per-pupil costs, which require higher taxes and in turn dissuade parents from moving into the school district.

It is difficult to assess the relevance of the above theoretical arguments. Several studies attempt to relate costs per pupil to levels or rates of growth in school enrollment or population. These studies are somewhat difficult to interpret because the quality of service is rarely held constant. For example, a large number of studies purporting to test for economies of scale relate costs to community characteristics, but rarely to the quality of education (Katzman 1971, Ch. 4). These limitations aside, none of these studies identify major economies or diseconomies of school systems.

Sternlieb (1974) reviews several studies of small towns that relate costs to rates of growth of enrollment. These studies as well as his own analysis of New Jersey communities

identify no consistent effect of growth or decline on costs of schooling per capita. Using a somewhat different approach, Muller (1975) examines the costs of providing public services in growing and declining large cities. Growing cities tended to have lower costs per capita than declining cities. There is some difficulty, however, in interpreting these results: Does population decline cause high service costs, or do high service costs result in decline?

A study of migration among 75 standard metropolitan statistical areas (SMSAs) by Liu (1977) indicates that almost no inferences can be drawn from Muller's data. He finds that the rate of state-local taxation in a metropolitan area does not affect net migration, the major contributor to differential growth. Conversely, the rate of net migration has no effect on the level of local taxation.

Because the relative stagnation of productivity in the public sector is projected to continue into the near future, the costs of providing a given level of services in any category will increase. The nature of the educational category will tend to change and become more costly, as busing becomes more widespread, and as more and more "special-needs" groups, ranging from linguistic minorities to the physically handicapped, are identified. To the extent that the federal government assumes many of these costs, the effects may not differ among regions or between cities and suburbs. To the extent that these costs are borne locally, as are special-needs programs in Massachusetts, the programs may hit the central cities hardest. Per-student costs are apparently affected less by growth and decline in enrollments than by these other factors, although the evidence is somewhat tenuous.

Subcultural Conflicts

Prior to the Korean War, when net migration was in a rural-urban and south-nonsouth direction, people moved from areas of low educational standards to areas of higher standards. By most objective measures, such as school enrollments, physical facilities, teacher training and verbal skill, and student reading scores, the Southeast and Southwest have caught up to the rest of the nation (Armor 1972, McKinney and Bourque 1971). Except for the southern regions, indicators show that the quality of metropolitan and nonmetropolitan schools is quite similar. Because of the homogenization of schools, migrating

TABLE 3 Indicators of School Quality, Whites in White Schools, 1965

	<u>School Facilities</u>		<u>Teacher Background</u>		<u>Teacher Verbal Score</u>		<u>6th Grade Verbal</u>		<u>1st Grade Verbal</u>	
	Metro	Non-metro	Metro	Non-metro	Metro	Non-metro	Metro	Non-metro	Metro	Non-metro
Middle										
Atlantic	15.5	13.2	2.8	2.7	25	25	37	36	19	19
Great Lakes	13.9	10.6	2.8	2.7	25	25	37	36	19	20
South	11.2	9.8	2.7	2.7	24	23	36	33	19	18
Southwest	11.3	10.6	2.8	2.8	25	24	35	36	19	19
Pacific	15.7	12.7	3.3	2.9	25	25	36	38	19	19

SOURCE: Armor (1972, Ch. 6).

families will not find schools at their destination markedly different from schools at their origin, at least with respect to school facilities and student basic skills (Table 3).

However, population redistribution is likely to bring into contact families with radically different perceptions and expectations concerning the role of education. In one of the few studies that documents conflict over "cultural" or "social" issues, Gans (1967) vividly describes culture conflict emerging as upper-middle-class urbanites, with an "expansive" or tolerant subculture, moved into tract homes in a formerly rural county dominated by families of strikingly different values. This upper-middle-class group was succeeded by an "invasion" of lower-middle-class urbanites of a different ethnic composition, with a "re-strictive" subculture. The conflicts centered not only on fiscal issues--how high should school taxes be?--but also on social issues of discipline versus permissiveness, lock-step versus individualized instruction, emphasis on basics versus frills, etc. Countless such conflicts have occurred and will continue to occur as the rural fringe becomes urbanized and as subcultural groups succeed each other in metropolitan neighborhoods. As northeastern, urban, upper-middle-class households move into small towns of the South, one can expect continual conflict over such social issues as discipline, sex education, and the covert practice of religion in the schools.

Because school districts in the growing areas of the Southeast and Southwest are so large, cultural dissidents are less able to form educational enclaves by moving to the suburbs. Instead, they might be expected to sustain private schools that have become a permanent fixture in the region.

Selectivity of Metropolitan Movers

The relative and absolute decrease of the white and middle-class population in the central city results in several changes that affect the remaining population. The tax base, the mix of potential peers in the classroom, the political ethos of the city, the willingness to tax, and the effective school resources per child can all be expected to change as a result of out-migration.

Changes in the Tax Base per Student The value of real property per student in central cities may be greater or

less than in their corresponding suburbs. In metropolitan areas like Boston, Cleveland, Baltimore, and Milwaukee, real property wealth per pupil was higher in the suburbs in 1969-1970. In others, like New York, Minneapolis, San Francisco, and Denver, real property wealth per pupil was higher in the central city. In still others, like Philadelphia, Detroit, Chicago, and St. Louis, there was little difference between the cities and the suburbs (Reischauer and Hartman 1973).

Although there have been few longitudinal studies of property wealth disparities between city and suburb, there are theoretical reasons to expect continuing disparities that favor the suburbs. First, the process of suburbanization has been associated with a flattening of the gradient of land values emanating from the central business district. In other words, land values have grown faster in sites farther from the central city (Edel and Sclar 1975, Mills 1969, Yeates 1965). While in some cities, like Boston, downtown land values have continued to rise absolutely, in others, like Chicago, land values peaked in the first half of this century. While land represents only about one-fourth of real property values, its variation over space approximates that of the whole. In the 1960s, median housing in the major cities of all regions increased only two-thirds as fast as in their suburbs (Advisory Commission on Intergovernmental Relations 1973, Table B-11).

In the past the migratory patterns of families at different stages in the life-cycle resulted in the suburbs being heavily endowed with school-age children, as compared with the cities. However, the size of the school-age population and property values tended to vary proportionately, thus accounting for the similarity of property wealth per pupil between many cities and their suburbs. The expected change in the age composition of the suburbs, alluded to earlier, provides the second reason that population changes are likely to raise the relative suburban wealth per pupil. The number of school-age children may begin to fall faster in the suburbs than in the cities, while property values may rise faster in the suburbs than in the cities.

These expected adverse consequences of population redistribution on the relative tax base of central-city school systems will be somewhat assuaged by trends in school finance reform, which is discussed below.

Change in Peer Mix To the extent that whites view black schools as inferior--regardless of whether a particular

case warrants such a view--increasing the percentage of blacks in central-city school systems has complex, and largely deleterious, effects on the quality of the peer environment. Where the social class and ethnic composition of a school is largely determined by that of the surrounding neighborhood, schools are likely to vary significantly in the mix of students (Duncan and Duncan 1955, Farley and Taeuber 1973, Kantrowitz 1973, Rhodes et al. 1965). As suggested by a wealth of educational research largely initiated by the *Equality of Educational Opportunity Survey* (Coleman et al. 1966, Mosteller and Moynihan 1972) lower-class students are likely to benefit educationally from attending largely middle-class schools, regardless of race. While middle-class peers were not widely available to lower-class students because of housing segregation, some lower-class students have had these advantages. Moreover, some middle-class blacks have been able to move into white middle-class school attendance zones.

The differential mobility of the white middle class out of the central-city school system reduces the potential of providing a rich peer environment for some lower-class students, reduces the chances of black middle-class children having white middle-class peers, and tends to "tip" the expectations of educators away from goals of achievement toward tasks of order maintenance.

The process of white flight from the central-city schools reflects a divergence between individual values and aggregate behavior. In an ingenious analysis of segregation, Schelling (1971, 1972) noted that the stability of integration depended upon the relative size of the black and white groups and the distribution of preference for contact with members of the other group. Ranking whites from most to least prejudiced, one can draw a cumulative curve of the percentage of whites willing to remain in a school or neighborhood with a given percentage of blacks. If one assumes that blacks move into a school district only by replacing whites, and that in a particular case 20 black families move into a neighborhood of 100 houses, then stability would be achieved if at least 80 percent of the white population would remain in an environment that is 20 percent black. If one assumes that normal turnover would result in an additional 20 percent of the houses being vacated by whites and occupied by blacks, then stability would be achieved if at least 60 percent of the original white families would remain in an environment that is 40 percent black. However, the 60 to 40 ratio rarely results in stability. Whites begin to move out in

response to the black presence, thereby increasing the percentage of blacks, which encourages additional whites to leave the school. The system tips in a cumulative and circular manner until it is almost entirely black.

In terms of integration, the remaining whites and blacks would have been better off if they could have induced the second 20 percent to stay or could have sought other white occupants and established a benign quota. However, resegregation can occur by such a process even when blacks constitute a small percentage of the total school population if the blacks are concentrated in a few white schools. Were the movement of blacks dispersed into all of the white schools, thereby reflecting the proportion of blacks in the metropolitan area, the situation would be stable.

Political Ethos Some scholars attribute to the middle class an abiding concern with efficiency, impartiality, and "public-regardingness" in municipal government; and to the working class, a concern with jobs, favors, protection, and class or ethnic recognition (Katzman 1971, Ch. 4; Wilson and Banfield 1964). Although other scholars have challenged the linkage between ethnicity and "public regardingness" (Wolfinger and Field 1966), the link between class and reform is widely recognized. Therefore, in areas where the proportion of middle-class families is declining, the share of the electorate concerned with maximizing educational outputs is probably also declining. However, if cities, in the future, attract sufficient numbers of middle-class young singles and "empty nesters" to replace the middle-class families with children who are departing, these new middle-class populations may be more concerned with cost cutting than with maximizing educational output.

Willingness to Tax The benefits that a household receives from a big city school system are distributed roughly in proportion to the number of its children, while the costs are paid roughly in proportion to income and wealth. Consequently, big city school systems tend to redistribute income from childless families, usually of higher-than-average income, to families with many children, usually of lower-than-average income (Grubb 1971). The polarization of the big city population between relatively affluent households (both young and elderly) without children and relatively poor households with many children suggests that the asymmetry between benefits and costs will increase.

Under these circumstances, the willingness of the electorate to tax itself is likely to decrease. In South Carolina, there was little relationship between county expenditures per student and the racial composition of the schools in the late 1960s. After desegregation in the 1970-1971 school year, white private-school enrollments increased in proportion to the percentage of blacks in the school-age population. The process of flight left some districts overwhelmingly black, others with a large majority of blacks, and still others, in which blacks were a small proportion of the population, overwhelmingly white. In the 1970s, growth in tax rates and expenditures per pupil was slowest in districts with the highest percentages of blacks, even when such districts ranked relatively high in wealth per student. In other words, districts in which whites had little interest gained relatively little in financial support (Sherman 1977).

Effective School Resources White flight and enrollment decline may not have totally pernicious consequences for poor and minority students. Murnane (1977) has found that in one large northeastern city, the average experience of teachers in minority schools is increasing. The explanation is that freedom of choice in teaching assignments is a privilege associated with seniority in most school systems. In growing or stable systems, lower-class and minority children are usually taught by inexperienced teachers with little choice (Katzman 1971, Ch. 5). As enrollment declines and the teaching force ages, there are fewer escape valves for the more experienced teachers within the school system. To the extent that teaching quality improves with experience (Katzman 1971, Ch. 2), the quality of teaching may improve for the remaining youngsters.

Summary The set of consequences outlined here is most likely to occur in metropolitan areas with relatively small central cities, surrounded by numerous independent suburbs. While the declining metropolitan areas of the Northeast and Midwest have these characteristics, most of the growing metropolitan areas contain relatively larger central cities, with greater powers of annexation (Norton 1977). Suburbanization or a flattening population density gradient in the growing regions of the nation is less likely to be associated with a weakened fiscal base or with middle-class out-migration.

Intermetropolitan/Interregional Migration

Migration is a mechanism of transferring human capital from one location to another. Because of current institutions for financing education in the United States, individual migrants are financed at the expense of taxpayers in one location but enjoy the fruits of their education in another. The shibboleth "brain drain" suggests that there is something inequitable about such a situation (Greenwood 1975, Grubel and Scott 1966).

The normative implications of the migration of skilled and educated workers depend upon whether the family or the individual is considered obligated to pay the costs of education. If the family is taken as the responsible unit, the process of schooling involves an intergenerational transfer of resources, generally unrequited, and the families through taxes pay the costs of schooling. All families in a declining area might educate their children to obtain better opportunities in a growing area, and no inequity would necessarily result from the migration process. If the individual is considered as the responsible party, then the area that financed the education would not receive future tax benefits in return. It should be noted that if the potential migrant remained in the region, the taxes he would pay should be diminished by the public services he would consume in order to derive the net fiscal benefit to the rest of the community. While state and local governments do tend to extract more in taxes than they deliver in benefits to high-income people, the magnitude of income redistribution is minimal (Pechman and Okner 1974).

There is some evidence that the electorate tends to view emigrants as losses to the community, for in areas of high out-migration, the level of support for public schooling tends to be lower even when there is no weakening of the tax base (Weisbrod 1964). High rates of area emigration, then, can result in an inefficiently low level of schooling from the national point of view. With the increasing role of states in the financing of schooling, and the convergence in school quality among regions, the quantitative importance of these inefficiencies is likely to diminish.

THE IMPACT OF PUBLIC POLICY ON POPULATION REDISTRIBUTION

The concept of public policy in the field of education is at best an abstraction. The educational system in the

United States has evolved as a cumulation of decisions made by all branches of government at all levels of the federal system, by religious organizations, and by parents who express their choices among the public and private schools available to them. Several dramatic judicial decisions in the 1960s made the evolution of educational policy prior to that time appear almost glacial. These actions reflect concerns with increasing equality between black and white and between rich and poor.

The Thrust Toward Desegregation

The most viable change in educational policy has been the wholesale attack on de jure segregation and a somewhat more halting attack on de facto segregation in the public schools. The landmark *Brown v. Board of Education* decision of 1954, which declared de jure segregation unconstitutional, was followed by a decade of pitched battles over token desegregation and considerable confusion on the parts of lower courts over standards and methods of implementation (Read 1975). The inaction and even obstructionism of Congress were swept aside by the moving events of a march on Washington and the murder of a president committed to civil rights. These events culminated in the passage of the Civil Rights Act of 1964, which empowered the Department of Health, Education, and Welfare (HEW) to provide technical assistance to communities planning desegregation, to set guidelines for integration, and to withhold federal funds from districts practicing racial discrimination. This latter authorization translated into considerable leverage for HEW after the passage of the Elementary and Secondary Education Act of 1965, which provided the first major injection of federal funds into local school systems. In the period 1968-1972, the courts and HEW effectively eliminated dual school systems in the South. In the early 1970s attention was shifted to the North and West, where de facto segregation occurred as a result of residential patterns and intentional gerrymandering of school districts.

Interestingly, the burdens for remedying school desegregation rest upon the school district rather than on any larger sociopolitical unit of which the school district is a part. Suburban districts with few blacks have been almost uniformly excused from sharing this burden. In the few cases in which the courts have imposed metropolitan solutions, such as Charlotte, North Carolina, Louisville, Kentucky, Wilmington, Delaware, and Indianapolis, Indiana,

the suburban areas had been historically joined to county-wide school districts or prevented from doing so with segregative intent (*Swann v. Charlotte-Mecklenburg; Newburg v. Board of Education; Evans v. Buchanan; U.S. v. Board*; compare *Bradley v. School Board of Richmond*). In most metropolitan areas, especially in the North and West, where housing discrimination as well as market forces have excluded blacks from the suburbs, suburban districts have not been held responsible for de facto segregation. In the landmark Detroit decision, *Milliken v. Bradley*, the Supreme Court overturned a city-suburban school consolidation ruling of the district court, but raised the possibility of considering arguments based upon housing discrimination.

Although a case could be made that government-supported housing discrimination in the suburbs has been historically responsible for the heavy concentration of blacks in the central city (Orfield 1975), it is likely that *Milliken v. Bradley* will prove a watershed. Through the *Keyes v. School Board No. 1, Denver* decision of 1975, the court ruled that discriminatory action in any part of the school system was presumptive of discrimination everywhere. The Supreme Court's *Dayton v. Brinkman* decision in essence reverses the recent precedents by ruling that the remedy is to be proportionate to the wrong. In other words, excluded from the remedy are not only ostensibly innocent suburbs but also those parts of central-city school districts in which no overt segregative acts were perpetrated.

