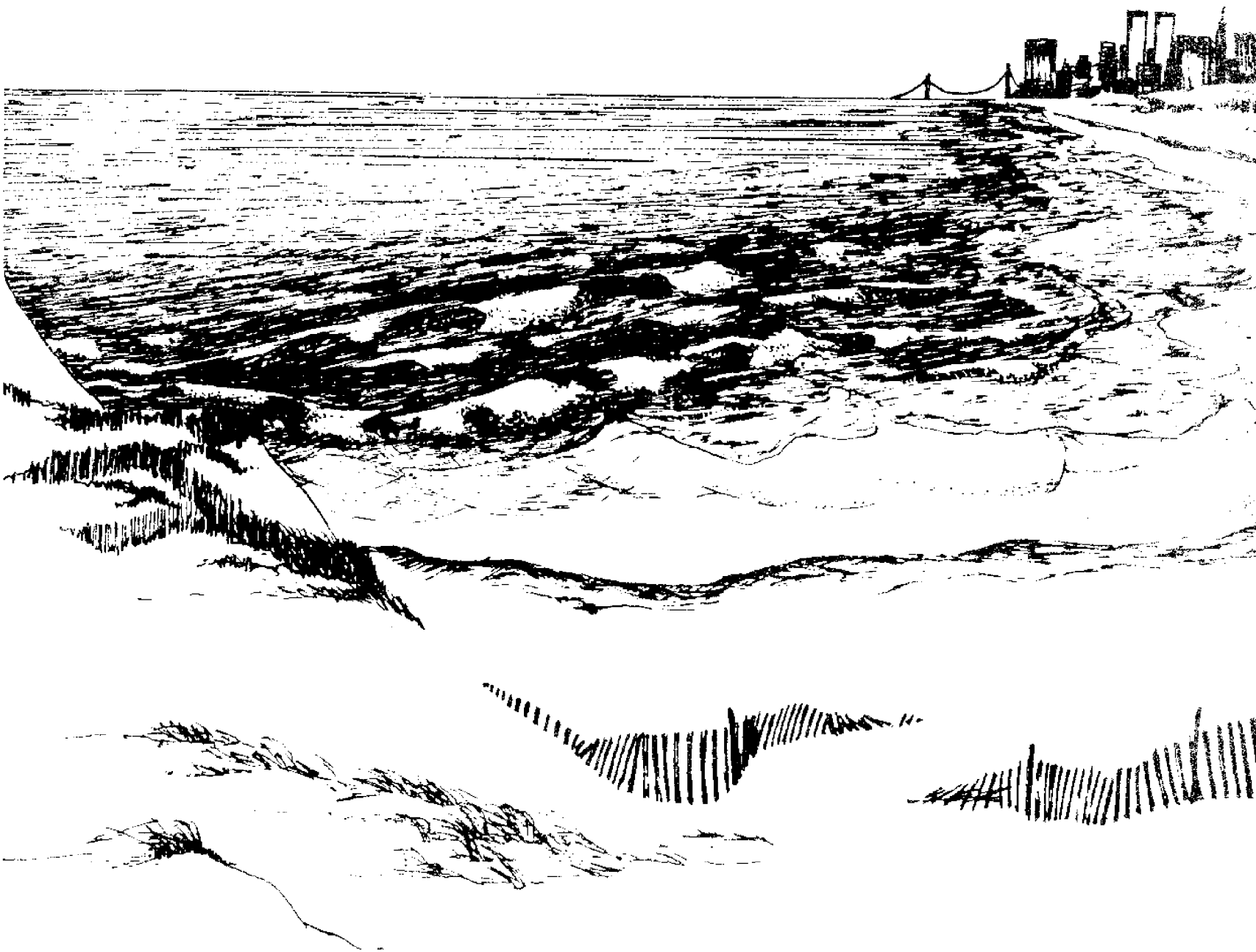


Demographic Patterns

Charles T. Koebel and Donald A. Krueckeberg



The offshore water in the bend of the Atlantic coastline from Long Island on one side to New Jersey on the other is known as New York Bight. This 15,000 square miles of the Atlantic coastal ocean reaches seaward to the edge of the continental shelf, 80 to 120 miles offshore. It's the front doorstep of New York City, one of the world's most intensively used coastal areas — for recreation, shipping, fishing and shellfishing, and for dumping sewage sludge, construction rubble, and industrial wastes. Its potential is being closely eyed for resources like sand and gravel — and oil and gas.

This is one of a series of technical monographs on the Bight, summarizing what is known and identifying what is unknown. Those making critical management decisions affecting the Bight region are acutely aware that they need more data than are now available on the complex interplay among processes in the Bight, and about the human impact on those processes. The monographs provide a jumping-off place for further research.

The series is a cooperative effort between the National Oceanic and Atmospheric Administration (NOAA) and the New York Sea Grant Institute. NOAA's Marine EcoSystems Analysis (MESA) program is responsible for identifying and measuring the impact of man on the marine environment and its resources. The Sea Grant Institute (of State University of New York and Cornell University, and an affiliate of NOAA's Sea Grant program) conducts a variety of research and educational activities on the sea and Great Lakes. Together, Sea Grant and MESA are preparing an atlas of New York Bight that will supply urgently needed environmental information to policy-makers, industries, educational institutions, and to interested people. The monographs, listed inside the back cover, are being integrated into this *Environmental Atlas of New York Bight*.

ATLAS MONOGRAPH 23 summarizes what we presently know and can predict about Bight region population. The region's early and intimate ties with the port of New York brought trade, prosperity, and many people, who have been migrating into Bight region cities since the early 1800s. Koebel and Krueckeberg describe the strong urban pattern of people working in a location different from the one they live in, and the pattern of population expansion into successive outer rings. Projections suggest a stabilizing population in the Northeast as a whole, but major increases in suburban counties, 60% of them directly on the ocean, harbor, and estuaries.

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Demographic Patterns

*Charles T. Koebel
and
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MESA NEW YORK BIGHT ATLAS MONOGRAPH 23

**New York Sea Grant Institute
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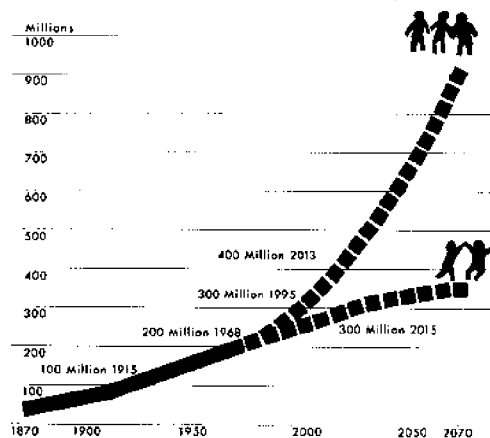
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From 270 European inhabitants on Manhattan in 1628 the New York Bight region grew slowly, restrained by epidemics, wars, and commercial disadvantages, to encompass the nation's largest city – New York – by 1810. Since the early 1800s, growth has been rapid, furthered by migration, first from northern Europe, then from southern Europe, and most recently from the southern United States and Puerto Rico. Today the 28-county region is comprised of a high-density core of 10 counties with over 7,000 persons per square mile, a suburban inner ring, and a low-density outer ring. In 1970 the region held 19.3 million people – 9.5% of the nation's 203 million. Forecasts show a possible 25.8 million people in the region by 2000.