The *Milliken* and *Dayton* decisions, if indicative of future policy, are likely to have a profound effect on the spatial structure of metropolitan areas. In terms of distorting the housing choices of blacks and whites, the situation after *Milliken* but before *Dayton* could be viewed as reflecting the worst of all possible worlds. The racial composition of big city schools would have been determined by city-wide racial proportions. In cities with a high proportion of school-age blacks, the propensity of whites to suburbanize would have been reinforced. As blacks entered inner suburbs in increasing numbers, de facto segregation there would have required cross-busing, encouraging entire suburbs to tip from white to black.¹

After *Dayton*, the courts are likely to be more tolerant of de facto school segregation created by residential

¹The most perceptive analysis of the residential choice of whites with and without children is Clotfelter (1974, Ch. 4).

patterns. This might stabilize white enclaves in predominantly black cities. To the extent that suburbs or central cities tip to overwhelmingly black, the courts may follow the precedent of the recent Inglewood case (*New York Times*, May 11, 1975, p. 26, col. 1). This Los Angeles suburb was originally ordered to integrate its schools at a time when the majority of students were white; subsequently, however, the school system underwent a major transition and became predominantly black. The State Superior Court's lifting of the integration order means that the remaining whites may be able to attend public schools in which they are not a decided minority. The following of such a precedent may help stabilize affluent enclaves in cities with black majorities.

If current policy is maintained, the effects of school integration will have worked themselves out by the end of the decade. In cities such as Washington, D.C., and Atlanta, the working out of school integration policy has been associated with a nearly complete abandonment of the central-city public school system by white students, with the exception of a few enclaves. Depending upon the racial proportions of the school-age population, similar results may follow in other big cities with predominantly black enrollment, such as Chicago, Philadelphia, and Baltimore (Farley 1975).

Impacts of Desegregation on Population Redistribution

Thus far, results of current desegregation pressures appear dramatic. In the mid-1960s, indexes of segregation in the public schools were high, on the order of 80.² Across cities, these indexes were highly correlated with residential segregation. By the early 1970s, school segregation decreased in big city systems in all regions of the nation, and especially in the South. The desegregation of big city systems is only part of the picture. With the

²An index of segregation or dissimilarity can vary theoretically from 0 to 1. Intuitively, the value of the index represents the share of one group that would have to be redistributed in order to conform to the spatial distribution of another group. A value of 80 means that 80 percent of the blacks (or whites) would have to be redistributed geographically to conform to the spatial distribution of whites (or blacks).

disproportional suburbanization of white youngsters, inter-district segregation increased. In most of the large city school systems, whites have become relatively dispersed among blacks, but the number of whites per black pupil has decreased concomitantly (Coleman et al. 1975, Farley and Taeuber 1973).

Whether desegregation has precipitated white flight or middle-class flight from the public school has stimulated considerable research in various social science disciplines (Katzman 1978). Without question, factors like population growth, income gains, and job redistribution have encouraged suburbanization long before courts moved into the arena. The existing literature indicates that almost all central cities, with the exception of a few booming cities of the Southeast and Southwest, have been experiencing enrollment decline since the late 1960s because of declining birthrates and continued suburbanization. The rate of white enrollment decline is greater in cities with (1) higher proportions of blacks in the public schools, (2) greater total enrollment, and (3) numerous suburbs that serve as escape valves. As indicated by cross-sectional and time-series comparisons of enrollment changes, housing prices, and mover behavior, there is indeed evidence that the integration of blacks into exclusively white schools stimulates white flight. Desegregation tends to increase the rate of white enrollment decline in proportion to (1) the percentage of blacks in the public schools, (2) the total enrollment, and (3) the urban-suburban differentials in racial proportions. The evidence for "threshold" or "tipping" effects is mixed: the fragmentary evidence suggests that when blacks comprise less than 25 percent of district enrollment, whites are insensitive to small changes in black enrollment, but when blacks comprise more than 50 percent, white enrollment decline is precipitous. When these characteristics are taken into account, federal actions--in either the executive or judicial branch--have had similar effects on integration in the North and South. Furthermore, the instruments of integration--redistricting or busing--make little difference in the outcome.

Migration to the suburbs has quantitatively contributed much more to white enrollment declines than has private education. Where school systems are county-wide and where suburbs do not offer an escape, approximately 5-10 percent of the white school-age population uses private schools, even when the black proportion is below the 25-percent threshold. As the black proportion rises, the likelihood

of white students shifting to private education is proportional to family income. Consequently white enrollment decline in response to integration results in a downgrading of the social-class composition of the remaining white school population (Clotfelter 1975, Giles et al. 1976, Katzman 1978, Ch. 3).

Changes in the composition of the white population, however, may create pressures countering white flight. The increasing number of families without children, particularly with two wage earners, may translate into increasing demand for central-city residences. These families, caring little about the quality of public schools, may be attracted to locations more accessible to jobs and big-city amenities, and particularly to neighborhoods of historic value. The big city of the future might be comprised of young and affluent whites without children, working-class blacks, and destitute lower-class individuals of all ethnic groups.

Equalizing School Finance

A second set of equality issues focuses upon school finance. Here the initiative for new policies has been largely at the state level, the Supreme Court having indicated no federal interest in *San Antonio v. Rodriguez*. In the late 1960s and early 1970s, there was a flurry of academic proposals to reform educational finance and increase school expenditures in poor districts (Coons et al. 1970, Reischauer and Hartman 1973, Wise 1968). Paradoxically, at the same time a series of major studies came to the disheartening conclusion that additional expenditures yielded little benefit as measured by cognitive scores (Coleman et al. 1966, Katzman 1971, Jencks et al. 1972, Mosteller and Moynihan 1972). Thus, the intellectual underpinning of an argument linking school-expenditure equalization to equality of opportunity and hence equality of results was challenged at the very time courts appeared most interested in school finance reform.

In the early 1970s, academic arguments notwithstanding, landmark decisions in California (*Serrano v. Priest*) and New Jersey (*Robinson v. Cahill*) found that disparities in real property values per pupil resulted in unconstitutional inequalities in school spending and that new systems of financing were required. State legislatures have been slow to implement court orders; in the early 1970s there were only weak trends toward increasing state support for elementary and secondary education, and there was little

evidence that interdistrict inequality was decreasing. While the level of state support climbed from about 20 percent to 40 percent from 1920 to 1950, it remained almost invariant until 1975. The Elementary and Secondary Education Act of 1965 (ESEA) raised the federal share of school financing from 3 percent of the total to 8 percent in 1968; the 1972 federal share was only 7 percent (Reischauer and Hartman 1973).

Judicial initiatives in school finance reform came to fruition in 1975 when the New Jersey Supreme Court threatened to close schools unless the legislature implemented a satisfactory financing plan. Courts in California and nearly 2 dozen other states followed (Lawyers' Committee for Civil Rights Under Law 1978). Among these states that underwent school finance reform, the state share of funding rose from 39 percent to 52 percent (Odden et al. 1976). Whether intrastate inequalities in expenditures have correspondingly decreased in school-reform states has not been well researched, although cross-sectional analysis indicates that equality among districts varies directly with the share of state support (Katzman 1971, Ch. 4).

It is conceivable that in the next decade, all states will increase levels of support, thereby encouraging intrastate equalization. Central cities may be increasingly successful in tapping state coffers to serve an expanding circle of "special need" students. While these policies may raise expenditures and lower taxes in the cities relative to the suburbs, they are unlikely to make the central city significantly more attractive to families with children. Parents are more sensitive to peer achievement than to school expenditures as an indicator of school quality. Because peer achievement is so highly related to social class, which is highly related to race (Mosteller and Moynihan 1972), an improved fiscal picture for the central city is unlikely to offset a deteriorating social-class composition in attracting white families with school-age children.

Ironically, school finance reform may have a greater effect on the mobility of whites without children than on those with children. An influx of state aid based upon fiscal capacity per pupil will permit a greater reduction (or slower increase) in property taxes in school districts with relatively low real property wealth per student. As noted above, some cities are relatively wealthier than their suburbs; others are less wealthy. The general conclusions that can be drawn are that the implementation of

state-aid formulas based upon fiscal capacity will lower the tax price of dwellings in some jurisdictions in a metropolitan area more than others, and that housing demand will increase disproportionately in such jurisdictions. In some cases, this will favor the cities; in others, the suburbs.

MAJOR POLICY ALTERNATIVES

Desegregation Policy

The Options With regard to racial integration policy, there would seem to be little that any level of government could undertake to alter interregional flows. On the intrametropolitan level, there are two very different policies of dubious feasibility that could substantially reduce the flight of white, middle-class families with children.

Metropolitan integration plans that would equalize racial proportions in all schools would lessen the attractiveness of suburbanization as a mode of escaping integration. Evidence from metropolitan school systems in the South suggests that private schools are also used as a means of escaping integration by some white families, particularly the affluent. Although metropolitan integration might encourage some suburban whites to choose this option, it would offer central-city families whose schools were about to tip more acceptable racial proportions. For example, in a metropolitan area where half the whites and all the blacks lived in the central city and the blacks comprised half the central-city population, central-city schools would be 50 percent black. Experience suggests that tipping is likely to occur at these proportions; however, under metropolitan integration, central-city schools would be only 33 percent black. Because suburban schools would also be 33 percent black under a metropolitan plan, central-city schools would be relatively more attractive to the remaining whites.

An alternative solution could be based on tuition vouchers, which parents could spend at any school, public or private. To prevent the establishment of "segregation academies," admissions would have to be color-blind; however, a wide number of schools catering to parents with different lifestyles and subcultural values would emerge, thus encouraging self-segregation. On the assumption that much of racial prejudice is class prejudice, the establishment of schools

of homogeneous social class might make central-city schooling more appealing to the white middle class.

The Squeeze on Middle-Class Blacks An emerging phenomenon that appears ripe for study is the reaction of blacks to white flight (Katzman 1979). Rather than treating blacks as a monolithic community, researchers should distinguish between those who have largely middle-class orientations and the remainder of the population. The aspirations and perceptions of middle-class blacks concerning school quality are similar to those of whites, although blacks are perhaps more perceptive of class and subcultural differences within the black population and hence are less likely to engage in "statistical discrimination"--that is, assume that a school is lower class simply because it is overwhelmingly black. Nevertheless, the reduction in the number of middle-class whites in a big-city school system is likely to have two deleterious effects on black middle-class children: (a) the tone of the school system may shift from an emphasis on achievement and mobility to an emphasis on maintaining order and discipline; and (b) middle-class students, who are a minority among blacks in most big city schools, may be victimized by their lower-class peers, who are hostile to middle-class behavior. [This latter effect may be a reason why some middle-class blacks have difficulty in transmitting their status to their own children (Duncan 1967)]. Middle-class blacks thus may feel increased pressures to extract their children from lower class public school environments.

Three options for middle-class black parents are self-segregation within big-city school districts, movement to inner suburbs, and use of private education. In attempting to segregate themselves from working-class and lower-class households, middle-class blacks may find themselves in increasing competition for well-situated and basically sound housing in neighborhoods being rehabilitated by affluent white families without children. Although discrimination has hindered black migration to the suburbs in the past, decline of the white population in the aging inner suburbs, combined with the intense demand for housing on the part of blacks, is likely to result in a major influx of blacks to suburban areas in the next decade. In metropolitan areas where the possibilities for self-segregation and suburbanization are inadequate, middle-class black parents will probably turn to private education.

School Finance

Reforms in school finance undertaken at the state level are unlikely to have any interregional consequences. The effects on intrastate and particularly urban-suburban population distributions depend upon the type of formula enacted by a state. Most of the proposed aid formulas include "power equalizing" provisions, which permit localities, regardless of their own tax bases, to use a given tax rate to raise similar amounts of revenue per pupil at similar tax rates. Formulas that link "fiscal capacity" to property tax base per pupil are likely to channel aid into jurisdictions with relatively low property tax bases. These jurisdictions, however, are no more likely to be high income than low income or urban rather than suburban (Alexander 1975, Callahan et al. 1973). If the definition of fiscal capacity is expanded to include measures of current income, then aid obviously goes disproportionately to poorer districts. These, however, are not invariably more urban.

An alternative formula bases aid upon need, perhaps measured by the percentage of poor in the population, following Title I of the Elementary and Secondary Education Act. Although central-city school districts contain a disproportionate number of poor, differences between cities, suburbs, and rural areas are smaller than one might imagine (Callahan et al. 1973). State-aid formulas based upon need may be more favorable to central cities than those based upon fiscal capacity, but the differences between central cities and rural areas are so small that any differential reductions of urban property taxes are likely to be inconsequential. Although school finance reform may enable particular jurisdictions to reduce significantly their property taxes and hence their housing costs, the central city is not inevitably favored by such reform.

Although interregional migration will not be affected by state funding reforms, it could be significantly affected by large increases in federal funding. Federal aid might be based on three principles: (1) financing for programs that meet special needs, such as bilingual education; (2) compensatory financing for high-cost school systems; and (3) compensatory financing for areas with low fiscal capacity. Federal financing for such special needs as bilingual education would be particularly favorable to states in the Industrial Belt, but would also benefit states on the Pacific Coast and in the Southwest. If special needs were defined broadly--as they probably will be--to include

general categories, such as the handicapped, then it is not clear what interstate biases might result from the distribution of aid. Whether Alabama or New York has more than its share of exceptional children or learning disabilities cannot be ascertained at this time. If federal aid for these categories is forthcoming, the definitions and standards for admission into these categories would probably be shaped by political competition for these funds.

Compensatory aid for high-cost school systems would clearly benefit the Northeastern and Industrial Belt states, particularly their central cities, where nominal salaries are high. Bailing out high-cost systems may reinforce inefficient administration or encourage less stalwart collective-bargaining postures on the part of school systems. The pressures for such a bailout, however, must be recognized.

Compensatory aid for districts with low fiscal capacity are likely to favor the southeastern states and rural areas, where nominal salaries are low. A bias in favor of such areas is inherent in any federal program that distributes aid with reference to nominal income, uncorrected for cost-of-living differentials.

The effects of federal financial aid on interstate migration depend, of course, on the magnitude of this aid. Since the late 1960s, federal aid has been declining and it is unlikely that this trend will be reversed. As was noted previously, the changing age structure of American society is likely to shift political concerns away from children's issues toward issues of the middle-aged and elderly. Although the trends toward equalization of school finance seem firmly established, the level at which expenditures are to be equalized is likely to be lower than in the past.

CONCLUSION

The redistribution of population in the United States from the Northeast to the Southwest, and from the central cities to the suburbs and rural areas, poses important short-term management problems for school systems. The most difficult problems will confront school systems with declining enrollments. These systems will be forced to make unpleasant choices concerning fiscal and employment policies, unless they can diversify their product in the same way that baby-food manufacturers have entered the gerontological market. School systems that shift to the product diversification strategy--utilizing their facilities and personnel

for new functions, such as day care, youth vocational training, mid-career programs, and continuing education--will require administrators with entrepreneurial skills. If this shift in orientation cannot be made successfully, declining school systems will confront an era of turmoil in which the interests of taxpayers, children, and teachers will clash. These problems probably will have worked themselves out by the mid-1980s, but the interim will be painful.

The consequences of selective migration to and from the central city will be largely determined by the socioeconomic characteristics of the migrants. To the extent that middle-class parents are highly sensitive to peer environments in schools, the increasing lower-class central-city schools will be less and less attractive. Countervailing forces such as less expensive housing in the city, increasing gasoline prices, and urban cultural amenities may draw childless, white middle-class households, an increasing proportion of the population, back to the central city or slow their exodus. Although the influx or reduced outflow of childless middle-class families will not improve the peer environment for poor and minority school children in the central city, it can improve the tax base of the central city. This improvement can be negated, however, by school finance reform that divorces local school expenditures from local fiscal capacity.

The major change in educational policy in the last 10 years--the thrust toward racial desegregation--was initiated by the federal courts and supported strongly by the Department of Health, Education, and Welfare. Although these policies apparently have had little effect on population redistribution in county-wide school districts in the South, they probably have exacerbated white flight from central cities that have high percentages of blacks and numerous suburbs offering escape from integration. Although the courts currently appear to be retreating from their earlier rulings on integration, many cities with large black populations have already felt their impact. In most of the big cities of the North, Midwest, and West the flight of white students from the public school appears to have an irreversible momentum. Even the rescinding of integration orders in these cities is unlikely to change the trend. By the mid-1980s, the full results of federal policy on school integration will be apparent, and school systems in most big cities will be comprised almost entirely of minorities. For administrators in big cities, the challenge will be making the best of a student population unleavened by the middle class.

Middle-class black families in the central cities, finding themselves surrounded largely by the working class and the lower class, are likely to enter the inner suburbs in great numbers within the next decade. Since black suburbanization in the 1970s is apparently more rapid than white suburbanization, a conference on population redistribution in the 1980s might well focus upon this remarkable and hitherto unnoticed phenomenon.

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POPULATION REDISTRIBUTION AND THE CRIMINAL JUSTICE SYSTEM¹

Colin Loftin

INTRODUCTION

A theory would be useful that would allow us systematically to link changes in population distribution to changes in community structure and to link these, in turn, to changes in crime and crime control. With such a theory we could project the impact of changes in population distribution and community structure on levels of crime and on crime-control institutions. Unfortunately, only the meager beginnings of such a theory exist. In spite of the fact that quantitative studies of relationships between community structure, population distribution, and crime are among the oldest scientific studies in criminology (Guerry 1833, Quetelet 1842), negligible progress was made on the development of systematic theories until the late 1960s. Since that time, the situation has been changing rapidly as criminologists and other analysts have again become interested in these problems. The discussion that follows draws some of these materials together in order to explore the implications for crime and crime control of current trends in the spatial distribution of population in the United States.

One obstacle to the development of a theory of crime and crime control is that criminal statistics suffer from several well-known and frequently discussed biases that have discouraged analysts from using them extensively in

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theory-building efforts. We make no attempt here to justify or evaluate the accuracy of criminal statistics; but before beginning the discussion I wish to note some possible sources of bias and warn the reader that all of the inferences that I make in the paper crucially depend on the assumption that crime statistics are reasonably accurate and representative of the patterns of crime. I make this assumption not because I wish to argue that it is true, but because it provides a convenient point of departure for the development of relatively simple theoretical models. More sophisticated models that consider the structure of errors in crime statistics are needed but are not yet available.

The first bias in crime statistics is that they refer to only a limited subset of the concept of illegal activity, or even serious illegal activity. Almost all the research referred to in this paper is based on the crime index of the *Uniform Crime Reports (UCR)*, which is a tabulation of seven selected offenses: criminal homicide, forcible rape, robbery, aggravated assault, burglary, larceny-theft, and motor-vehicle theft (Federal Bureau of Investigation 1976). The offenses are reported by local law-enforcement agencies to the Federal Bureau of Investigation, which tabulates them and issues annual reports. While some authors argue that the bias in the index toward street crimes is an advantage because the crimes represented are those that concern most citizens, that is, "predatory crimes against innocent victims" (Wilson and Boland 1976, p. 183), most agree that the exclusion of other types of illegal activity is a serious limitation. The point I wish to emphasize is that if we think of "crime" as a violation of the criminal law and we measure it with the *UCR* indexes, we are working with a biased sample of the relevant conceptual domain. Like any biased sample, it can be misleading. The reader should keep in mind that all of our generalizations are conditioned by the assumption that we are referring to the types of offenses that are covered in available sources of data.

The second bias arises from the inaccuracy of the counts of crime incidents. The most negative assessment of the value of the *UCR* data is undoubtedly Robinson's (1966, p. 1061) well-known statement that "the F.B.I.'s figures are not worth the paper they are printed on." At the other extreme, however, even the most optimistic, positive assessment of the *UCR* data has a hesitant, almost apologetic tone that is characteristic of the writing of most users of the data (Hindelang 1974, p. 14):

It should be reemphasized here, however, that it is decidedly not being suggested that the *UCR* are without shortcomings--there is, in fact, agreement here that the shortcomings are numerous, severe, and varied, and are in drastic need of attention--but rather that in spite of these problems the *UCR* seem to have at least some applicability as crude approximations which are of utility for some purposes. [Emphasis added.]

No evaluation of the problem is presented here. There are several good (though incomplete) discussions available (Wolfgang 1963, Zeisel 1971). However, our inferences about the distribution of crime must be treated as problematic because of a lack of knowledge concerning the structure of reporting error in the data.

With respect to the implications of population redistribution for crime and crime control, the discussion is organized into two major sections. First, crime as a cause of population redistribution is considered. Crime is widely believed to be a major factor driving current patterns of migration, especially the flight of the white middle class from central cities. The discussion examines whether changes in the level or distribution of crime affect patterns of migration or residential choice. Existing evidence suggests that intuitive estimates of the impact of crime on residential choice are biased upward, and that economic and ecological factors dominate these decisions, leaving little room for consideration of crime.

Second, attention is turned to the consequences of population redistribution patterns for crime and crime control. What are the consequences of declining population and the associated changes in social organization for levels of crime and for law enforcement (police, courts, and correctional systems)? Similarly, what are the implications of population increases and concomitant organizational changes in growing areas?

DEFENSIVE SETTLEMENT PATTERNS: CRIME AS A CAUSE OF MIGRATION

An examination of when and where crime occurs reveals several patterns that suggest that the fear of victimization may be a major factor contributing to the selective migration of the middle class from central cities into suburban areas and, more recently, into nonmetropolitan areas. Crime

TABLE 1 Selected Crime Rates (per 100,000 residents) and Percentage Change in Crime Rates by Community Size or Community Type, 1965, 1970, and 1975

Community Size/ Community Type	Year	Murder Rate	Percent Change	Robbery Rate	Percent Change	Burglary Rate	Percent Change
1,000,000 or more	1965	9.6		220.5		929.5	
	1970	18.4	92	778.0	253	2008.9	116
	1975	24.6	34	878.8	13	2185.0	9
500,000- 1,000,000	1965	10.4		164.7		1008.5	
	1970	18.2	75	533.8	224	1981.3	96
	1975	20.1	10	592.4	11	2459.6	24
250,000- 500,000	1965	7.2		121.9		1045.3	
	1970	14.7	104	320.6	163	1797.1	72
	1975	17.6	20	473.0	48	2556.2	42
100,000- 250,000	1965	6.4		73.1		871.2	
	1970	10.0	56	198.9	172	1684.5	93
	1975	10.9	9	282.6	42	2177.3	29
50,000- 100,000	1965	3.5		48.5		674.6	
	1970	5.2	49	110.2	127	1114.5	93
	1975	7.2	39	189.4	72	1723.1	29

25,000- 50,000	1965	3.1		32.9		561.7	
	1970	4.2	36	82.3	150	940.1	68
	1975	5.7	36	129.6	58	1417.7	51
10,000- 25,000	1965	2.3		18.6		461.8	
	1970	3.3	44	42.2	127	785.0	70
	1975	4.4	33	81.6	93	1199.0	52
Less than 10,000	1965	2.0		11.8		368.9	
	1970	2.6	30	23.6	100	630.6	71
	1975	3.9	50	49.4	109	1037.5	65
Suburban communities ^a	1965	2.7		28.1		544.6	
	1970	3.8	41	58.3	108	871.7	60
	1975	5.4	42	93.4	60	1321.0	52
Rural communities	1965	4.2		9.9		308.4	
	1970	5.5	31	13.3	34	477.2	55
	1975	8.4	53	24.9	87	872.6	83

^aSome of the suburban communities also appear in the specific size categories.

SOURCES: Federal Bureau of Investigation (1965, Table 6; 1970, Table 9; 1975, Table 14).

rates, especially rates of violent personal crime, are relatively high in central cities and decline with distance from the core. This is not a new pattern; it has been observed since the earliest statistical studies. Furthermore, the period of rapid suburban migration of middle-class whites out of central cities coincides, at least in very general terms, with a period of rapid increases in crime rates. Table 1 illustrates the first pattern, showing murder, robbery, and burglary rates for the community-size (or community-type) categories provided in the *UCR* for 1965, 1970, and 1975. The following major conclusions can be drawn from the *UCR* data:

1. Crime rates are higher in larger communities. The concentration of crime in larger communities is greatest for robbery but is apparent for both murder and burglary. The relatively high rate for murder in rural areas is the most striking deviation from this pattern and is typical for this offense.

2. All three crime rates have increased over time. This trend accounts for about 85 percent of the variance in the crime rates in the table.

3. The largest changes occurred in the first time interval. For the 1965-1970 interval, the average percentage change for murder is 56 percent, but for the 1970-1975 interval, it is only 33 percent. The comparable values for robbery are 146 percent as contrasted with 59 percent, and for burglary, 77 percent as contrasted with 46 percent (see Table 2).

4. There is a noticeable interaction in the rates of change. The effect of community size reverses between the two time intervals. This can be seen clearly in Table 3, in which we have grouped the community-size categories into two classes and computed means of the percentage changes in crime rates. In the first interval (1965-1970), large communities have the largest changes in crime rates, but in the second interval (1970-1975), it is the smaller communities that change the most.

Figure 1 provides a dramatic illustration of the second type of pattern. It shows the homicide rate and the white population of the city of Detroit between 1926 and 1976. Clearly, the two series are negatively related; during the period prior to 1950 the homicide rate was falling or fluctuating around a low mean of about six homicides per 100,000, and at the same time the white population was increasing. In the second period (after 1950), the trends are a decreasing white population and a very rapidly rising

TABLE 2 Mean Percentage Changes in Crime Rates, 1965-1970 and 1970-1975

Time Interval	Murder Rates	Robbery Rates	Burglary Rates
1965-1970	56	146	77
1970-1975	33	59	46

NOTE: Calculated from rates in Table 1.

homicide rate, especially after 1960. These data are extreme, both in choice of crime and in choice of city, but they illustrate a pattern that has greatly influenced opinion about relationships between crime and intraurban migration. These data are generally consistent with the hypothesis that the risk of criminal victimization is one of the factors that contributes to the flight of whites from central cities.

In spite of what many observers take to be an obvious link between fear of crime and selective migration to

TABLE 3 Mean Percentage Changes in Crime Rates by Community Size, 1965-1970 and 1970-1975

Community Size	Percent Change in Murder Rates		Percent Change in Robbery Rates		Percent Change in Burglary Rates	
	1965-1970	1970-1975	1965-1970	1970-1975	1965-1970	1970-1975
	100,000 or more residents	81.8	18.2	203.0	28.5	94.2
Less than 100,000 residents ^a	34.0	42.1	107.7	79.8	64.7	59.5
Difference ^b	48	-24	95	-51	30	-34

^aSuburban and rural communities are treated as smaller than 100,000 residents, even though the UCR does not define the specific sizes of these communities.

^bNumbers have been rounded.

NOTE: Calculated from rates in Table 1.

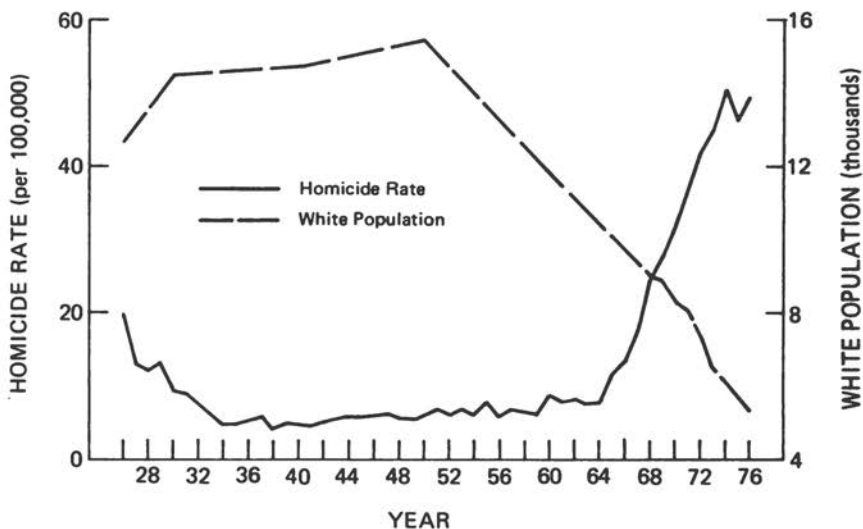


FIGURE 1 Homicide rate and white population of Detroit, Michigan, 1926-1976, based on data from Boudouris 1970. The series is extended to 1976 by regressing Boudouris series on the UCR series in order to obtain estimates of the Boudouris series.

peripheral locations, there is reason to believe that subjective estimates of the magnitude of this influence may be exaggerated.

A major problem with data such as those in Table 1 and Figure 1 is that they do not encourage one to see crime in relation to a model of metropolitan community structure and change. The size/type categories used by the UCR do not correspond to the functions that communities perform in urban spatial systems. Almost none of the existing research takes into account the fact that observations in a spatial or temporal series are not independent replications of the events being studied. They are part of a system that is linked in space and time in such a way that recurrent patterns appear not only because relationships are functional, but also because the units are open at the edges and are mutually influential. Subjective standards, which are acquired from experience with data that are independent observations, can be highly misleading in assessing the statistical significance of these patterns because conventional means of estimating standard errors do not apply (Berry 1971, Cliff and Ord 1973). When the data are interpreted within the framework of a model of

urban growth, it becomes evident that the ordinary mechanisms of change in community structure can create a relationship (in time and space) between levels of crime and middle-class out-migration, even where there is no causal link between them.

In suggesting an alternative interpretation of the correlation between crime and selective migration, I do not argue that criminal victimization has no influence on population distribution. Certainly crime lowers the quality of life and undoubtedly has some impact on family decisions about housing. However, many estimates of the magnitude of this influence are biased upward because they do not take into account the indirect relationship that is generated by the spatial dynamics of urban systems. The nature and magnitude of the direct relationship is, of course, crucial for social policy makers who want to know how much influence a change in the crime rate in a given area would have on the composition of the population in that area.

The indirect relationship between crime rates and mobility patterns has two major components: (1) a tendency for criminal opportunities and for high-risk populations to be located relatively close to urban centers, and (2) a tendency for residents who have the financial and ethnic requisites to move to peripheral locations. Both patterns are well documented. Using data from 128 census tracts in St. Louis, Boggs (1965) shows that environmental opportunities account for the concentration of certain types of property crimes in commercial areas. When crime rates were standardized by environmental opportunity factors such as the business-to-residential land use ratio, crime rates were no higher in commercial than in residential areas. Pyle et al. (1974) demonstrate the same type of variation in crime rates standardized by different types of land use in their study of Summit County, Ohio (which includes the city of Akron). In addition, they present a series of maps that show how the pattern of crime is influenced by the locations of businesses and homes that provide opportunities for criminal activity.

Central cities also appear to have higher crime rates because they are used by the residents of the whole metropolitan region and thus population "at risk" far exceeds the numbers of residents used in calculating conventional crime rates. Gibbs and Erickson (1976) have shown that for 180 singular cities [i.e., largest cities in a standard metropolitan statistical area (SMSA) with only one central city] there is a positive correlation between all seven

index offenses and a measure of dominance (the ratio of SMSA population size to the central-city population size). This is consistent with the studies done by Lottier (1938) in Michigan that show that many offenses are distributed in a declining gradient pattern throughout a region extending 200 miles from the center of Detroit.

The concentrations of high-risk populations (the poor and minorities) in central cities and the preference of low-risk populations for more peripheral locations is also well documented and is attributed, in large part, to the spatial structure of urban housing markets. New, low-density housing is less expensive and therefore more available in peripheral areas. This radial variation in housing costs, which is ultimately tied to the limited supply of, and demand for, access to central locations (Berry and Horton 1970), combines with factors such as discriminatory real estate practices, the development of freeways, the movement of jobs and services to suburban areas, and the aging of housing stock in central cities to generate a pattern of selective out-migration of middle-class whites.

Some studies attribute high crime rates in areas with high levels of migration to the destabilizing or disorganizing effects of migration itself (Clinard 1964, Edward Green, unpublished data). While there seems to be little evidence supporting this type of migration effect, there is one statistical mechanism by which the process of selective out-migration can contribute to the correlation between crime rates and middle-class out-migration. Consider a neighborhood with a relatively stable number of crimes that are committed disproportionately by low-income residents. If high-income residents migrate out of the neighborhood, the crime rate (crimes per resident) must increase because the residents with a high propensity toward crime are becoming a greater proportion of the population. This will occur even if the number of crimes remains the same, assuming that the higher income migrants are not replaced. If they are replaced by low-income migrants, then the magnitude of the effect will be even greater.

There are four studies that, to some degree, have addressed the issue of whether there is a direct influence of crime levels on migration flows. None is complete or definitive, but all four suggest that crime contributes little, if anything, to patterns of population redistribution.