Introduction

Demography dates back to the mid-seventeenth century – its modern stage to the 1920s – but only recently has it become prominent among the social sciences. This is a direct result of the *population crisis* – continued growth at rates resulting in the rapid expansion of an already large population base. Consequently, even a stable annual growth rate would produce substantial absolute increases in the population (Figure 1).

Figure 1. US population, 2- vs. 3-child family



Source: Commission on Population Growth and the American Future 1972

Demography is “the statistical and mathematical study of the size, composition, and spatial distribution of human population, and of changes over time in these aspects through the operation of the five processes of fertility, mortality, marriage, migration, and social mobility” (Bogue 1969). The three most important components of population change are births, deaths, and net migration, which in turn influence population size and characteristics. These must be viewed in a two-dimensional framework of time and space. The study of aggregate growth requires the investigation of temporal fluctuations and the extrapolation of present trends into the future. The spatial dimension of population change has become increasingly important because of extensive urbanization of American society. The effects of change in demographic variables are vital to the economy, to social organizations, to politics, and to the quality of our environment.

The New York Bight region is in the middle of the Boston-to-Washington seaboard, termed *megalopolis* by Gottman (1961), which has the largest concentration of population and the highest average density of any urbanized area in the nation.

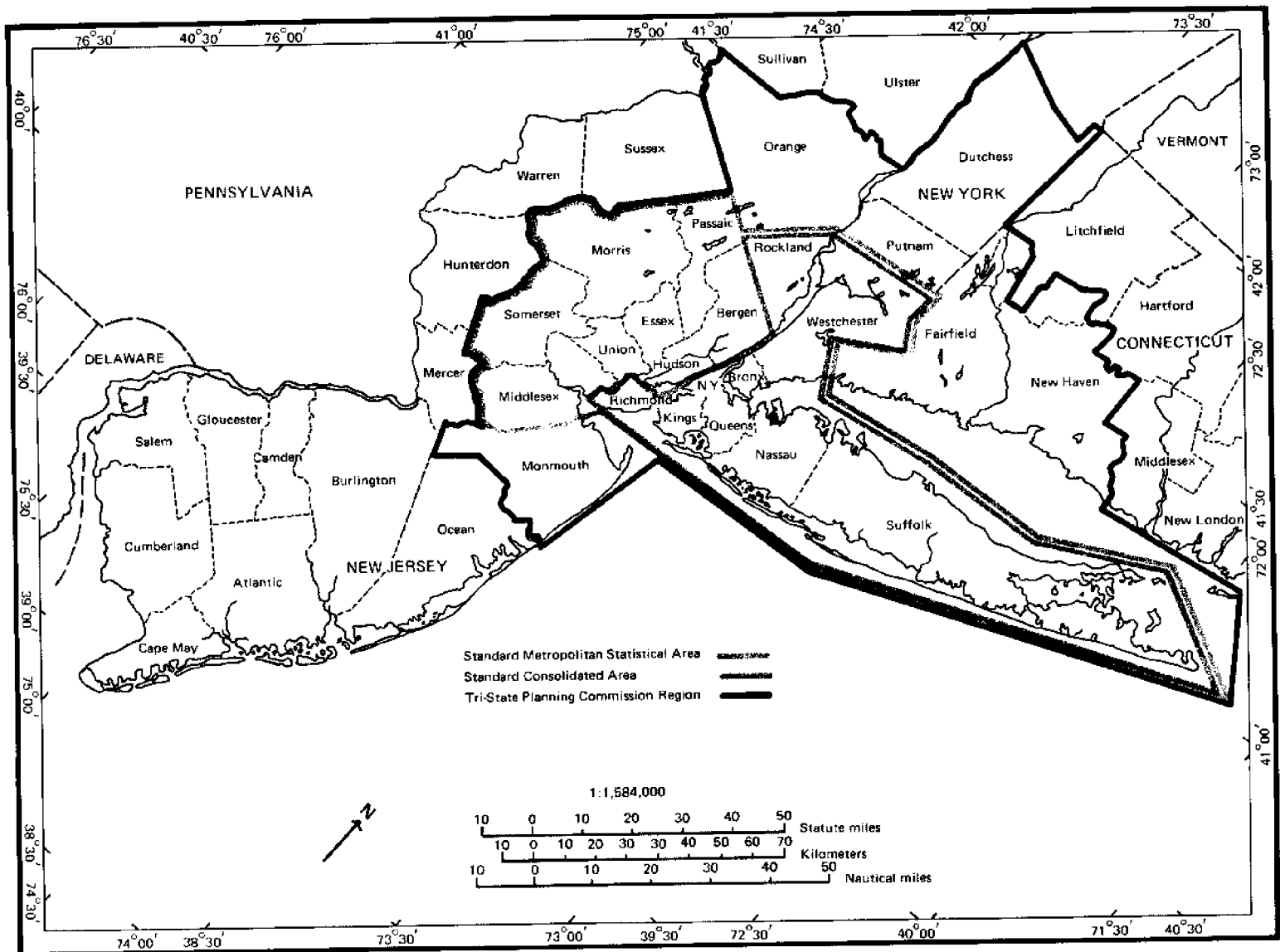
Definition of the Study Area

The physical boundaries of a population study should be defined in terms of an interrelated whole. The New York–Northeastern New Jersey–Southwestern Connecticut metropolitan region, recognized as a valid unit in many previous studies, encompasses the population that has direct, or important indirect, effects on the quality of the New York Bight environment. It includes a complex system of residences, work places, retail outlets, and production sites.

Definitions of the region vary substantially from study to study. For example, the US Bureau of the Census limits the New York Standard Metropolitan Statistical Area to 9 counties in New York State; the Regional Plan Association uses 22 counties. Most definitions of the New York region exclude all of New Jersey except the northeastern counties. Because the excluded south shore counties bound the southern section of the bight, we have included Ocean, Atlantic, and Cape May counties in our study area.

Map 1. Bight region standard areas

Transverse Mercator Projection



Although relatively undeveloped, these counties are under increasing pressure from the growth of the New York and Philadelphia* regions.

Regional classifications important to this study are listed below. Map 1 shows the boundaries of the Standard Metropolitan Statistical Area, the Standard Consolidated Area, and those used by the Tri-State Regional Planning Commission.

Standard Metropolitan Statistical Area (SMSA)[†]: New York City (Bronx, Kings, New York,

Queens, Richmond counties), Nassau, Suffolk, Rockland, and Westchester counties.

Standard Consolidated Area (SCA): New York SMSA; Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, and Union counties.

Tri-State Regional Planning Commission's region: New York SCA; Monmouth County (NJ); Dutchess, Orange, Putnam counties (NY); Southwestern, Greater Bridgeport, South Central, Valley Central, Naugatuck, and Housatonic Valley (Connecticut Planning Regions).[‡]

*The Philadelphia region is not included in this monograph.

[†]In 1972 Nassau and Suffolk counties were given a separate SMSA classification. At the same time, Putnam County (NY) and Bergen County (NJ) were added to the New York SMSA. However, the 1970 census figures are the most recent data available.