Droettboom et al. (1971) report micro-level evidence from a national longitudinal survey of residential mobility conducted in 1966 and 1969. The survey indicates that there is a strong relationship between the perception of crime as a serious problem in a neighborhood and the desire

to change residential locations, but there is no relationship between that perception and actual migration from the neighborhood. More important, for our purposes, is the finding that there is little difference in the perceived seriousness of crime problems in a neighborhood between people who have changed residence from central city to suburb and those who have not. Among middle-class whites residing in central cities in 1966, those who perceived crime and violence as "very serious" were no more likely to have moved to the suburbs in 1969 than those in the "not so serious" category. In both cases, 20 percent moved from the central city to the suburbs. Similar findings are reported by Garafalo (1977) from his analysis of the National Crime Survey data from eight cities. Very few respondents indicated that their neighborhood was dangerous enough to make them think seriously about moving. Even among low-income blacks who had been victims of crime and perceived their neighborhood as either somewhat or very unsafe, less than half said that the danger was serious enough to make them consider moving. When households that had moved in the last 5 years were asked why they moved and what was the most important reason for the move, only about 3 percent indicated that crime was the reason.

Two macro-level studies of intrametropolitan migration flows provide estimates of the effects of crime levels on city-suburb migration that are consistent with the micro-level data (Frey 1977, 1978; Guterbock 1976). The estimates are derived using quite different statistical procedures, theoretical models, and measures of the magnitude of suburban migration, but the results of both studies are consistent with a model in which there are no direct effects of crime rates on the migration flows from city to suburbs. Frey's second study (1978) extends his first analysis by estimating the effects for migrants with six different levels of education. The patterns suggest that suburban propensity rates (the proportion of residential movers who move from the city to suburbs) for high-education groups are much greater in older northern SMSAs than in southern or western ones. However, his estimates for the effects of city crime rates on suburban propensity rates for migrants in all six education groups were small and not statistically significant by conventional standards.²

²Frey did not report standard errors or significance levels because he was dealing with the universe of SMSAs that were of interest. However, he kindly provided a copy of his computer output and none of the crime effects are statistically significant by conventional standards.

In sum, I suspect that intuitive estimates of the magnitude of the effects of crime on population redistribution are biased upward. To many observers it appears obvious that the white middle class is fleeing the dangers of the central city for the relative safety of the suburbs. When the indirect relationship between levels of crime and middle-class migration is taken into account, however, this interpretation is much less persuasive. On the other hand, it is unlikely that crime exerts no influence on population distribution. There are many potential links between crime and population distribution that have not been investigated systematically. For example, high levels of crime may prevent people from moving into certain areas even though it has little influence on the out-migration of current residents. Also crime may be a very important factor in rare but important local instances that are not represented in national surveys, but that have a powerful influence on public opinion. Nevertheless, with regard to selective middle-class out-migration, the evidence suggests that nationally the process is dominated by ecological and economic factors and that changes in crime rates would have only a very small impact on the process.

A NOTE ON AGE, RACE, AND GENDER

Before beginning a discussion of the effects of changes in the distribution of population, I will discuss the relationship between changes in the age structure of the population and levels of crime. While this is a compositional, rather than a distributional trend, it appears to be a factor of great importance that may interact with distributional factors in ways that will be important to subsequent discussion. Table 4, which has appeared in several frequently cited discussions of the effects of age structure on crime, shows typical estimates of the effects of age on arrest rates, which are generally used as proxies for offense rates. Note that for all offenses the rates are higher for individuals under age 25 than for those over 25, and that the difference between age-specific rates is much greater for property offenses than for person offenses. For example, the arrest rate for homicide is 1.8 times greater for persons age 10-25 than for persons over 24, but for automobile theft the rate for the younger group is 22.3 times greater than the rate for the older group.

Although studies generally show that changes in the age structure of the population have contributed heavily to

TABLE 4 Age-Specific Rates of Arrest for Index Offenses, 1965

Crime	Rate of Arrest per 100,000	
	Population Age 10-24 ^a	25 and Over
Criminal homicide	7.7	4.4
Forcible rape	14.0	2.7
Robbery	64.2	9.9
Aggravated assault	71.2	34.2
Burglary	321.4	27.3
Larceny	592.5	63.8
Auto theft	182.8	8.2
Total ^b	1,253.9	150.4

^aThe volume of arrests is reported in *Uniform Crime Reports* for the age-group under 25. Since arrests of persons under age 10 are so few, the population 10-24 has been used as the base for this rate.

^bRates shown do not sum exactly to this total because of rounding.

SOURCE: Morrison (1972, p. 14).

changes in crime rates in recent years, estimates of the magnitude of this contribution vary widely. Several studies conducted during the 1960s estimate that between 10 percent and 50 percent of the increase in index crime in the period between 1950 and about 1965 can be accounted for by changes in age composition (Ferdinand 1970, President's Commission on Law Enforcement and Administration of Justice 1967, Sagi and Wellford 1968). It is possible that these studies underestimate--perhaps by a large margin--the magnitude of these effects. The issue is complex and unresolved at the present time because age-specific offense data are not available for the nation as a whole and must be inferred from arrest data. The major source of age-specific arrest statistics, the *UCR*, has several serious liabilities that restrict the usefulness of the data for these purposes: (1) arrests are available separately by race, gender, age, and community size, but these factors are not cross-tabulated; and (2) the reporting area of the arrest data is significantly less than complete and has changed over time. The first problem has led analysts to treat the factors (age, race, gender, and

community size) as though they have additive effects on crime rates, in spite of evidence to the contrary. As a result of the second problem, arrest rates have been underestimated, but as coverage increases, a spurious rise in arrest rates occurs. For example, the arrest data used in the calculations of the arrest rates in Table 4 are based on reports from 4,062 agencies representing only 69 percent of the U.S. residential population. The population data, on the other hand, are derived from Census estimates of the total population in each age category. Clearly these calculations underestimate the arrest rates, and changes in coverage will produce a change in the UCR-based estimates, no matter what happens to the true arrest rate.³

The only study that is not affected by the reporting area problem and controls separately for the effects of age, race, and gender, allowing for interactions among all factors, found that demographic factors account for all of the trend in male crime rates (Blumstein and Nagin 1975). Two statistical techniques are used in the paper: one estimates a model that controls for variation in the intensity of police activity over a 6-year period for each of eight age, gender, and race groups; and the second is an analysis of variance of the crime rates for the age, race, gender, and time categories. Surprisingly the only significant increase in rate, given controls for the other factors, was for females. The age, gender, and race factors and their interactions account for 99 percent of the variance in the arrest rates. This study is limited because it is based on a single city and a short time period, but it, along with some other studies from local areas (Chilton and Spielberger 1971, 1972), suggests that the magnitude of the effects of age structure on crime rates is much larger than had previously been estimated.

Putting aside the methodological problems, one might guess that as the smaller birth cohorts born in the 1960s move into the crime-prone age-groups and the larger cohorts

³Surprisingly, coverage has not increased regularly over time. The trend is toward greater coverage, but the 1974 coverage was 30 percent lower than the coverage for 1973 for some tables. The distribution of rural-urban coverage also shows irregular variations. Rosenthal and Steffensmeier (1978) provide a description of the coverage between 1960 and 1964 and a useful discussion of the use of arrest rates for estimating patterns of offense.

of the postwar decades move into the lower risk age-groups, the U.S. crime rates will decline dramatically. Figure 2 shows the trends in the size of the male white and nonwhite cohorts age 15-19 and 20-24. The white males age 15-19 reach a peak size in 1977 and decline thereafter; for those 20-24 years old the peak is in 1981 with a similar decline following that point. By 1989 there will be 17 percent fewer white males age 15-24 than in 1979. The nonwhite cohorts are much more stable in size; they peak later than the white cohorts and remain relatively stable throughout the 1980s. In 1989 there will be only 2 percent fewer nonwhite males age 15-25 than in their peak year, 1981. Nationally there will be 15 percent fewer males 15-24 years of age in 1989 than in 1979.

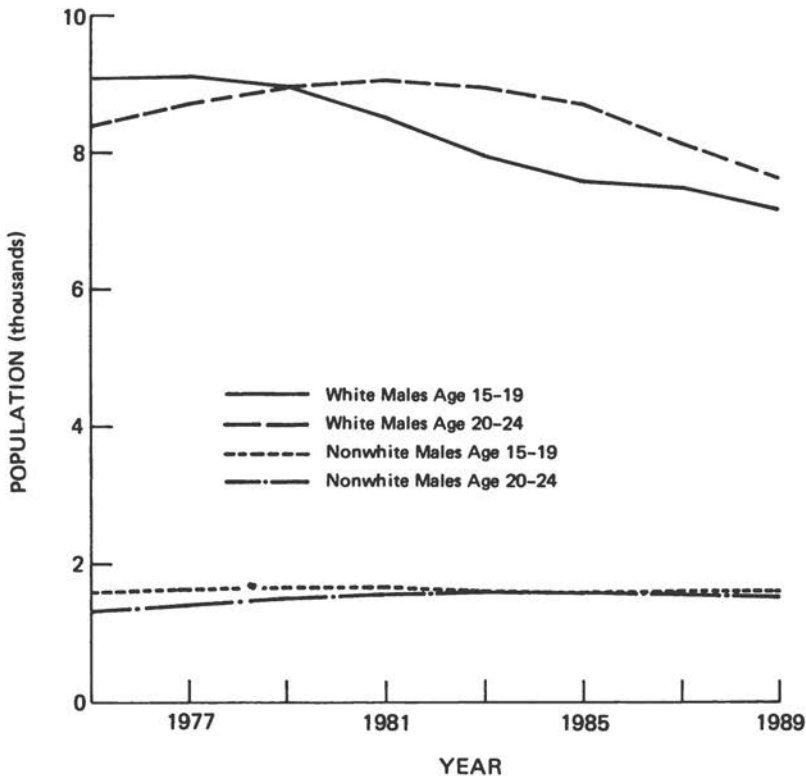


FIGURE 2 Projected number of males age 15-19 and 20-24, 1975-1989 (U.S. Bureau of the Census 1975b).

Two factors may, however, reverse or offset expected reductions in crime rates resulting from changes in the age structure: the first is the high rate of crime in the relatively stable nonwhite population, and the second is the apparent trend toward higher crime rates for women. Table 5 presents a simple illustration of how the relatively stable age structure of the nonwhite males combined with a higher crime rate could produce a much more stable crime rate than might be expected if such differentials were not taken into consideration. I use the 1970 race, age, and gender-specific arrest rates that Blumstein and Nagin (1975) estimated for Pittsburgh and the Census Bureau's annual population estimates (U.S. Bureau of the Census 1975b) to derive the number of arrests that would be expected in the 15- to 24-year-old groups each year if the rates were to remain constant until 1989. For purposes of this illustration, it is assumed that the pattern of arrest rates reflects variation in crime rates and that the ratio of crimes to arrests is approximately the same for all groups. The Pittsburgh arrest rates are selected because they are the only available estimates specific to age, race, and gender groups. Since they reflect only urban patterns they are

TABLE 5 Expected Arrests for Index Crimes Among Males Age 15-24, and Age-Specific Arrest Rates, 1975-1989

Year	Number of Arrests			Arrest Rate
	White Males Age 15-24 ^a	Nonwhite Males Age 15-24 ^b	All Males Age 15-24	(per 1,000) All Males Age 15-24
1975	418,320	513,710	932,030	45.8
1977	423,680	539,560	963,240	46.2
1979	421,470	559,420	980,880	46.6
1981	407,370	567,880	975,750	47.0
1983	387,190	562,270	950,470	47.4
1985	371,620	560,380	932,000	47.9
1987	361,150	561,980	923,140	49.1
1989	343,240	553,760	897,000	50.1

^aThe actual rates are 34 per 1,000 for white males age 15-19, and 13.1 per 1,000 for white males age 20-24.

^bThe actual rates are 195.2 per 1,000 for nonwhite males age 15-19, and 158.5 per 1,000 for nonwhite males age 19-24.

SOURCES: Population estimates from U.S. Bureau of the Census (1975b, Table 7); crime rates from Blumstein and Nagin (1975, Table 2).

probably too high. The patterns, and not the exact levels of crime, however, are the important point.

In this hypothetical population the number of arrests is greater for the nonwhite population in every year in spite of the fact that there are many more white than nonwhites in the population. Over time the number of arrests decline for both groups, but the rate and size of the decline is greater for whites. The number of arrests for whites in these age-groups would decline by 19 percent between its peak year, 1977, and 1989, yet the number of arrests for nonwhites would decline by only about 2 percent between its peak year, 1981, and 1989. An examination of the total number of arrests expected for both white and nonwhites reveals the dampening effect of the nonwhite population on the decline in the number of arrests. The total number of crimes would not peak until 1979 and then would decline only about 8 percent by 1989, rather than the approximately 15-percent decrease that would be expected from the decline in the size of the 15- to 24-year-old group. It is also interesting to note that because the nonwhite population would become a larger proportion of the 15- to 24-year-old group, the age-specific arrest rate would increase by 9 percent by 1989. If to this is added the tendency of youthful, low-income, minority populations to concentrate in central cities (see Berry and Dahmann in this volume), where crime rates are the highest, it would be quite possible for increases in the number of crimes committed by nonwhite youths to offset completely the reduction in the number of crimes committed by white youths.

The second trend that could offset the decline in crime rates expected to result from the smaller size of crime-prone age-groups is the apparent trend toward higher offense rates for women. Studies of the *UCR* arrest data and arrest data from local police departments indicate that female arrest rates have increased at a higher rate than have male rates during the past 2 decades (Blumstein and Nagin 1975, Norblit and Burcart 1976, Simon 1976, Steffensmeier and Jordan 1978). There is significant disagreement about the nature and causes of these trends. For example, it is not clear whether the disproportionate increase in female arrests applies to both property and violent crimes. Most studies indicate that women have not gained over men in the proportion of violent offenses, but one study (Norblit and Burcart 1976) found that for women under 18 years old, both violent and property arrests have increased at a much higher rate than for men. Also, a major study of self-reported delinquent behavior (Gold and Reimer 1975) found no change in

male and female offenses between 1967 and 1972 when offenses for drinking and the use of marijuana are excluded. Another problem is the selection of an appropriate measure of the relative change in arrest or crime rates. Table 6 illustrates this problem. The data are arrest rates for property offenses in cities with a population greater than 2,500. Female rates rose by 221 percent during the decade, while male rates rose by only 58 percent, but the difference between the male and female rates increased from 714 arrests per 100,000 persons in 1960 to 967 arrests per 100,000 persons in 1970. In other words, the probability of a random male being arrested increased more in absolute terms than did the probability of a random female being arrested.

Most analysts agree that changes in the social role of women influence both the behavior of law-enforcement officials and the opportunities that women have to engage in illegal activity. Because changes in the role of women can be expected to diffuse more widely in the near future, crime rates will probably rise as women participate more equally in crime and the criminal justice system. Although it would be difficult to assess how much of the change in the future overall crime rate will be attributable to changes in the age structure, changes in the racial mix of cohorts, or changes in the crime rates for women, the relative stability of the age structure of the nonwhite

TABLE 6 Arrest Rates (per 100,000 persons) for Property Offenses in Cities with a Population Greater than 2,500, by Gender,^a 1960 and 1970

Gender	Arrest Rate 1960	Arrest Rate 1970	Percentage Change 1960-1970	Average Yearly Rate of Increase
Females	98	315	221	12.4
Males	812	1,282	58	4.7
Difference (males- females)	714	967		

^aBecause population data were not provided separately by gender, the calculations assume that the ratio of males to females is 1.0.

SOURCES: Federal Bureau of Investigation (1960, Table 19; 1970, Table 36).

population and the increasing crime rates for women will clearly offset a substantial amount of the declines that would be expected from the decline in the youthful population.

CRIME AND CRIME CONTROL IN DECLINING AND STABLE AREAS

The next two sections deal with the consequences of the trends in population distribution identified by Berry and Dahmann for crime and crime-control institutions. The general thesis is that changes in population distribution are both a cause and a consequence of changes in community structure and that both crime and crime-control institutions will reflect these changes.

I use a simple model of the criminal justice system, which is divided into three simultaneously determined components:

1. *Criminal activity*;
2. *Law-enforcement activity*, including all public and private reactions to criminal activity, of which the most important are the activities of police, courts, and correctional institutions; and
3. *Community demand for law enforcement*, which is reflected, to some degree, in expenditures for crime control but is more complex and differentiated than such a measure would imply. It is the willingness of residents and officials to pursue particular law-enforcement policies.

Note that in this terminology the "criminal justice system" includes both criminal and crime-control activity. The following discussion starts with the criminal-activity component of the system and then proceeds to law enforcement and community demand. The joint determination of the variables make verbal descriptions difficult and sometimes repetitive, because changes in one component imply changes in others. For ease of presentation one component at a time is discussed. The reader should keep in mind that this is a simplification and that changes in one variable generally cannot be considered in isolation. Indeed, the existing literature on law-enforcement activity and that on the demand for law enforcement are so closely linked that they are treated together in the relevant sections of this paper.

Crime

It is expected that older central cities will experience stable but high levels of criminal activity, in terms of volume and rates, in the near future. As already noted, the changes in arrest rates for women and the relatively stable size of young nonwhite age cohorts will tend to offset reductions that might be anticipated from changes in the age structure of the population. These trends should be at least as large in central cities as in other areas.