[‡]Connecticut Planning Regions are not exact subdivisions of counties. However, Fairfield County consists almost entirely of the Southwestern, Greater Bridgeport, and Housatonic Valley Planning Regions. New Haven County is nearly coterminous with the combined South Central and Central Naugatuck Valley Planning Regions. Valley Planning Region is divided equally between Fairfield and New Haven counties.

Patterns of Settlement

Early Development

Population growth is a complex combination of *natural increase* (births exceeding deaths) and migration, each of which is strongly influenced by economic development. Several characteristics of New York's physical environment contributed to its growth from a town of 270 people, recorded in 1628, to a metropolis of 19 million in 1970 (Rosenwaike 1972). New York's natural port has made trade a dominant part of the city's economy since the colonial period. Other topographic features, such as the Watchung and Ramapo mountains, determined the location of later transportation routes and the direction of land development.

At first New York did not grow as fast as the other cities on the eastern seaboard, partly because of the competitive positions of Boston and Philadelphia and partly because of dispersed agricultural development. Both Boston and Philadelphia were larger than New York until the 1780s; Philadelphia remained larger until 1810.

The population of New York City (consisting only of Manhattan until 1898) advanced steadily in the colonial and revolutionary periods except during wars and epidemics. Population declined during British occupation between 1775 and 1783, yellow fever epidemics in 1795 and 1798 (4% of the city's population died in the second epidemic), the Embargo Act in 1807, and the War of 1812 when the

British closed the port. After the port was reopened and the city's economy revived, the population leaped 77% from 93,634 in 1816 to 166,086 in 1825 (Table 1) (Rosenwaike 1972).

The 1810 census recognized New York as the largest city in the United States. The opening of the Erie Canal in 1825 afforded New York a competitive trade link with the nation's interior. Rail connections in 1839 with Camden, Trenton, and Philadelphia enhanced the city's trade position (Adams et al 1929). By 1860, New York controlled 62% of the country's foreign trade (Vernon 1960).

New York's port was also an entry point for European immigrants. From 1825 to 1860, Irish and

Table 1. NYC population, 1786-1825

Census Year	Population	Annual % Increase
1786	23,610	—
1790	33,131	8.8
1800	60,515	6.2
1805	75,770	4.6
1810	96,373	4.9
1814	95,519	-0.2
1816	93,634	-1.0
1820	123,706	7.2
1825	166,086	6.0

Source: Data from Rosenwaike 1972

German immigrations were responsible for most of the city's growth. By 1845 the foreign population in New York City and in Kings County had risen to 36.3% and 33.6%, respectively, of their total populations (Rosenwaike 1972).

New York's 1800 to 1860 growth led to new development in Kings, Richmond, and Hudson counties, and in southern Manhattan (Table 2, Figure 2, Appendix A). The steam ferry opened Richmond County to partial development but most new settlement was in Kings County – 5,740 inhabitants in 1800 to 279,122 in 1860 – and New York City. The town of Brooklyn grew, with negligible help from annexation, from a population of 2,378 in 1800 to 266,661 in 1860 to become the second largest city in the nation. New York City experienced even greater development, reaching a population of 813,669 by 1860. The combined 1860 population of New York City, Kings County, and Richmond County was 1,118,283 inhabitants.

Table 2. Population of NYC, Kings County, Richmond County, 1800-1860

Census Year	NYC (Manhattan)	Kings County		Richmond County
		Total	Brooklyn	
1800	60,489	5,740	2,378	4,564
1810	96,373	8,303	4,402	5,347
1820	123,706	11,187	7,175	6,135
1830	202,589	20,535	15,394	7,082
1840	312,710	47,613	36,233	10,965
1850	515,547	138,882	96,838	15,061
1860	813,669	279,122	266,661	25,492

Source: Data from Rosenwaike 1972

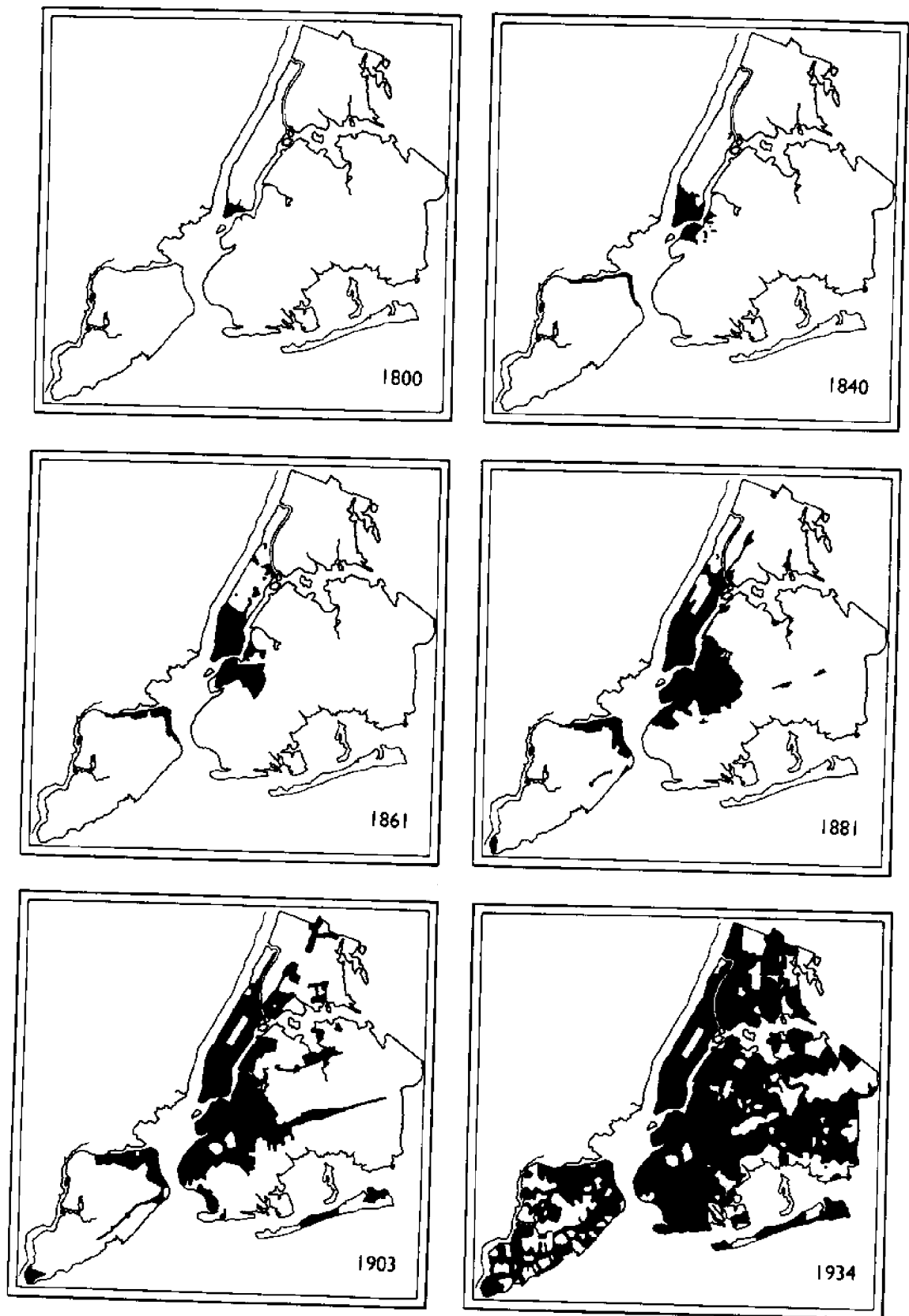
The 1800 to 1860 period demonstrated early *axial growth patterns*: “the flinging out of detached nuclei of settlements and the filling in by the process of central growth, and the growing together of isolated settlements” (Hoyt 1939). As development in a central sector reached its peak, new areas became more attractive for settlement and more accessible through transportation innovations. Also, concentrated development in the older sectors attracted intense commercial land use, which in turn contributed to the movement to new residential areas. This pattern has been repeated throughout New York's history. Its first occurrence extended urban boundaries beyond Manhattan so that by the end of the nineteenth century greater New York constituted

the second largest city in the world.