Furthermore, patterns in housing markets, services, and job locations will continue to reinforce the selective out-migration of whites and middle-class blacks so that central cities will contain a greater proportion of poor and minority residents. Out-migration accounts for most of the changes in the composition of central cities (Long 1975), but the inflow of southern blacks continues to be an important factor contributing to the composition of northern cities. Although the South has recently experienced net-migration gains and increases in return migration, the rate of out-migration for blacks in the South was virtually the same between 1955 and 1960 as it was between 1965 and 1970 (Long and Hansen 1975) and the volume increased by about 5 percent.

Economic conditions in central cities will also contribute to crime as opportunities for unskilled and less educated residents become more scarce. The greater incidence of abandoned, poorly maintained, or unsupervised property will also provide more opportunity for larceny, arson, and vandalism. Furthermore, crime rates are generally higher in older cities than in newer cities (Chapman 1974). Central cities will also continue to attract non-resident offenders who contribute to the number of offenses committed in central cities but not to the residential population.

Is there reason to believe that the thinning of the population or associated changes in population composition and community structure will modify cultural or ideological support for criminal behavior in declining areas? Although we will consider two arguments that would lead to such predictions, the evidence suggests that changes in culture will either be very minor or that they will have little impact on criminal activity.

The first argument is that a reduction in out-migration from the southern region of the United States will lead to a reduction in violent crime in traditional receiving areas

such as the urban Northeast and the Midwest because Southerners are exposed to a distinctive regional subculture that emphasizes personal violence--a lack of regard for human life and an exaggerated sense of personal honor. In this view, the high rates of homicide and assault that characterize the southern pattern of crime are a result of this violent subculture, and the rise in violent crime in areas adjacent to the South has, to a large extent, been a consequence of the migration of Southerners into those areas (Gastil 1971, 1975, Hackney 1969). There are two reasons, however, why changes in migration patterns will have negligible effects on the level of crime. First, the thesis of a distinctive southern regional subculture of violence is probably not valid. Evidence does not support the contention that violent behavior is more frequent among Southerners (Doerner 1978, Erlanger 1975), and there is one study that shows that economic and social characteristics of the South provide an equally plausible explanation for the geographic distribution of violent crime (Loftin and Hill 1974).

Although the regional subculture theory primarily has been used to explain violent crime, some authors have generalized it to other offenses, attributing generally higher rates of crime and delinquency to southern migrants. The evidence, though fragmentary, also contradicts the generalized version of the regional subculture theory. Southern migrants seem to be significantly less likely to be involved in property offenses than nonmigrants. Savitz (1970) found that migrants--most of whom were from the South--had lower rates of delinquency in Philadelphia than did native residents. Similarly, studies by Long and Heltman (1975) and by Friedlander (1972) suggest that black males born and raised in northern cities are more likely to participate in illegitimate occupations than are southern migrants.

Second, even if southern migrants do have higher offense rates than native residents of other regions, the reduction in out-migration from the South is not great enough to produce a very large effect, especially if the social composition of the migration streams are taken into account. The substantial increase in net migration to the South between the late 1960s and the early 1970s is primarily due to an increase in in-migration to the South rather than to a decrease in out-migration. The number of migrants from the South to the Northeast and North Central states remains substantial (U.S. Bureau of the Census 1975a).

A second theory that might predict a reduction in cultural

support for criminal behavior in declining areas is Fischer's (1975) subcultural theory of urbanism. According to Fischer, urban areas nurture and sustain unconventional behavior and beliefs for much the same reason that they provide conventional services. That is, the aggregation of population provides a "critical mass" of people large enough to support deviant subcultures and to sustain a market for the goods and services of criminal specialists. Small towns and rural areas are less likely to develop deviant subcultures simply because there are not enough consumers and participants to build and sustain the social groups that are necessary for a vigorous subculture.

Since the dynamic element in this theory is population size, it would seem to follow that reductions in population would tend to weaken deviant subcultures by reducing not only the number of subculture members but also potential victims and targets of criminal activity. In effect, the members of deviant subcultures should follow general population trends to nonmetropolitan and Sun Belt areas, leaving weakened subcultures and less criminal activity in declining areas.

This is a very interesting possibility, but it is unlikely that population changes of the magnitude that we are considering will significantly influence the viability of deviant subcultures. It is simply more likely that deviant patterns of behavior will spread more widely as the fields of influence of urban areas extend. The resulting pattern may be one in which urban centers are less distinctive from peripheral areas with respect to criminal activity, but this will be a consequence of increasing criminal activity in the periphery, not increasing conformity in the center.

One of the most popular hypotheses in the study of crime is that urban growth causes crime. Some studies posit a particular mechanism (e.g., changing patterns of social interaction, strain, anxiety, changes in informal social control, etc.) that is thought to be a consequence of urban growth, but more typical are global statements positing a structural relationship between "urbanization" and crime. For example, one frequently cited study suggests that the relationship between city size and crime is such as ". . . to raise the possibility that a cost-effective long term method [of controlling crime] is to redirect the population toward more nearly optimum sizes . . ." (Morris and Tweeten 1971, p. 48). Clinard (1965), who has written extensively on these themes, notes in the context of urbanization in developing countries that ". . . crime would probably be reduced if the size of urban concentrations

were controlled by decentralization . . . " (Clinard and Abbott 1973, p. 277). A slightly different variation on the same theme is: "A community might seek to reduce the costs of crime by instituting arrangements which would discourage in-migration" (Pressman and Carol 1971, p. 222).

All of these studies were carried out during a period of time when urban areas were growing rapidly and population concentration was the dominant trend in population distribution. Given that the populations of many metropolitan areas are currently stable or declining, these theories would now predict major reductions in crime rates.

Clearly, current trends provide a new opportunity to evaluate these theories. Although complete evidence is not yet available, such effects appear to be unlikely. The most frequently cited evidence for the relationship is a bivariate tabulation of crime rates and population size such as Table 1, but such evidence is inadequate because many variables that are related to population size are also related to crime and might explain the observed relationship. Second, more sophisticated multivariate models produce estimates of the effects of density and population size that are very sensitive to variations in the unit of analysis and the time period from which observations are drawn. A good example is Skogan's (1977) study, which finds that the relationships among population size, density, and crime have changed over the period 1946-1970. In this period the relationship between city size and crime rates shifts from moderately positive to near zero and then up to weakly positive; the relationship between density and size goes from moderately negative to moderately positive. Gordon (1976) has commented on the shift in the relationship between crime rates and city size as reported in studies done by Angell with data collected in 1940 and 1960. He attributes the change to a change in the distribution of the black population, but there are many possible explanations.⁴ Because most studies do not consider the mutual influence of crime and law-enforcement activity, the indirect effects of population on crime that are transmitted through law enforcement become confounded with the

⁴An interesting example of the sensitivity of the relationship between crime rates and urban growth to variations in time and space is found in McHale and Johnson's (1976a,b) study of administrative districts in Imperial Germany between 1882 and 1913. See also Lodhi and Tilly (1973) for a time-series study in France.

direct effects. The widely different estimates of the magnitude and size of the effects of population size and density on crime almost surely mean that existing models are poorly specified and that variables other than these are responsible for the observed relationships.

The changes that characterize crime in older metropolitan areas are more likely to be in the type and spatial distribution of offenses, rather than in the number of offenses. As the population of an area thins, the offenses that would have been committed by departing residents will be replaced by offenses that are a consequence of physical deterioration and a dependent population. Obsolete and physically deteriorating buildings provide opportunities for vandalism, the stripping of plumbing, and arson that are unique to sparsely populated areas. Where large-scale abandonment of property occurs, fires and other threats to public safety will increase rapidly. Also selective migration leaves behind a population with a high proportion of disadvantaged persons such as the elderly, the mentally or physically disabled, and the poor. Not only is such a population more vulnerable to physical and financial exploitation, they are more likely to call on the police for general social services such as emergency medical assistance and help with suspicious or stressful situations (Vanagunas 1977, Weicher 1971).

Law Enforcement: Demands, Expenditures, and Services

Population decline is likely to have a greater impact on the criminal justice system through its influence on law enforcement than through its direct influence on crime. The major trends that will determine this influence are an increasing demand for public law-enforcement services, increasing costs per capita for service delivered, and increasing conflict over who will bear the costs of these services. These factors are not unique to declining metropolitan areas, but there are indications that the problems are more severe and that the conflicts are more difficult to manage in these areas. Although there are limitations on the studies, there is ample evidence of each of these trends.

The demand for crime control throughout the nation is greater than at any time in the past 30 years. Part of the growth in demand may be attributed to the pressure of increasing crime and growing awareness of the problem. However, a larger part should be attributed to a major

shift in the social theory of crime, which probably explains why social policy has moved quickly toward a more active attack on crime. The main elements of the shift are, first, a discrediting of treatment as a rationale for lenient sentences and, second, a growing belief that crime can be reduced by increasing the certainty and severity of punishment (Tullock 1974, Wilson 1975). The twin arguments that have weakened the treatment model of sentencing are that it leads to capricious and unfair sentences (von Hirsch 1976) and that it does not work (Lipton et al. 1975, Robinson and Smith 1971). This change in theory is reflected in professional and popular literature on criminal justice as well as in criminal justice policy. Many states are attempting to reduce judicial and prosecutorial discretion by enacting determinate sentencing statutes and adopting policies intended to limit plea bargaining. California, Michigan, and Maine have already enacted determinate sentencing statutes, and other jurisdictions seem likely to follow.

Prison populations throughout the country are suddenly burgeoning. Since 1930 the imprisonment rate (prisoners per 100,000 population) has been relatively stable, fluctuating around a mean of about 110. At the end of 1973 it was 97.8. Three years later, in December 1976, it was at 125--two standard deviations above the historical mean (Blumstein et al. 1977). At the end of 1977 the total number of persons being held in state and federal institutions reached a record high for the third year in a row (Getlinger 1976, Wilson 1977).

Expenditures show a similar pattern. Between 1971 and 1976, expenditures of criminal justice by local governments rose at an annual rate of 12.6 percent. The rate of increase has accelerated within this time period. For 1971-1972, the increase was 11 percent; for 1975-1976, it was 15 percent (U.S. Department of Justice and U.S. Bureau of the Census 1976, 1977). A study by Odani (1977) of police expenditures in 33 large cities during the period 1966 to 1973 shows that the per capita expenditures more than tripled during that period and that annual growth rates were about twice as high in the 1966-1973 period as in the 1959-1966 period. He estimates that about 50 percent of the increase was a result of increases in police employment.

The impact of the high levels of demand for crime control is particularly great in declining communities because conditions in these areas increase the costs of each unit

of service delivered. Beaton (1974) has suggested that the structure of the determination of law-enforcement costs is unique in cities experiencing population declines. His argument is that there are statistical interaction effects between population change and other determinants of law-enforcement expenditures. Whether this formulation turns out to be valid, evidence shows that population change has an additive impact on the costs of law enforcement. Sternlieb and Burchell's (1973) study of residential abandonment, which clearly shows that abandoned structures create public safety problems, illustrates one way that declining cities make special demands on law enforcement. Bergstrom and Goodman (1973) found in their study of municipal expenditures in 10 states that the rate of population change was negatively associated with per capita expenditures on police--in other words, the decline in population was associated with high expenditures per capita. Other studies report similar results (Lind 1971, Weicher 1970), although some report discrepancies (Beaton 1974, Brazer 1959, Hiibner 1971).

An additional constraint on law-enforcement costs in declining areas is that the businesses and citizens who reside in these cities, or at least those who use them, appear to rely more on public protection against crime than on private protection. Clotfelter (1977) found that the best predictor of the substitution of private for public law-enforcement expenditures was population change: declining areas have a greater preference for public expenditures.

The mechanisms that mediate the effects of population change on law-enforcement expenditures are not clearly understood, but the demographic composition of these areas is probably a major factor. As a result of selective migration, the poor, members of minority groups, the elderly, or others with special needs become a larger proportion of the population in declining areas (Morrison 1974). Studies consistently show that this demographic pattern increases the amount of public resources that a city must expend in order to achieve a given level of crime control. Pogue (1975), in one of the clearest discussions of this topic, shows that cities with a large proportion of poor and non-white residents must pay higher costs, either in terms of crime or social control expenditures, than other cities. If cities with different demographic profiles are to achieve a similar level of public safety, the city with a more dependent population must spend more of its resources on

law enforcement. His findings are supported by many other studies that have investigated the determinants of police expenditures (Brazer 1959, Chapman 1976a, Morris and Tweeten 1971, Swimmer 1974, 1975, Weicher 1970). These studies imply that although the declining population size and density will increase the resources of law enforcement on a per-capita basis, the composition of the population and the nature of the services demanded are such that any gains will be more than offset by the increased costs per capita.

These increases in demands and costs will result in escalating conflict over who will bear the costs of crime control. The financial problems of declining cities and growing opposition to the property tax provide the context for the conflict. The major items of the agenda are (1) the share of budgets to be devoted to law enforcement; (2) the resistance to reductions or redistributions of personnel in areas with declining population densities; (3) the shifting of law-enforcement costs to a wider area or a higher level of government; and (4) the location of new prisons and other correctional facilities.

Incremental budgets, which do not vary the share allocated to particular service functions or geographical areas, are more conciliatory than those that redistribute the shares. Odani (1977), in his study of police expenditures in 33 large cities, found that although expenditures more than tripled between 1959 and 1973, the proportions of budgets assigned to the police have remained remarkably stable. Declining areas, however, will find such harmonious budgets impossible to afford as resources stabilize or grow at a slower rate. In a struggle for changing shares of municipal budgets, law enforcement may gain at the expense of other services, but the battle will be intense. Public opinion more clearly favors cuts in expenditures for welfare, education, and recreation than for public safety.

The only effective argument in the popular press against property tax limitations schemes has been that they would reduce police and fire services. Policy makers are reticent about making cuts in law-enforcement personnel because of possible adverse effects on public safety. Chapman (1976b) has shown that the demand for police (as measured by police per capita) is relatively unresponsive to variations in the wages paid to the police. Chapman's estimate of the elasticity of police wages for a cross-section of California cities was less than 0.5 percent. Regardless of the outcome, the conflict will be evident in more antagonistic labor-management relationships as entrenched and powerful

interests resist the erosion of their share of municipal budgets.

Conflicts of a different nature will inevitably emerge as administrators attempt to save money by more efficient allocation of law-enforcement resources. Thurow (1970), among others, has noted that there are significant contradictions between standards of equity and efficiency in crime control. The existing allocation of law-enforcement resources embodies serious inefficiencies as well as marked inequalities in the distribution of criminal victimization, probabilities of apprehension, and other costs of crime. Attempts to reallocate the resources will activate quiescent conflicts over the distribution of costs. The lines of the conflict will vary with local circumstances and the nature of proposed allocations, but several issues are likely to arise: (1) the degree to which the police should reduce traditional service functions so that they can concentrate on criminal activity; (2) whether patrols should be reduced in low crime areas so that they can be increased in high crime areas; (3) the use of specialized undercover or heavily armed law-enforcement units in particular areas; (4) the creation of consolidated law-enforcement service districts; (5) the use of state police, county sheriffs, private security, and even voluntary personnel to patrol areas in metropolitan areas; and (6) the use of state and federal funds to pay for police, courts, and correctional facilities that serve local areas.

Another closely related source of conflict that emerges with the increased demand for punishment of criminal offenders is the location of facilities such as prisons, jails, and community correctional facilities. One estimate, cited by Wilson (1977), is that there are over 860 penal facilities (including local jails) currently proposed or under construction. Given the overcrowded condition of most state systems and the rapid growth in prison populations, officials are seeking existing structures that can be converted to prisons. Everything from mothballed ships to abandoned seminaries has been considered "ideal" for use as prisons. The presence of prisons is a cost of the criminal justice system that must be absorbed by some part of the community. Most citizens resist the location of prisons in their neighborhoods because of adverse effects on land values and the quality of the use of other land. However, the availability of abandoned structures and the need for employment makes those areas that are experiencing population declines particularly attractive as potential locations for jails and prisons.

CRIME AND CRIME CONTROL IN GROWING AREAS

Criminal Activity

Regional patterns of crime in the United States have puzzled criminologists for several generations. The continuity of research on the topic is atypical: the patterns have been analyzed carefully three times since the 1930s and the literature extends back into the 19th century (Harries 1971, Lottier 1938, Shannon 1954).⁵ However, the problems with the studies are typical. Conceptual and methodological errors obscure most interpretable patterns in the data, making generalizations more difficult. However, before we attempt to assess the impact of trends in population distribution, it will be useful to take note of some general regional patterns.

The one spectacular pattern is the high level of murder in the South. For example, in 1976 the rate of murder and nonnegligent manslaughter in the South was 40 percent higher than in the West (which is the closest competitor) and 67 percent higher than in the Northeast. This pattern has persisted since at least the 1860s (Hackney 1969, Redfield 1880) and has been consistently documented in every study of the topic. Other violent crimes also tend to be high in the South, but the pattern is much more varied. Table 7 presents the mean rates of homicide, robbery, and burglary for cities with populations over 2,500 by region in 1960 and 1970. Two very clear patterns are evident. First, the communities in the South and the West have much higher crime rates than those in the Northeast and North Central regions. The South leads the West for homicide, but the West is higher than the South for both robbery and burglary. Second, the gap between the regions did not narrow in the decade. If there was a trend, it was toward a greater difference between the South and West as compared with the other regions. One study of regional trends in crime rates finds a pattern of converging regional differences (Jacobson 1975). However, that analysis combines the West, the highest crime region, with the North Central and Northeast regions, which have the lowest crime rates, and thereby obscures the pattern evident in Table 7.

The thesis of regional convergence or balance in crime is appealing, and is popular among criminologists. It implies a trend toward relatively lower crime rates in

⁵Harries (1974) provides a good summary of the major studies.

TABLE 7 Mean Crime Rates (per 100,000) for Sample of Cities in Four Regions, 1960 and 1970

Crime and Year	North-east	North Central	South	West
Homicide				
1960	2.0	2.5	8.2	3.4
1970	5.2	5.8	14.5	7.3
Robbery				
1960	27.4	38.7	49.3	75.1
1970	159.6	171.6	181.3	211.8
Burglary				
1960	402.6	414.1	716.0	768.4
1970	1,164.7	1,104.5	1,450.9	1,793.9

SOURCE: Computed from data provided by Jacobson (1975).

the South and West and relatively higher rates in the Northeast and North Central regions. However, such a prediction cannot be deduced from any existing theory of crime and regional structure and cannot be sustained by any existing body of evidence. For now, we must settle for generalizations, such as those in Table 7, and some preliminary evidence on the effects of growth on crime and crime control.

In the context of the discussion of declining and stable areas, the popular thesis that crime rates vary positively with urban growth was noted. Although it was found lacking in that case, there may be some reason to expect that it would operate asymmetrically, predicting increasing crime rates with urban growth but not decreases with urban decline.

Not surprisingly the evidence of differences between migrants and nonmigrants with respect to criminal activity is mixed. Studies by Kinman and Lee (1966) and Savitz (1970) in the United States and Clinard and Abbott (1973) in Uganda report that migrants are less likely to be offenders or that there are no differences, while studies by Green (no date), Pressman and Carol (1971), and Shoham (1962) find the opposite. Criminal populations may be attracted by the general opportunities that attract noncriminal migrants, but this is very different from the mechanism that I have in mind. Clearly the evidence is deficient, but I find no reason to expect that migration, independent of other factors, will increase the probability

of criminal activity. There are many versions of the theory, two of which I believe can be rejected: (1) that urban forms of social organization promote "stress" and "social disorganization" and (2) that the process of migration itself has a stressful or disorganizing effect. There is no evidence that urban forms of organization are inherently stressful. Studies of the "pathological effects" of density are flawed by methodological errors, produce inconsistent results, and are generally unconvincing.⁶ Furthermore, there is no reason to think that stress, even if it were more characteristic of urban areas, changes the probability of engaging in criminal behavior. With regard to migration, it is difficult to disentangle the effects of the social characteristics of migrants from the effects of the move itself. If all migrants from rural to urban areas, for example, are of rural origins and nonmigrants are of urban origin, do we attribute differences to migration or to place of origin?

A more believable argument is that urban forms of organization drastically modify opportunities for crime and the nature of social control. In this view crime patterns reflect changes in regulation rather than changes in the impulse to commit crime. Major elements of urban growth that are implicated are the increased interactions and dependencies among strangers, the more intensive use of public spaces that are concentrated in a smaller area and that cannot be regulated by private groups (Stinchcombe 1963), and the greater accessibility of movable property.

Several patterns of crime and crime control organization follow from these changes. First, social controls that depend on dense personal networks to sanction offenders and settle disputes are less effective. Consequently, crime may increase to some degree, but more importantly demands will increase for public law enforcement to control public space and to regulate the behavior of strangers. An increase in the use of the police to settle disputes and to maintain increasingly sensitive standards of public order are well-documented changes associated with the development of "modern" forms of social organization (Black 1973, Lane 1969). Second, property offenses increase because offenders can more easily evade detection and because property is more available and accessible. Urban concentration appears to be an efficient organizational form for illegal enterprises just as it is for legal ones.

⁶See Choldin (1978) for a recent review.

Third, a major cause of violent personal crime will diminish as private groups increasingly are forced to rely on public agents to settle disputes rather than resorting to the use of force to settle disputes for themselves.

These changes are the result of large-scale modifications in organization. Although there is reason to believe that each has contributed heavily to the patterns of crime and crime control that currently exist in modern urban systems, the scale of current changes in population distribution are not great enough to result in major extensions of the patterns. Changes will occur slowly along existing lines as urban systems expand their fields of influence into rural areas, but the patterns are already widely established.

More important changes will occur in growing areas because of the effects of selective in-migration on their demographic composition. Growing populations tend to be younger than stable or declining ones because migrants tend to be young and, as a result of their youth, tend to have higher birthrates. Approximately 33 percent of all migrants in the United States are in their 20s and 16 percent are children between the ages of 1 and 6 (Morrison 1974). This factor alone, given the higher offense rates for younger people, would increase crime rates. The socioeconomic class composition of some areas may also change radically because of in-migration. Patterns of personal crime will, to a large degree, follow the trend in the distribution of low socioeconomic status groups. Some growing areas will suffer increases in personal crime rates, but most will experience decreases. The net effect for large areas should be a reduction. The high levels of personal violence that are the hallmark of the South can, to a considerable extent, be attributed to a large percentage of the population at the very low end of the distribution of socioeconomic resources, as reflected in such things as the percent of the population with less than 5 years of education, infant mortality rates, and the percentage of families with very low incomes. Homicides are highly concentrated in this end of the distribution and fall rapidly as one moves toward the middle (Loftin and Hill 1974). Growth in the region should moderate the rates of violent crime, assuming that the distinctive socioeconomic patterns are, in fact, eroded by growth. Some reservations should be noted, however, because there is some question as to whether economic growth in the Sun Belt has reduced inequalities (Firestone, 1977). Property crime may respond differently to growth since it is sensitive

not only to the proportion of potential offenders in the population, but also to the opportunities to obtain valuable property at low risk. Economic growth and expansion provide more targets for property crime and spread property over a wider area making it more difficult to protect.

Law Enforcement

Although they are more indirect, the effects of population growth on crime that are transmitted through law-enforcement activity may be more important than those that operate more directly. Even if crime rates were to remain fixed in areas that are experiencing population growth, crime control resources--police, judges, prosecutors, correctional facilities, etc.--would be consumed more quickly and spread more thinly across the larger population. As law-enforcement resources lag behind population growth, crime rates should rise in response to declining levels of law enforcement per capita. There is considerable debate concerning the effects of law-enforcement activity on crime. For example, a persistent finding is that estimated effects of police expenditures and personnel on crime are positive (Greenwood and Wadycki 1973). These "perverse" findings are not a result of simultaneity bias. Even studies that simultaneously estimate the effect of crime on law enforcement and law enforcement on crime find that both parameters are positive. Refinements such as including arrest rates or other sanction variables and the use of distributed lag models produce results that are more consonant with theoretical expectations (Ehrlich 1973, McPheters and Stronge 1974, Pogue 1975), but the nature of the effects is still uncertain. For present purposes it is assumed that the effects are negative and that crime rates will rise in growing areas because the resources of the criminal justice system will lag behind the levels that would be necessary to maintain them at a constant level. The failure of law-enforcement resources to keep pace with population growth may explain why population increases and migration are positively related to crime in spite of the common finding that migrants are not more likely to engage in illegal activity than nonmigrants. It is, perhaps, a type of "social disorganization," but it is very different from the commonly held view that migration contributes to personal confusion or disorientation, which increases criminal activity.

In absolute terms, expenditures on law enforcement will

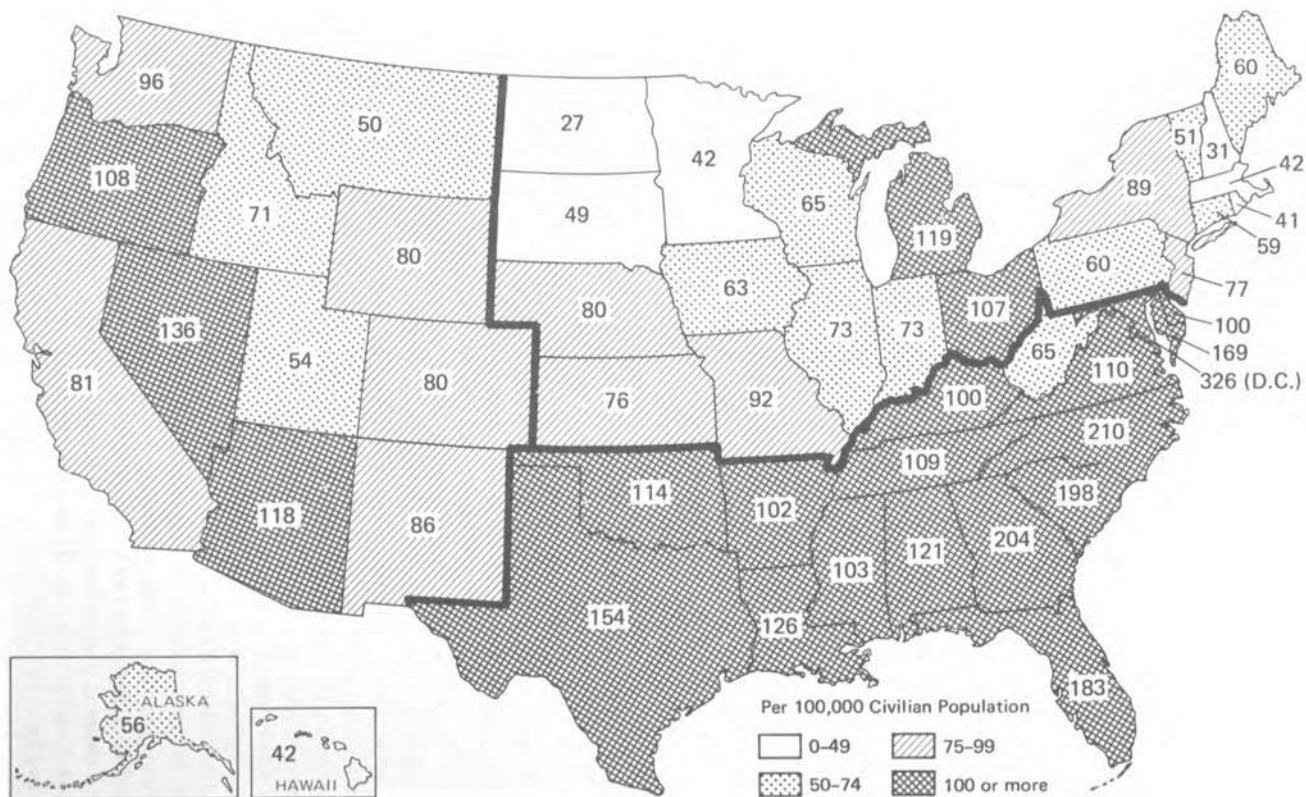


FIGURE 3 Sentenced prisoners in state and federal institutions: number per 100,000 population, December 31, 1975 (National Criminal Justice Information and Statistics Service 1977).

rise in response to growing crime rates and increasing demands for crime control. In per capita terms, however, the picture is more complex. There are some studies that find that population change is positively related to police expenditures per capita, while others find a negative relationship. Beaton (1974) argues that the discrepancies are explained, at least in part, by the interaction between population size, direction of population change, and per-capita expenditures. For growing cities under 10,000 in population, he finds that police expenditures are relatively high because of high "start-up costs," but larger cities that are growing benefit from lower police expenditures per capita (Beaton 1974, p. 342). The evidence is not clear-cut, but it appears that growing areas experience lower costs per capita than declining areas. Part of the reasons is the contrasting demographic profiles of the two types of areas. In spite of their relative youth, growing areas are proportionately more prosperous, contain fewer dependent citizens, and experience lower demands for police services per capita. Furthermore, residents and businesses in growing areas appear to invest more heavily in private crime protection than older areas (Clotfelter 1977).

Lower per-capita costs of crime control and expanding tax bases may moderate conflicts over who will bear the costs of law enforcement, but they will not prevent growing areas from experiencing such conflicts. The location of courts and correctional facilities, the allocation of responsibilities and costs among governments with overlapping jurisdictions, the financing of new services in the face of growing public resistance to property taxes, and the allocation of services to areas with changing social composition are typical issues in growing areas. Since local areas gain the most by passing the costs to a higher level of government, one can expect considerable pressure to have the state and federal governments assume more responsibility for law-enforcement expenditures.

Regional patterns in law-enforcement personnel or expenditures per capita are not at all distinctive. Community size and character are much more important (Harries 1974). However, the tendency of a state to incarcerate offenders as measured by inmates in state institutions has a regional distribution that overlaps remarkably with the Sun Belt states. Figure 3 shows the number of sentenced prisoners in state and federal institutions per 100,000 residents of states as of December 31, 1975. The pattern would be even more striking if the rates had been averaged over several years because Michigan and Ohio joined the group with

TABLE 8 Estimates of Change in Number of Inmates in State Prisons by Region, 1976-1980

Region	<u>January 1, 1976</u>		<u>I. January 1, 1980^a</u>		<u>II. January 1, 1980^b</u>	
	Number	Inmates per 100,000 Persons	Number	Inmates per 100,000 Persons	Number	Inmates per 100,000 Persons
Northeast	35,657	71.8	51,780	104.2	54,129	109.0
North Central	49,153	85.3	102,478	177.9	74,618	129.5
South	105,668	160.1	156,366	236.9	160,409	243.0
West	<u>35,104</u>	<u>96.0</u>	<u>60,893</u>	<u>166.5</u>	<u>53,290</u>	<u>145.7</u>
Total	225,582	107.5	371,517	177.0	342,446	163.1

^aAssumes that the rate of change will continue to be the same as 1975-1976 for each state.

^bAssumes that the rate of change for the total U.S. 1975-1976 is applicable to each state.

SOURCE: Based on data from Getlinger (1976).

imprisonment rates of over 100 in 1974 and California left the group temporarily in the same year. Over time, the pattern is much more stable in the South than in the West, but western states clearly tend to incarcerate more offenders than do the North Central or Northeast states. Table 8 (column 1) presents 1976 data from a survey conducted by *Corrections Magazine*. The pattern in the table is the same as on the map. The imprisonment rate is 123 percent higher in the South than in the Northeast; and 67 percent higher than in the West, the next highest region. The South contains only about 32 percent of the U.S. population, but has 48 percent of prisoners held by states.

It is interesting to speculate about what will happen to correctional systems and courts in the South as the population of the region increases. These two factors--spectacular incarceration rates and a growing population--if allowed to operate unchecked, would drastically increase the size of the prison populations. If we project the 1975-1976 rate of change in prison populations through 1980 (see Table 8), the imprisonment rate in the South would increase to a value of over 230 inmates per 100,000 residents. If we add to this the expected increase in population and volume of crime, the consequences in terms of prison populations are huge.

Clearly, rises in prison population of this magnitude will not occur. The interesting question is how the criminal justice system will adjust to these pressures. Will average sentences be shorter? If they are, what consequences will this have for the crime rate? Other possible adjustments include decreasing the average rate at which offenders are incarcerated, more use of diversion, and lowering the probability of incarceration. These circumstances would seem to provide a unique opportunity to examine the dynamics of the crime control system.

CONTENDING WITH CRIME IN GROWING AND DECLINING AREAS: SUMMARY AND CONCLUSIONS

The changes in community structure that are associated with population growth and decline produce distinctive consequences for the criminal justice system. Some effects are the result of changes in crime rates and the type of criminal activity. Declining cities continue to experience high levels of criminal activity, in spite of population losses, because of the effects of selective out-migration, shrinking economic opportunities, the relative youthfulness

of the nonwhite population, the presence of social networks that support criminal subcultures, and the intensive use of cities by nonresidents. Some growing areas experience changes in crime rates that are a result of changes in the age and class composition of the population and the failure of law-enforcement resources to keep pace with population increases, but all experience rising levels of criminal activity because of the increase in the number of residents.