From 1861 to 1865 the Civil War stalled New York's growth temporarily. After 1865, large-scale German and Irish immigration resumed, followed in the 1880s by immigration of Italians and Russian Jews. These, along with immigrants from central Europe and the British Isles, helped push New York City's population to 1,515,000 by 1890. At this time the native population in New York – that is, persons born in the United States – outnumbered the foreignborn by less than 250,000.

Migration into New York from other areas of the United States remained insignificant until the 1920s. Migration out of the city was mainly to adjacent counties in both New York State and New Jersey. In 1880, of the 74,000 Hudson, Essex, Union, Passaic, and Bergen County residents who claimed New York State as their birthplace, most were probably from New York City (Rosenwaike 1972).

By the turn of the century, there was increasing evidence of extended urbanization and the first signs of the metropolitanization that would occur later. *Metropolitanization* is a cumbersome but standard term for the merging of neighboring cities and townships into a unified urban agglomeration. The consolidation in 1898 of the five boroughs – Bronx, Brooklyn, Manhattan, Queens, and Staten Island – reflected their interrelated growth. Industrialization required a large labor force, thus attracting European immigrants to New York. Increased industrial activity and population overburdened the previously developed land; fortunately, rapid transit opened adjacent areas for residential use. All this led to urbanization of the newly consolidated city. Extension of New York's functional area, in contrast to its political boundaries – unchanged since consolidation – was thoroughly analyzed in a series of maps showing relative densities in minor civil divisions for 1850, 1900, and 1920 (Adams et al 1929). Developed for the first Regional Survey of New York, these maps demonstrate that after 1850, growth was no longer confined to New York City alone. Hudson County, for example, was one of the most populous counties outside the city until 1950 when its limited 45 square miles could no longer compete with other counties for new development. Essex County, with its principal city of Newark, was one of the first nuclei to blend with New York's urban growth. Eventually all New Jersey counties around New York merged into a single, densely developed area. By 1930 the combined population of Bergen, Essex, Hudson, Passaic, and Union counties was 2,496,558 (Appendix A).



Source: From Federal Housing Administration Division of Economics and Statistics, in Hoyt 1939

Figure 2. Settled areas, NYC, 1800-1934

Detached nuclei in 1850 within New Brunswick and Paterson (NJ), sections of Westchester County (NY), and Norwalk (CT) indicated the beginnings of another axial growth period. Just as population growth filled in spaces within New York City, by 1900 it had started to fill in spaces between the city and these nuclei.

An important metropolitan development in the early 1900s was the settlement of Nassau County, ideal in many ways for population growth because its topography did not hinder expansion or access to New York. Between 1900 and 1920 Nassau County's population more than doubled (55,448 to 126,120).

Important Migrations

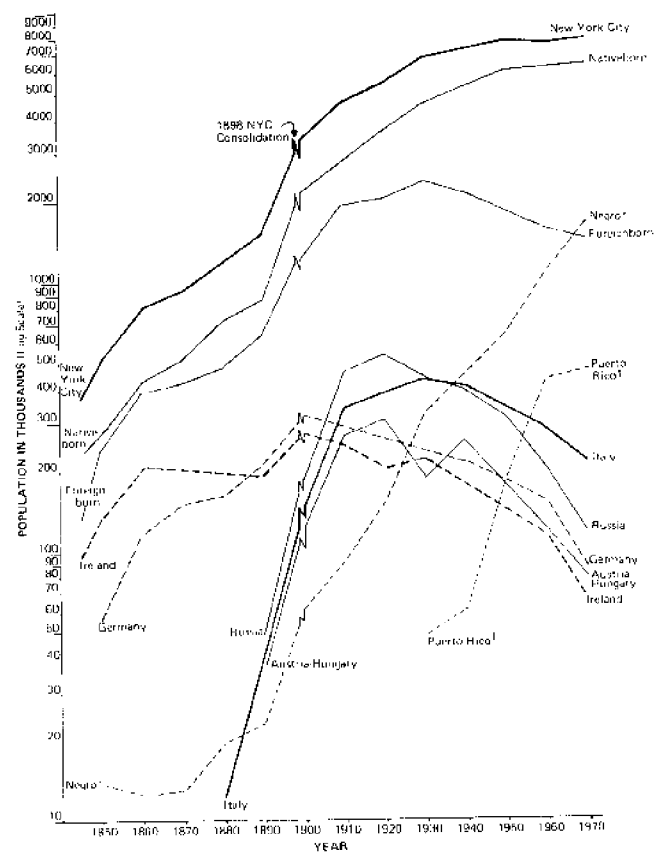
Although the impetus for New York's growth was industrialization, foreign immigration supplied the people (Figure 3, Appendix B). Very little, if any, of the city's rapid increase during the nineteenth century can be traced to immigrations from the American hinterland. Eighty-four percent of the white heads of families in the city in 1900 were either foreignborn or children of immigrants.

The ethnic composition of the city changed rapidly during the early 1900s. Whereas in 1900 the city was predominantly Irish and German, by 1925 the Jewish and Italian groups outnumbered them. Although foreign immigration was the city's prime growth factor at this time, it was considerably restricted by the immigration acts of 1921 and 1924 (the latter established a rigid quota system); foreign-born population reached a peak in 1930 (2,358,700 persons). However, foreign immigrants residing in New York continued to add to the population with the native births of second and third generations.

At the same time European immigration was diminishing, the first important domestic migration into New York City was developing. Although immigration of nativeborn whites continued at a net loss, an increasing nonwhite immigration produced a gain in New York's net domestic immigrations. As Table 3 indicates, Negro migration into the city advanced rapidly after 1900. The Negro population rose from 60,666 to 458,444 between 1900 and 1940 (Figure 3, Appendix B), doubled between 1940 and 1960 (458,000 to 1,088,000), and increased to 21.1% (1,668,451) of the city's total population by 1970.

Most Negro immigration came from economically depressed southern states. Virginia, South Carolina, North Carolina, Georgia, and Florida were the

Figure 3. Changing ethnic components, NYC, 1850-1970



*The "Negro" line includes changes in population size due to natural increase as well as immigration and should not be interpreted as measuring only immigration. Estimated Negro immigration into New York City is presented in Table 3.

†Data before 1930 is lacking

Table 3. Estimated net migration of Negroes 10 years old and older, NYC, 1900-1960

Year Ending Decade	Estimated Net Migration of Negroes
1910 ^a	31,000
1920 ^a	58,000
1930 ^a	137,000
1940 ^a	112,000
1950 ^b	159,000
1960 ^b	154,000

^aNo adjustment for Puerto Rican

^bPuerto Rican excluded

Source: Reprinted by permission from New York University Press from *New York City Migration, Social Statistics for Metropolitan New York* by Kantrowitz © 1969 by New York University

Table 4. Birthplace of nonwhite native population of NYC, 1900 and 1940

Birthplace	1900	1940
United States	57,989	402,543
Virginia	17,043	53,710
South Carolina	2,234	57,875
North Carolina	4,997	43,444
Georgia	1,493	28,688
Florida	522	12,708

Source: From *Population History of New York City* by Ira Rosenwaike, p. 103 (Syracuse: Syracuse University Press 1972) ©1972 by Syracuse University Press

principal birthplaces of New York's nonwhite native population in 1940 (Table 4).^{*} However, the city's total nonwhite population born in these five states (196,425) was lower than each foreignborn total from Germany, Russia, Italy, and Austria-Hungary.

New York City's large immigrations historically have arrived in pairs: the Irish and Germans, the Italians and Jews. The Negro immigration was joined by a Puerto Rican immigration resulting from the Spanish-American War. Not long after the United States took possession of Puerto Rico in 1898, islanders began moving into New York. Figure 3

^{*}New York was the birth state of 139,873 native nonwhites in 1940 but it is not possible to determine which of those were born in New York City. Hence the figure does not compare with Table 4 numbers.

shows the rise in Puerto Rico-born residents of New York City. ("Puerto Rican birth or parentage" is more inclusive but "Puerto Rico-born" is used here for comparability with immigrations from foreign countries.) Between 1940 and 1960, this group grew from one of the smallest ethnic-immigrant groups to the second largest. From 1940 to 1950 non-Puerto Rican nonwhite immigration exceeded Puerto Rican (both white and nonwhite) immigration – 222,000 to 131,000; but between 1950 and 1960 the Puerto Ricans became the major immigrant group – 254,000 to 172,000 (Table 5).

During the 1940 to 1960 period, nonwhite migration into the city and white migration to the suburbs and other areas resulted in an important change in New York City's population. Although nonwhite immigration slowed during the 1950s (174,000 compared to 229,000 the previous decade), the greater emigration of whites, especially native-born, increased the nonwhite percentage of the city's population. The net migration of 1,317,000 native-born whites from the city during 1950-1960 was one of the principal migrations in the city's history. An estimated 900,000 of these migrated to suburban counties of the New York region (Rosenwaike 1972).

Metropolitanization

About 1916, New York planners recognized the need to view their planning responsibilities in a regional framework rather than within the boundaries of a

Table 5. Net migration of white population by nativity and nonwhite population of NYC, 1940-1950 and 1950-1960

	April 1 1940 Census	April 1 1950 Census	April 1 1960 Census	Components of Change 1940-1950		Components of Change 1950-1960	
				Natural Increase	Net Migration	Natural Increase	Net Migration
Total	7,454,995	7,891,957	7,781,984	548,000	-111,000	707,000	- 816,000
White	6,977,501	7,116,441	6,640,662	479,000	-340,000	515,000	- 990,000
Nativeborn ^{a,b}	4,844,158	5,159,120	4,764,353	878,000	-562,000	922,000	-1,317,000
Puerto Rico-born	53,323	173,115	413,649	- 5,000	124,000	- 11,000	252,000
Foreignborn	2,080,020	1,784,206	1,463,817	-394,000	98,000	-396,000	76,000
Nonwhite	477,494	775,516	1,141,322	69,000	229,000	192,000	174,000
Puerto Rico-born	8,140	14,471	16,061	- 1,000	7,000	- 1,000	2,000

^aFigures by nativity based on 25% sample; combined figures differ slightly from total

^bExcluding Puerto Rico-born (defined as "native" by Census Bureau)

Source: From *Population History of New York City* by Ira Rosenwaike, p. 136 (Syracuse: Syracuse University Press) © 1972 by Syracuse University Press

single city. The Regional Plan and Survey of New York and Its Environs, published in 1929, expressed concern for the overcrowding that accompanied New York City's rapid growth and advised that decentralization of both people and industries would benefit the entire region. "Whatever the probabilities, the spreading of industry and population in well-balanced proportions is necessary to arrest the evils of congestion. It may even become necessary in order to prevent these evils from undermining the prosperity of New York" (Adams et al 1929).

The pattern emerging in New York reflected the start of a general deconcentration of population in most of the nation's urban areas: population growth was shifting from central cities to satellite areas. Between 1900 and 1950, approximately 25 to 30 miles were added to the radius of the metropolitan influence. Concentration (1900 to 1920) was followed by dispersion (1920 to 1950) due to slowing growth rates of central cities and increasing growth rates of satellite areas (Hawley 1956). The New York region followed this deconcentration pattern. Al-

Table 6. Employment by county, New York metropolitan region, 1956

	Miles from Manhattan ^a	Employment (in thousands)	Percent of Region	Thousands Per Mi ²
Entire Region	—	6,699.8	100.0	0.97
CORE	—	4,301.5	64.2	14.08
New York Co (Manhattan) ^b	—	2,717.5	40.6	121.32
Hudson	4	289.1	4.3	6.33
Kings (Brooklyn)	7	664.9	9.9	8.41
Queens	8	398.4	5.9	3.49
Bronx	8	231.6	3.5	5.26
INNER RING	—	1,572.3	23.5	1.09
Richmond (Staten Island)	11	38.8	0.6	0.64
Essex	11	424.7	6.3	3.35
Bergen	12	222.5	3.4	0.95
Passaic	14	170.1	2.5	0.88
Westchester	19	229.8	3.4	0.53
Union	19	201.5	3.0	1.96
Nassau	20	284.9	4.3	1.00
OUTER RING	—	826.0	12.3	0.16
Middlesex	25	137.2	2.0	0.44
Rockland	25	30.9	0.5	0.18
Morris	25	61.4	0.9	0.13
Monmouth	31	68.8	1.0	0.14
Somerset	33	38.7	0.6	0.13
Fairfield	40	249.4	3.7	0.39
Suffolk	42	112.7	1.7	0.12
Orange	48	58.1	0.9	0.07
Putnam	49	7.1	0.1	0.03
Dutchess	64	61.7	0.9	0.08

^a Rough estimates of the straight-line distance from Empire State Building to approximate center of population (not geographical center) of each county. For convenience, counties are listed in the order of these distances.

^b Manhattan's central business district had an estimated employment of 2,475,000 or 266,000/mi².

though Queens County expanded like a satellite area, its growth was actually the result of the spreading of Manhattan and Brooklyn. Suburban counties grew rapidly. For example, by 1960 Nassau County's population totaled more than one million, and by 1970 Suffolk County's population was over a million and eight other counties had populations exceeding 500,000. A valuable set of maps showing developed land in 1900, 1935, and 1962 was assembled by Row (1965).

A metropolitan pattern characterized the New York area after 1920 and became the main theme of the New York Metropolitan Region Study conducted in 1956. Redistribution of jobs and people was influenced by the increased importance of truck transport, the greater accessibility of the suburbs by

automobile, readily available financing for housing, technological changes in manufacturing, increased costs of central city land, and other factors.