More important effects of growth and decline are transmitted through changes in the demand for law enforcement, the costs of crime control, and the organization of law enforcement. In cities that are losing population the national trend toward the more active use of criminal justice sanctions combines with perceived and actual declines in public safety to create very high demand for law-enforcement activity. These services, if they are to be provided, are delivered in the context of increasing costs per unit of service delivered, declining fiscal resources, and escalating conflict over who will bear the social costs of public safety. The problems of law enforcement in growing areas are largely a result of the need to provide new services to a growing population. In most cases law-enforcement resources lag behind increases in population, and therefore crime rates rise. In response, the community demands more crime control, and law-enforcement expenditures rise. The demand for law enforcement may also rise independently of crime rates to the extent that residents perceive that resources are lagging behind population growth.

Generally growing areas operate in an environment that is less constraining than that of declining areas. A growing tax base, a less dependent population, and more investment by residents in private security reduce the per-capita costs of law enforcement. Therefore, conflict over the social costs of law enforcement may be more easily managed and moderated. Nevertheless, persistent change will continue to raise issues such as the location of courts and correctional facilities, the allocation of services, and the appropriate level of enforcement.

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THE SOCIOLOGICAL IMPLICATIONS OF POPULATION REDISTRIBUTION

William A. Sampson

INTRODUCTION

A great deal of discussion has recently been focused on the geographic shifts of the nation's urban population. Scholars, journalists, the public, and public officials have seen the need to talk and write about this movement, which may perhaps best be understood in terms of an analysis of the areas with declining populations and the areas with growing populations. Essentially, as Berry and Dahmann point out, there are two types of areas with declining populations: central cities and the Northeast and North Central regions. There are three types of areas with growing populations: suburbs, exurbs, and the South and the West. This paper focuses on the ways in which age, income, and racial groups affect and are affected by these patterns of decline and growth.

AREAS OF DECLINING POPULATION

Since 1970, population has increased 6.3 percent in non-metropolitan areas and 3.6 percent in metropolitan areas (U.S. Bureau of the Census 1975). Cities such as Baltimore, Chicago, Cleveland, Detroit, Philadelphia, Pittsburgh, and St. Louis have declined in population since the 1950s (see Berry and Dahmann in this volume).

Growth rates in the Northeast and North Central regions have declined since 1970, although both regions are still experiencing modest growth. Between 1970 and 1974 the

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populations of the Northeast and North Central regions increased 1.2 percent and 1.3 percent, respectively, compared with a 4.1 percent increase for the nation (U.S. Bureau of the Census 1975). As Berry and Dahmann state: "Only three divisions of the country have exhibited significantly declining shares of the nation's new population growth since the 1950s." The three divisions--East North Central, Middle Atlantic, and New England--comprise the North Central region and the Northeast region; the North Central region also includes the West North Central division, which has experienced a decline in the rate of increase since 1970.

When examining how these declines affect and are affected by various age, income, and racial groups, we should bear in mind the relationships among the variables themselves (Blau and Duncan 1967).

Age

Without a doubt, people in their 20s are more likely to move than people in other age brackets. Young people are entering the labor force for the first time, getting married, or moving to go to school in other locations. The elderly move less for a number of reasons: in most cases, they are no longer in the labor force and thus are not moving to take new jobs or to complete their education; neither are they moving to establish new families. Because there is virtually no societal pressure on them to achieve, there is no reason for them to move in order to achieve. This picture of a "static" older population applies only to migration to suburbs or exurbs and does not apply to interregional migration. We will deal with these shifts a bit later. Generally, the movers from central cities and older suburbs tend to be the young. Increasingly, the central cities of the Northeast and North Central regions are populated by the elderly, who are left, in many cases, without vital services and often become the victims of criminals (Hauser 1975, National Commission on the Causes and Prevention of Violence 1969).

The plight of the elderly is related to the migration of younger people. As young families move to small and nonmetropolitan areas, they take with them their money, their vitality, their sense of civic responsibility. Money is probably the most important loss. Grocery stores, department stores, pharmacies, and specialty shops typically follow the population, particularly the buying

population. They are following the younger population to outlying areas and leaving the elderly with fewer and fewer facilities, making it necessary for the elderly, many of whom are nonambulatory or semiambulatory, to travel greater distances to get the goods and services they need.

Elderly residents of central cities are easy targets for criminals who use force. This has always been the case, but as city neighborhoods cease to be neighborhoods and simply become areas in which the immobile live (Stein 1964), they lose the civic spirit that in the past has helped to protect neighborhood residents.

The elderly in central cities are left powerless. They tend to vote less than younger people (Milbrath 1971). They are less able or likely to attend meetings held to accomplish neighborhood goals. There is little economic or political incentive for political and governmental units to serve them (although this may be slowly changing as the conditions in which the elderly live become more and more the focus of national attention).

All of this has important policy implications for educational, economic, and criminal justice institutions. As central cities lose the young, they lose school-aged children, and schools in central cities and older suburbs are closing in many areas of the country (Downs 1970). The buildings often become a drain on public funds, and sometimes cannot be sold. At the same time, many elderly people clamor for education that might retrain them for jobs or offer opportunities for personal growth. Perhaps educational institutions should begin to consider seriously the premise that education does not stop at 18 or 22 or 25 years of age. On the other hand, the erosion of property tax bases in central cities makes the funding of education more difficult for all ages.

Profit-making institutions are not generally in the social service business. Although it is socially desirable for stores to remain in central cities and within easy reach of older people, it is often not profitable. What can urban governments do to keep local pharmacies, groceries, hardware stores, and even hospitals within their original neighborhoods? How can the criminal justice system protect a population that is increasingly unable to protect itself either physically or by means of neighborhood cohesion and spirit?

There are also implications for housing, lending institutions, and transportation. The housing, financial, and transportation needs of the elderly are not the same as those of younger people. Older people need less space

because they generally have fewer persons in the home. Lending institutions are reluctant to offer 30-year mortgages or 4-year car loans to people 70 years old who are living on pensions. The elderly generally do not need rapid transportation so much as they need door-to-door transportation. These are issues that should be addressed.

However, we must remember that the cities are a long way from being decaying retirement homes. Although younger people are leaving, so also are some of the elderly, while some younger people are coming to cities. The middle-aged population cannot be forgotten. In other words, it is easy to go too far with the implications of trends. We must be careful to maintain perspective as we grapple with the implications of migration trends.

Income

As younger, middle-income residents move out of the central cities and older suburbs, they leave the poor and the wealthy behind. The poor are left because they cannot afford to go anywhere else and the wealthy remain because they can afford to isolate themselves from most urban problems and still have the geographic, cultural, and recreational advantages of the city. The median family income of suburban dwellers is \$14,007; the median for central-city families is \$11,343 (see Berry and Dahmann in this volume). As of March 1974, 17 percent of all central-city families had incomes over \$20,000; but central cities also contain 37.4 percent of all people below the poverty line, and 1 in 10 central-city families receives some form of public assistance. In a sense then, central cities are becoming both rich and poor as a result of population movement. The poor cannot move for economic reasons (and perhaps, in many cases, racial restrictions). The wealthy or upper middle-income residents often see no reason to move. As long as there are private schools, private security forces, and exclusive condominiums and housing areas, the advantages of central cities may outweigh the disadvantages. Furthermore, for the younger, middle-income residents who are moving back to older sections of some cities to buy and renovate older houses, the city offers attractions that cannot be found elsewhere (Coleman 1978). It is too soon to assess the impact of this trickle back to the city, but it bears watching and may have major repercussions for social, political, and economic institutions in the cities in which this phenomenon is taking place.

Nonetheless, as large numbers of younger, middle-income residents flee the city, taking their property taxes and buying power with them, central cities are finding it increasingly difficult to pay for the higher levels of service required by the older, poorer population that remains (Downs 1970). The middle-income population is less likely than the poor to "use" the criminal justice system, the public welfare system, public or low-income housing, the fire department, and public hospitals. The elderly and the poor need all of these services more, but are less able to afford them (Lashoff 1968). Obviously, states and the federal government will have to provide a greater share of the funding for these services if these population movements continue.

Race

Blacks still live primarily in urban areas. Fifty-eight percent of all blacks reside in central cities, compared with 25 percent of all whites. However, recent trends suggest that important changes are taking place. Since 1970, the average rate of growth of the black suburban population has increased to 5.2 percent per year. The annual rate of growth for the white suburban population has decreased to 1.6 percent. Black suburbanization rates are increasing and white suburbanization rates are falling. At the same time, the growth rate of blacks in central cities is declining; the concentration of blacks in the central city is dropping. Seventy-four percent of all blacks living in metropolitan areas now live in central cities, compared with 80 percent in 1970. It seems, then, that blacks are moving out of the central city along with whites, although blacks are moving to the suburbs while whites are moving to the exurbs.

This movement has a number of important social, political, and economic implications for blacks, for cities, and for the nation as a whole. Perhaps the most obvious implications involve the integration process in schools and other areas of life. It is obviously difficult to integrate schools or neighborhoods racially when there are "not enough whites" within the boundaries of a municipality. While the federal government continues to strive for racial integration, the population mix makes this task increasingly difficult. Cities such as Gary, Indiana, Detroit, Michigan, and Washington, D.C., vividly illustrate the problem (U.S. Commission on Civil Rights 1974). If racial integration is

so desirable, how does the government justify literally giving up on places such as Gary and Washington that are largely black? Integration has, of course, rarely been an issue in places that were basically all white.

Furthermore, as middle-class nonwhites move out of cities to areas vacated by more socially mobile whites, we may not be able to move toward economic or social integration. This movement tends to leave only relatively immobile people in central cities--the poor, the old, and the young. How do we achieve economic or social integration when we have few middle-class residents of any race in the central city?

Of greater concern for many blacks is the question of black political and cultural leadership within the cities of the North and the East. From the 1920s to about 1970, many urban black communities, although economically depressed, managed to thrive culturally. Since the mid-1960s, they have, to some degree, also flourished politically (Cruse 1967). This has been due in large measure to the legal, social, and economic discrimination that forced almost all members of the black population to reside within a relatively small area. Black teachers and physicians lived next to black musicians and factory workers. The children of postal workers went to school with the children of college professors (Drake and Cayton 1945). Black political efforts had to be concentrated in these areas, and the areas gave birth to black leadership, both political and economic. This concentration, of course, had its advantages and disadvantages (Drake and Cayton 1945). Whereas it promoted cultural and political growth and awareness, it made it easy to manipulate blacks economically and politically. A distinct advantage of this concentration was the promotion of community diversity and economic integration. As middle-class blacks leave the ghetto, the ghetto doesn't disappear. The ghetto will always have its opportunists and hustlers, as will any other area, but the quality and quantity of ghetto leadership will diminish. I am not suggesting that the ghetto should remain intact as a base for this leadership or as an example of economic integration--the price is too high. However, I would argue that the ghetto will be with us for some time, but its few advantages will disappear.

Largely as a result of federal policies, housing opportunities for blacks have improved. However, as more and more blacks have moved into the middle class (Farley 1977, Sampson and Milam 1976) and have had more contact with whites in housing, schools, and jobs, attacks upon

affirmative action programs have increased. These programs are often considered responsible for black economic and housing gains (Jones 1977). Attempts to keep the black population "in its place" have become more subtle and economically oriented. Policies to counter these attacks will have to emerge soon if gains are not to be eroded (Jones 1977).

Furthermore, the federal government will have to rethink its urban policies. Population trends are changing the nature of the city's population, and urban policies must reflect these changes. Affirmative action and housing integration, as policies, have in part been responsible for the departure of increasing numbers of middle-class blacks. What can these policies do for those who will remain in 10-15 years? New policies must be developed to benefit people of all races that are not part of the middle class. We may have to be more concerned with job creation and rent control than discrimination in promotion and mortgage policies. We must recognize the fact that we are, or will be, dealing with a different central-city population.

Before I discuss areas of increasing population, it is important to point out that although this section is entitled "Areas of Declining Population," it generally deals only with cities and not with regions. As I discuss the relationships of the relevant variables to areas of growth, I will make reference to regions of decline. It seems easier to discuss regional growth and decline at the same time given that the two trends appear so dependent upon one another.

AREAS OF INCREASING POPULATION

Berry and Dahmann indicate that the South is "experiencing net migration gains from all other regions in numbers that are more than double the net gain to the West--the only other region now experiencing a net migration gain." Furthermore, the South is gaining blacks from other regions (14,000 between 1970 and 1975). Blacks continue to move from rural areas to metropolitan areas but are moving more from the central city of metropolitan areas to the suburbs, and are beginning to move from metropolitan areas of the Midwest and the East back to the South. The West continues to experience the highest growth rate, but the most rapid growth is now occurring in the mountain areas. The migration from the Northeast and North Central regions has almost

doubled since the last half of the 1960s. There has been a 34.1-percent increase in migration from the North to the South and a 17.3-percent decrease in migration from the South to the North. Coupled with these interregional shifts has been the movement from metropolitan areas to nonmetropolitan areas.

Age

The elderly, generally among the least likely to move, have become a very significant part of the population of the "retirement states" of Arizona and Florida. Not all of the elderly are "static." Middle-class blacks are moving not only to the suburbs, but to the South. Presumably, middle-class blacks are also remaining in the South. Middle-class whites are moving beyond suburbs to nonmetropolitan areas, to smaller metropolitan areas, and to the South and the West. As jobs move to these areas, so do people.

Blau and Duncan (1967) indicate that special advantages are needed to induce people to move from larger to smaller places. Consequently, if one moves in this direction, he or she must benefit greatly from such a move. Berry and Dahmann indicate that the special advantages are not really so special after all. They are part of ". . . the accelerated decentralization of manufacturing and related activities out of central cities--especially out of the nation's largest ones--that is occurring during the 1970s." In other words, increasingly, the advantages for the upwardly mobile lie outside the big cities, and outside the Northeast (and to some extent, the North Central region), assuming that we define "advantages" as better job prospects. Obviously, some groups are less affected by job prospects than others. The unemployed are greatly affected, but the elderly are not; when they change regions or metropolitan status, it is generally not for employment purposes. Those persons employed in industries that offer seniority are less likely than others to change regions, even though they may have to travel greater distances to work.

The harsh winters and problems of mobility in the cold and the snow of the North Central and Northeast regions certainly contribute to the desire of many elderly persons to move from these regions to more temperate regions. This movement, however, appears to be quite selective. We see increasingly larger concentrations of the elderly in Florida and Arizona, for example. In both of these states, an "aged

industry" has emerged as more and more elderly persons migrate to retirement communities. Most experts on the subject suggest that this type of age segregation is not good for the elderly or for those younger persons deprived of contact with the elderly.

Frequently, when an area is developed as a recreational center, its population increases greatly. Recreational centers in the Mountain and Pacific regions, in the South, and to some degree in the North Central region have shown us that the nation's population moves to maximize its recreation time. The development of such facilities may be aided or impeded by governmental action. Therefore, governments can, to some degree, influence population shifts by controlling recreational development. However, because we cannot manipulate the weather very effectively, the South and the West will continue to have an advantage in terms of recreation over the other regions of the country. The South and the West, therefore, may continue to lure people with ample time for recreation, such as the elderly or people with money to spend for recreation.

Income

For years the upwardly mobile (fairly young whites from middle-income families with strong educational backgrounds) have fled the city for the suburbs. Consequently, the city has increasingly been populated by the less socially (and thus geographically) mobile. The local area has, however, remained largely economically and racially integrated. If these same mobile people now flee metropolitan areas and the most metropolitan regions, will we ultimately end up with some cities and counties that are entirely comprised of the poor, old, and nonwhite, others that are integrated (the South and the Pacific region), and others that are entirely comprised of young, upper-middle-income whites (Nevada, for example)? In other words, cities of the North Central and Northeast regions are losing population to the South and West *and* to nonmetropolitan and smaller metropolitan areas within the regions. This loss is, however, not random. It results primarily from the migration of middle-income, white families in their childbearing years, although a significant number of blacks are migrating to the suburbs (as opposed to nonmetropolitan or smaller metropolitan areas) and many elderly are moving to warmer states. Thus the larger central cities in the North Central and Northeast regions are becoming increasingly poor and nonwhite.

The exurban communities receiving these young, middle-income, relatively well-educated migrants also face important issues. What is the impact on the political, educational, and social service systems of this influx of upwardly mobile people? The sudden increases in the population of these smaller places require increases in school facilities and public services (trash collection, police and fire protection, etc.); they also lead to increases in public revenues. Many communities are not politically equipped to make these large-scale changes rapidly. Furthermore, these upwardly mobile immigrants often carry with them a political sophistication that is absent in smaller towns and cities. Frequently, political conflicts develop over economic issues such as the pace of growth. This influx may also force out some older residents if property taxes go up to meet the need for additional services, and as a reflection of growth. Long-time residents of the area may not be able to afford these tax increases and may feel forced to sell land to developers who are happy to accommodate the desire for more housing.