Population also shifted to less densely settled areas of the nation, in Florida and on the West Coast. Between 1935 and 1940, 34,181 persons left the New York region for California and 22,941 left for Florida (Boguc 1957). The New York Metropolitan Region Study concluded that New York's economic position had weakened considerably after 1929. In general, the area's industries were growing at rates below the national averages.

Internal shifts in population distribution were even more visible and of more immediate concern. For example, the changing location of primary and secondary sector jobs in the region influenced popu-

Table 7. Components of population change, 1950-1960

	Net Population Change		Components of Change			
	Number	Percent	Births	Deaths	Net Migration	
					Number	Percent
NEW YORK						
New York City	-109,973	- 1.4	1,572,329	854,009	-828,293	- 9.5
Bronx	- 26,462	- 1.8	275,810	146,109	-156,163	-10.8
Kings (Brooklyn)	-110,856	- 4.0	552,245	280,098	-383,003	-14.0
New York Co (Manhattan)	-261,820	-13.4	352,355	249,774	-364,401	-18.6
Queens	258,729	16.7	347,574	156,724	67,879	4.4
Richmond (Staten Island)	30,436	15.9	44,345	21,304	7,395	3.9
Dutchess	39,227	28.7	31,052	15,229	23,404	17.1
Nassau	627,406	93.03	236,310	71,799	462,895	68.8
Orange	31,479	20.7	35,697	19,231	15,013	9.9
Putnam	11,415	56.2	5,211	2,683	8,887	43.8
Rockland	47,527	53.2	22,136	90,611	34,452	38.6
Suffolk	390,655	141.5	105,161	36,459	321,953	116.6
Sullivan	4,541	11.1	8,281	5,557	1,817	4.5
Ulster	26,183	28.3	22,038	13,235	17,380	18.8
Westchester	183,075	29.3	141,495	66,659	108,239	17.3
NEW JERSEY						
Atlantic	28,481	21.5	29,245	19,507	18,743	14.2
Bergen	241,146	44.7	143,380	55,111	152,847	28.4
Cape May	11,424	30.8	8,235	6,437	9,626	25.9
Essex	17,596	1.9	193,630	101,106	- 74,928	- 8.3
Hudson	- 36,703	- 5.7	133,020	71,480	- 98,243	-15.2
Middlesex	168,984	63.8	84,412	27,469	112,041	42.3
Monmouth	109,074	48.4	64,909	29,002	73,167	32.5
Morris	97,249	59.2	47,018	18,325	68,556	41.7
Ocean	51,619	91.2	18,411	8,941	42,149	74.4
Passaic	69,525	20.6	79,479	37,322	27,368	8.1
Somerset	44,861	45.3	27,077	9,586	27,370	27.6
Union	106,117	26.7	96,418	39,713	49,412	12.4
CONNECTICUT						
Fairfield	149,247	29.6	124,220	53,824	78,851	15.6
New Haven	114,531	21.0	132,792	60,554	42,293	7.7

Source: US Bureau of the Census Series P 23(7) 1962

lation distribution: employment outside New York City had begun to rise (Table 6). Also, in the 1940s the city for the first time experienced a negative net emigration over a decade (natural increase accounted for the 437,000 population gain). During the 1950s another net migration loss – principally from Manhattan, Brooklyn, and the Bronx – exceeded natural growth and resulted in an absolute loss of 110,000 by 1960. Tables 7 and 8 illustrate that the major growth component had been immigration but was now natural increase. The city's net migration loss of 828,293 persons between 1950 and 1960 was offset by a net natural increase of 718,320, resulting in a net population loss of only 109,973. Between 1960 and

1970, the city had a 1.5% population increase based solely on natural growth.

Migration of whites to the suburbs continued during the 1960s, but many suburban residents still worked in the city during the day. Suburban population growth surpassed suburban job growth and numerous people depended upon the city, especially Manhattan, for jobs. Table 9 presents 1960 data for persons living in suburban counties and working in New York. For example, 40.5% of Nassau County's labor force worked in New York and over 15% of the labor force in six other counties held jobs in New York.

Table 8. Components of population change, 1960-1970

	Net Population Change		Components of Change			
	Number	Percent	Births	Deaths	Net Migration	
					Number	Percent
NEW YORK						
New York City	112,878	1.5	1,519,758	914,644	-492,236	- 6.3
Bronx	46,885	1.5	295,701	159,992	- 88,823	- 6.2
Kings (Brooklyn)	- 25,307	- 1.0	550,013	295,486	-279,834	-10.7
New York Co (Manhattan)	-159,048	- 9.4	282,963	238,137	-203,874	-12.9
Queens*	176,895	5.3	341,784	196,805	31,916	1.1
Richmond (Staten Island)	73,452	33.1	49,297	24,224	48,379	21.8
Dutchess	46,287	26.3	38,504	18,256	26,039	14.8
Nassau*	127,909	9.8	212,014	103,670	19,565	1.5
Orange	36,824	20.0	39,468	21,891	19,247	10.5
Putnam	24,974	78.7	7,908	3,758	29,824	65.6
Rockland	93,100	68.1	33,957	12,557	71,700	52.4
Suffolk*	458,166	68.7	186,195	64,760	336,731	50.1
Sullivan	7,308	16.6	8,298	6,757	5,767	12.7
Ulster	22,437	18.9	24,405	14,765	12,797	10.8
Westchester*	85,213	10.5	145,815	80,761	20,159	2.5
NEW JERSEY						
Atlantic	14,163	8.8	30,237	23,812	7,738	4.8
Bergen	117,757	15.1	137,361	70,305	50,701	6.5
Cape May	10,999	22.7	8,887	8,543	10,655	21.9
Essex	6,441	0.7	185,135	107,649	- 71,045	- 7.7
Hudson	- 1,468	- 0.2	118,710	74,666	- 45,512	- 7.5
Middlesex	149,957	34.6	100,519	36,894	86,332	19.9
Monmouth	124,978	37.4	77,847	39,060	86,191	25.8
Morris	121,834	46.6	61,130	23,789	84,493	32.3
Ocean	100,229	92.6	31,225	17,098	86,102	79.5
Passaic	54,164	13.3	85,023	44,064	13,205	3.2
Somerset	54,459	37.8	32,549	12,184	34,094	23.7
Union	38,861	7.7	90,791	48,349	- 3,581	- 0.7
CONNECTICUT						
Fairfield	139,225	21.3	132,851	65,375	71,749	11.0
New Haven	84,633	12.8	133,089	68,453	19,997	3.0

*Corrected to agree with revisions of 1970 census data

Source: US Bureau of the Census Series P 25(461) 1971

Table 9. Labor force resident in selected counties working in NYC, 1960

Area	Number of Persons (in thousands)	Percent of Labor Force Residing in County, Working in NYC
Nassau Co, NY	182.6	40.5
Westchester Co, NY	84.7	28.0
Bergen Co, NJ	64.9	22.3
Suffolk Co, NY	33.6	16.7
Hudson Co, NJ	37.1	15.9
Rockland Co, NY	6.9	15.8
Putnam Co, NY	1.0	9.8
Union Co, NJ	13.8	7.3
Morris Co, NJ	6.2	6.9
Fairfield Co, CT	16.4	6.4
Greenwich Town	4.1	19.9
Balance of county	12.3	5.5
Essex Co, NJ	19.2	5.6
Monmouth Co, NJ	5.9	5.3
Middlesex Co, NJ	7.2	4.7
Passaic Co, NJ	6.2	4.1
Somerset Co, NJ	2.0	3.9