Furthermore, the residents of the receiving communities may express some hostility to the newcomers who may significantly differ from older residents. The newcomers tend to have more education and higher incomes than natives (Blau and Duncan 1967). They are perhaps more likely to be politically liberal than older residents. These changes may lead to changes in the political composition of receiving communities, just as the movement of these people out of central cities has led to changes in the political composition of many of the cities. For example, in terms of local politics, Chicago, Milwaukee, and Pittsburgh are almost one-party areas.

The ways in which such hostilities are worked out have important implications for population movement. Some of these communities have adopted a no-growth policy to limit the number of outsiders coming in. In other cases the fight has been over whether to encourage or allow shopping-center development (which is actually a growth versus no-growth issue). If growth in a community is limited by zoning ordinances, sewer regulations, or other restrictions, the upwardly mobile movers will have to go elsewhere. It is possible that this movement could be specifically channeled (or slowed considerably) if regional planning authorities had greater power. They could use that power to plan for and guide growth rather than simply reacting to it. However, Americans do not seem ready for much planned growth.

If we assume that economic integration is desirable, then recent population shifts may be seen in a negative light as they tend to exacerbate economic segregation. As stated above, increasingly we see the rich and the poor remaining in the central cities of several areas of the country. We further see the central city getting poorer and the exurbs getting richer. Poor youngsters are increasingly left with other poor people as role models (Liebow 1967). However good these role models may be as human beings, they are not likely to be good examples of success or achievement. We must question how middle-income or wealthy people will develop compassion and empathy in their insulated worlds. How will the two groups relate to one another? How will an antipoverty attitude be spawned and nurtured in the absence of relationship?

Blau and Duncan (1967) also indicate that smaller cities provide exceptional opportunities for the migrant, in large part because the migrants are precisely the ones most able to take advantages of the "special opportunities" needed to induce movement of people from larger to smaller places. Such special opportunities, particularly for the middle-class professional worker, need not be job related but often are. Smaller communities, whether they be in the South or North Central region, are generally less congested than others, are perceived as having more responsive government than others (Altshuler 1970), and have less crime than others (National Advisory Commission on Civil Disorders 1968). They have a lower population density than other communities. But they are also less likely than other larger, more urban communities to be racially or economically diverse. The federal government will have to shape its integration policies to apply to smaller communities as well as big cities.

Given the size and the relative homogeneity of smaller communities, whether in the South, the West, or the North, the influx of politically sophisticated, upwardly mobile people is likely to have immediate political consequences. Smaller, nonurban communities will have to face educational, housing, and social integration to a greater degree than they have in the past. In most cases this will involve integration of whites of different backgrounds; in some cases integration of blacks and whites will be necessary. How will school systems accustomed to the needs and desires of a small-town (often antiurban) population handle the educational demands of the Piagetian, open-classroom generation? How will the relatively affluent newcomers spend their money in these smaller, less cosmopolitan areas (most of which are not recreational communities)?

Race and Integration

I have already noted the increase in the black suburban population. Since 1970, the South has gained 14,000 blacks from other regions. Although black migration does not represent a rush back to the "New South," it is a significant movement. While there are as yet no data to tell us who these "returnees" are, I think that it is safe to assume that they are, for the most part, middle-income and upwardly mobile people.

I am certain that black politicians in the South are keeping a close watch on this recent population movement. Changes in both the black and white population may threaten black political gains in some southern areas. Elected political officials are faced with a new and different constituency, perhaps more urbane and certainly more economically and educationally mobile. The loss of black leadership in Northeast and North Central cities is, in an increasing number of cases, the gain of southern cities. Those in power, however, will have to find ways to deal with the changed population.

The movement of blacks to southern cities is still a trickle, albeit a highly significant one. As I meet and talk with my black colleagues and friends, I am impressed by the consistent and oft-heard references to moving "back to the South." The people who voice this desire are young, middle-class professionals with children. They talk about clean air and lots of land in the South. They talk about plentiful jobs and a sense of community in the South. They talk about the huge house they can buy with the profit from the sale of their small one in Chicago, or Philadelphia, or Milwaukee. These are people who are politically aware and active. They owe no allegiance to what I call the "Morehouse Mafia" in Atlanta (Maynard Jackson, Andy Young, John Lewis, Julian Bond, etc.), or to the Fords of Tennessee. They will have to be won, and they are hard to sell.

How will suburbs handle the influx of blacks? The policies of the nation over the past 20 years have affected jobs, housing, education, transportation, and racial problems (Farley 1977). Increasing numbers of blacks are moving to the suburbs. However, a relatively large, mostly non-white central-city population has remained unaffected. Public assistance programs have not provided incentives for recipients to move or to improve their status. These people are not likely to benefit much from changes in transportation, housing, or job discrimination policies. We may be on our way to the formation of what I have called a permanent

underclass, and what others have called the lumpen proletariat, in cities of the North Central and Northeast regions. As a result, economic and racial integration may become impossible in cities like Gary, Detroit, Newark, and Washington. However, cities in the South and West, such as Atlanta and Nashville, will increase their potential for racial and economic integration as their middle-class black and white population grows.

Solutions to urban problems will become more costly and more difficult politically as the central city and older suburbs become increasingly populated with those people most (and least) in need of city services and least able (or willing) to pay for them. In contrast, smaller metropolitan and nonmetropolitan areas will have to deal with rapid growth. If, indeed, a number of cities in the North Central and Northeast regions reach a point at which they can no longer be integrated racially and economically, and if racial integration through housing and education remains a national goal, what then are we to do? Some form of metropolitan-wide integration appears to be one alternative. However, if the Milliken decision is any indication, the courts may limit this possibility. Local governments outside central cities limit metropolitan-wide integration by generally refusing to allow sufficient numbers of low-cost, low-income housing units to reduce the concentration of the poor in the central city and put them closer to jobs. These governments also refuse to enter into integration agreements with central-city school systems. I am not arguing that racial integration is necessary or even desirable. However, integration of government-sponsored activities is the law of the land; and therefore, attempts must be made to accomplish it, or the law should be changed. The question is whether it may be accomplished at all given recent population trends and political realities.

Economic integration is a quite different matter. Although blacks or Hispanic Americans may thrive in communities that are all black or Hispanic, I suspect that they cannot thrive in communities that are all poor, whether or not such communities are racially or ethnically integrated. Funds are needed for social services, housing, food, clothing, etc. Furthermore, success models are needed for poor youngsters. These models need not be of different races, but they must be available. Since the economically mobile nonwhite middle class has become geographically mobile, where will these models come from?

This discussion has dealt with different types of integration. In the case of movement to smaller metropolitan

and nonmetropolitan areas, it has dealt with integration of lifestyles, and, to some small degree, races. In the case of the central cities of metropolitan areas, it has dealt with integration of income levels, lifestyles, races, and stages in the family cycle. For southwestern and mountain states such as Arizona, Nevada, Utah, and Oklahoma, integration is a problem insofar as there is relatively little racial or ethnic diversity. These states have native American populations that have been relatively "controlled" and not integrated very well. Indeed, native Americans remain "out of sight" of the majority of the population.

This discussion assumes integration to be generally positive (though, I could argue, I think convincingly, that some forms of racial integration may be harmful for blacks or Hispanic Americans). It accepts integration as the law of the land and does not fully examine the benefits and shortcomings of integration. However, it is important to place the need for integration in some perspective. I have already cautioned restraint with respect to consideration of the effects of the movement of blacks either to the South or the the suburbs. The trends are very important, but the numbers are relatively small. It is important to note that not all middle-class whites moving beyond the suburbs or to smaller cities and towns will have to be fully integrated into those communities. Many of them, particularly in the Pacific region, the North Central region, and the Northeast region, are commuters to the central city. They go to the central city to earn money, to spend money, to shop, and to enjoy cultural activities. Their children may be integrated, but they may not. They may take no active part in the political, social, or cultural affairs of the receiving community, preferring to "get away from it all." We must distinguish between these people and those who altogether shun the big city--its jobs, its money, its culture, and its social activities. One group requires integration, and the other does not.

PERCEPTIONS AND MOTIVATIONS

Before I consider some of the public policy implications of the characteristics and relationships detailed above, I think it wise to consider briefly the related issues of the perceptions and motivations of movers. It is easy to accept the notion that variables are really constants. I have described the movement of blacks to the central city

and suburbs almost as though the motivations for the moves were the same--improvement of living conditions. In a broad sense, this is true. However, we should also bear in mind that some blacks are moving from the rural South to the urban North in order to find jobs, while other blacks with secure jobs are moving from the urban North to the suburbs of northern cities, and still others are moving back to southern cities. Both groups are moving, but for far different reasons.

We should not assume that all whites leaving northern and northeastern central cities are doing so to avoid contact with blacks. Certainly, some are; however, others are moving because of perceived differences in the quality of schools or the value of land. Not all of the elderly remain in central cities due to lack of alternatives. Some remain there by choice--because they find things about central cities and/or the region that they like.

My point is that we should remember that differences in perceptions and motivations occur among the members of any large group. Groups of movers are no exception. While these groups may have age, income, or race in common, it cannot be assumed that the motivations for similar moves are the same. In order to fully understand and appreciate these moves we need to examine closely the perceptions and motivations of the movers.

POLICIES AND PROSPECTS

As far as race is concerned, the trends seem to suggest a dispersal of the black population throughout the metropolitan region and some black migration to the South. Where movement to the suburbs occurs, it is likely to be to older suburbs. The South will retain a higher percentage of its black population than it has for some 50 years. However, the trends also suggest a geographic and economic gulf between the black population and the white (which is not at all new), and between the black "haves" and the black "have-nots." Whether this gulf is related to intra-racial antipathy is not clear (Sampson and Milam 1976), but it does not bode well for black communities or for central cities.

This movement of whites and middle-class blacks out of central cities, could, within the next 15 years, leave the central city with a permanent underclass living on public funds, and with a decreasing property tax base to pay for the increasing number of social services needed by such a

population. The notion of scattered site housing within a central city may not mean very much if there are few middle-class or white neighborhoods left. Less attention will need to be paid to red-lining than to rent control because an increasing percentage of city dwellers will be renters if homeowners continue to leave metropolitan areas.

If the nation remains interested in racial and economic integration, ways may have to be found either to increase the number of whites and middle-class blacks in the central city or to enlarge the scope of integration to include areas beyond the boundaries of central cities. Ways will also have to be found to employ those remaining in the cities. Indeed, perhaps we should consider ways to move relatively immobile people to places where the jobs are--to the suburbs of the North Central and Northeast regions, and to the South, Southwest, and Pacific regions. Travel funds, relocation expenses, and incentives for employers to move blue-collar and unemployed workers to new locations do not seem like outrageous ideas.

It does not seem unrealistic to use federal revenue sharing funds to facilitate economic and racial integration. Why should exclusively white, upper-middle-income suburbs get money they can often do without when they refuse to build low- or moderate-cost housing so that central-city residents may be within traveling distance of jobs? This hurts not only the central-city residents but the economy as well. Attractive interest rates could spur builders to construct such housing and attractive mortgage terms could be offered to those whites and blacks willing to build or to buy single-family homes in urban or suburban neighborhoods that include a specified percentage of low- and moderate-income housing. No one can or should force people to live where they do not want to (as Federal Housing Administration policies, transportation policies, and racism have forced many blacks to do), but the federal government can offer enticements that might make some areas more attractive than they might otherwise be. We could stop encouraging movement to areas that are farther and farther from the central cities by ceasing to build highways or public transportation systems in these areas.

There are not many ways to mitigate the effects of interregional movement. The government can provide assistance to the unemployed who migrate to areas where jobs are available and can try to attract employment opportunities and people back to the Northeast and North Central regions.

Since the elderly are generally not looking for jobs, our concern for them is not with job policies. However,

the elderly do need accessible and relatively inexpensive transportation. They often also need to be close to goods and services because their physical mobility has diminished. For this reason, cities would appear to be excellent places for many elderly people. Indeed, this is an important reason why so many elderly people remain in the city. However, to make life bearable for those who choose to remain, we will have to control crime, and provide door-to-door, inexpensive transportation and increased medical care. If we do not deal with these problems, we may see in 10 to 15 years a sort of bipolar distribution of the elderly. The more affluent elderly will be "hidden" away in retirement complexes in the Sun Belt and Florida, and the others will be concentrated in central cities, living in fear.

As I have stated previously, upwardly mobile people are more likely than others to move, whether from city to suburb, suburb to exurb, or North to South (Blau and Duncan 1967). Movers tend to have higher incomes and more education than nonmovers. We have heard a great deal in the past 10 to 15 years about the erosion of the property tax bases of larger, older cities, particularly in the North Central and Northeast regions, as middle-income people move away. Actually, these tax problems should be examined more carefully since presumably many of these people are selling homes at a profit. Under these circumstances, little or no decrease in property values should occur, at least in the short run. Of course, if large numbers of middle-class homeowners move out of a neighborhood very quickly, values and tax revenue may drop sharply.

Perhaps even more important than property taxes is the fact that central cities are becoming increasingly the homes of the very rich and the very poor, with the middle-income family preferring suburbs and exurbs. The very poor have little money to spend in the city and generally pay no property taxes. The very rich may spend little money in the city in which they reside (we need to look into this further) but do pay property taxes. Currently, in some cities such as Chicago, Philadelphia, and Washington, we are witnessing a return to the city by young, upper-middle-income whites. What becomes of the low-income renters or owners of the houses that are purchased by these young returnees? Where do they go? Where can they go? In some cases, they can no longer afford the ghetto, at least not the same one, because property improvements have increased the value and thus the rents. Cities should be very careful about encouraging this return until they are quite certain that those people displaced are adequately cared for.

If central cities continue to become places for upper-income people who can often insulate themselves from the city and the poor who cannot, who will provide civic leadership and initiative? Are all decisions to be made by the upper-income minority for the majority who have lower or no incomes? This is a political rather than a governmental issue, but each impacts upon the other. Something must be done to attract and retain jobs in central cities. Housing must be made available near jobs in suburban and exurban areas, in the Sun Belt, and in the Northeast and North Central regions. I am not certain that the nation can afford to continue to allow business and industry to move at will with little regard for the consequences. If this freedom is to be maintained, strong incentives will have to be developed and used to provide jobs in the private sector for the majority of urban residents who may be poor in 10 or 15 years.

This of course takes us back to the issue of the urban lumpen proletariat or permanent lower class--people passed over by the civil rights revolution and by boom periods. These are people with no jobs, no skills, no hopes, who are, to a large extent, concentrated in northern cities where strong labor unions and seniority do not greatly help their causes. They are not helped much by making accusations of racism, because a lot of blacks have now made it out of the ghetto (at least economically). It is not simply a question of race, but neither is it simply or largely a question of economics. Racially oriented solutions (like affirmative action) are good, but primarily help the upwardly mobile (many of whom would eventually make it without such solutions). They do not help those at the bottom or poor whites. Economic solutions generally ignore the existence of racism. It may be that we have reached a point at which it is not really in the economic or political interests of the nation to help these people. They do not vote very often (Milbrath 1971), and provision of jobs for them will cost government some money, either in direct salary payments or in the form of incentives for business and industry to relocate, develop, or expand. I think that rising crime rates and the resulting economic losses as well as rising costs for courts, jails, welfare, and police, economically justify these governmental expenditures. Simple human concern justifies them on a moral basis.

My last point relates to the classic distinction between class and status. People who move do so not only for market-related (employment) reasons but also for status.

Some are seeking the prestige of a particular school or community. Some are looking for a particular type of house. Others are simply "movers"--for example, military personnel or academics. Others are moving away from blacks or Hispanics. Some blacks may be moving toward other blacks. In these cases, job considerations may be secondary.

If people do in fact move for reasons of prestige or race, then urban policy should take this into account. If schools in declining cities such as Cleveland could be upgraded to gain a national reputation for excellence, I am certain that many middle-income whites would move to (or back to) these cities. Provision of jobs and adequate relocation efforts for those displaced by people moving in would have to be provided. It would be interesting to find out the extent to which education and race affect movement, but I am not certain that asking people is the best way of acquiring this information. Perhaps an "experiment" is a better way of doing this. If middle-income whites can be lured to Cleveland, Gary, or Newark by quality schools and are willing to live in integrated settings to use the schools, we may learn about the relative importance of race and education. Obviously, this would require careful planning. But, my main point is not that we should try this with schools, police services, or recreational facilities, but that variables other than employment affect decisions to move to one place or another. Policies affecting movement or affected by movement should consider manipulation of these variables.

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