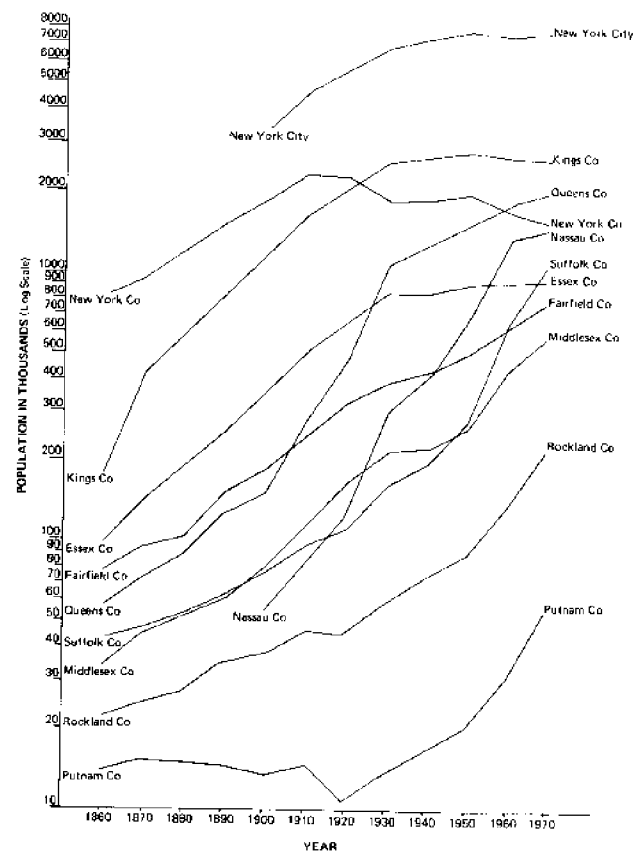
Source: From *Population History of New York City* by Ira Rosenwaike, p. 170 (Syracuse: Syracuse University Press 1972) ©1972 by Syracuse University Press

Figures 4 and 5 and Appendix C demonstrate a pattern of successive population growth in the New York region. Central areas experienced rapid early expansion, reached maturity (peak population), and most entered a period of decline (population loss). After reaching peak population, each area was challenged by a newer growth section. Manhattan (New York County), for example, was for a long time the largest subunit in the region, reaching its peak population in 1910. By 1930 Brooklyn (Kings County) was the largest borough but major growth had already shifted to Queens and Nassau counties where population boomed between 1920 and 1930 (growth rates over 130%).*

Counties outside New York City also demonstrated this pattern of succession. Population change in Essex County paralleled that of Kings County,

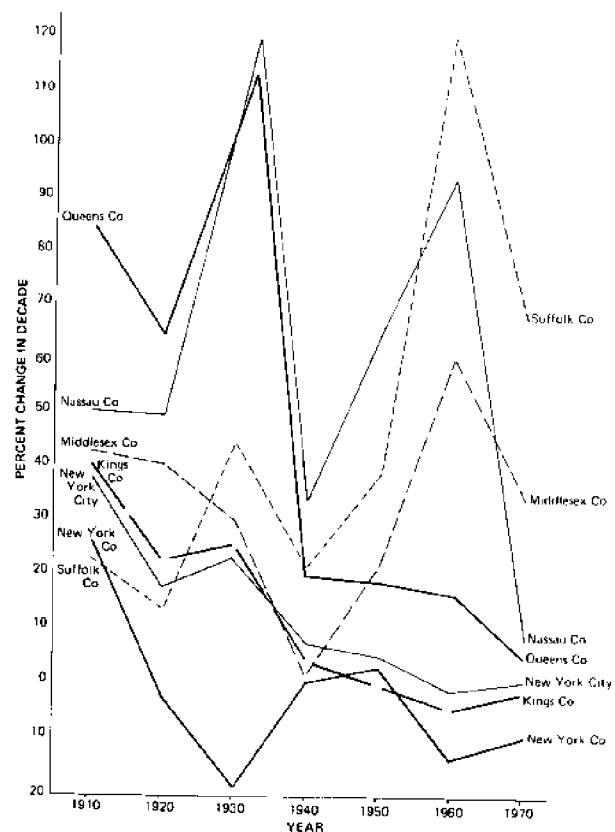
*Population figures are not adjusted for land area. Any conclusions should be considered indicative of the pattern of succession and not necessarily applicable to each individual county.

Figure 4. Population of selected counties, 1860-1970



Source: Appendix A

Figure 5. Percent change, 1900-1970, selected counties



Source: Appendix C

leveling off in 1930. Between 1930 and 1940 the depression slowed growth everywhere except in Manhattan, which gained slightly. Major growth then shifted from the central area to suburban counties. From 1940 to 1950 Nassau County's population boom resumed, Suffolk and Middlesex counties appeared to enter major growth phases, and Kings and Queens counties seemed to approach peak population.

From 1950 to 1960 the growth rate in Suffolk County (141.5%) passed that of Nassau County (93.3%) to become the fastest-growing area in the region. Middlesex County, along with Rockland and Putnam counties, gained, with a 63.8% increase over 1950. By 1970 the growth rate slowed for Suffolk, Nassau, and Middlesex counties. Suffolk County maintained the highest growth rate* (68.7%) and Middlesex County entered the decade with higher

*Figure 5 is for selected counties only. Certain smaller counties had even higher growth rates: Ocean, 92.6% and Putnam, 78.7%. Rates for each county are given in Appendix C.

percentage gains than Nassau County, which appeared to be approaching its peak population. Within New York City, Queens County apparently reached its peak of growth in this decade also. Its growth rate slowed to 5.3% for 1960-1970. The population in Brooklyn (Kings County) and Manhattan (New York County) declined after 1950. The rate of decline slowed between 1960 and 1970, indicating a possible leveling off.

Suburban growth changed significantly the character of the New York area. After 1960 more people lived outside the city than inside. Suburban bedroom communities developed into important economic centers. In 1972 Nassau and Suffolk counties were designated a Standard Metropolitan Statistical Area by the Census Bureau. This was the first official acknowledgment that a suburban area without an important central city of its own could be recognized statistically as an independent entity (Jacobs 1974). Although the suburbs are no longer entirely dependent on New York for their economic well-being, the region continues to be an interrelated unit.

Current Patterns and Trends

Population Distribution

The New York region is part of the Boston-to-Washington seaboard where density is four times greater than the national average. Although other sections of the nation have been developing rapidly, none has as many contiguous counties with densities equal to or greater than 250 people per square mile. Map 2 presents, in detail, the distribution of urban development along the Atlantic urban seaboard in 1965 and possible distribution by 2000.

According to the Census Bureau (1973), approximately 8% of the total US households are in the New York-Northeastern New Jersey SCA. As of 1 July 1972 New York was still the nation's most populous city, with 7,847,100 persons. The New York region, as defined in this study, had a 1970 population of 19,317,296, which was 9.5% of the nation's 203,212,877.

Population within the New York region is by no means evenly distributed (Figures 6 and 7). Densities are highest (7,000 or more people per square mile) in

the *core* area, comprised of New York City (excluding Richmond County) and those adjacent areas that experienced rapid urban growth at the turn of the century: Hudson County, western Essex County, and southern Westchester County. Sections of Union, Passaic, and Bergen counties also have densities of 7,000 or more.

The core is surrounded by two rings of population densities. The *inner ring* consists of well-developed suburban areas with densities between 2,000 and 6,999 people per square mile. Nassau County and western Suffolk County are the major sections of the inner ring. Also included are small sections of Westchester, Rockland, Bergen, Passaic, Union, Essex, and Middlesex counties plus all of Richmond County.

The *outer ring*, with the lowest densities in the region, consists mainly of either newly developing areas emphasizing low-density growth or areas with topographic obstructions to development. Notable exceptions are satellite cities like Bridgeport, New Haven (CT), and New Brunswick (NJ) with densities the same as the core area.

Map 2. Development of Atlantic urban seaboard

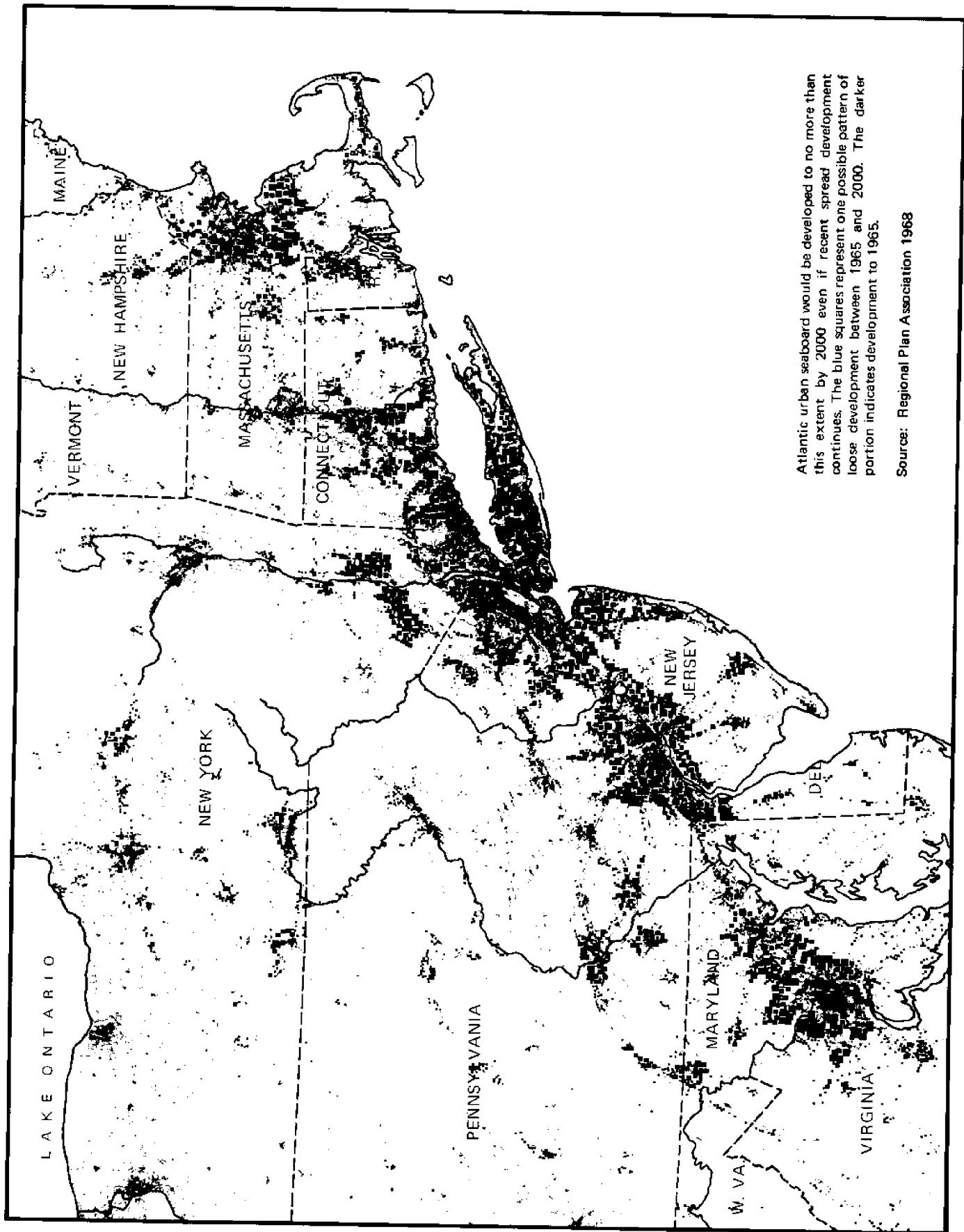
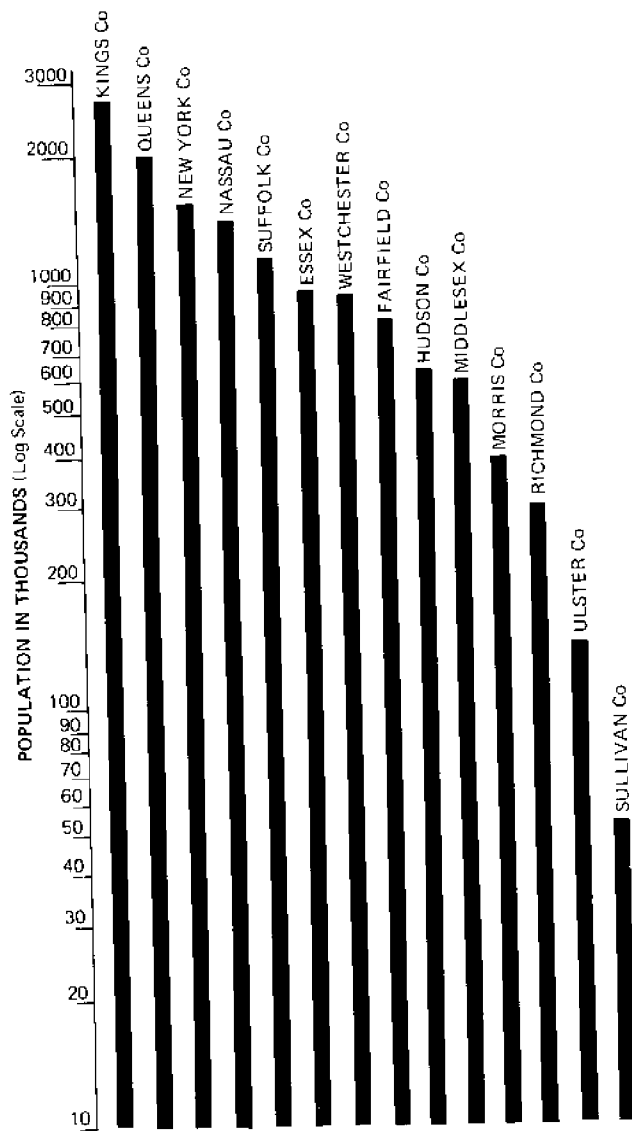


Figure 7. Population of selected counties, 1970



Source: Appendix A

High-density areas also exist where there are concentrated developments of multifamily units (Figure 8). The core is comprised largely of multifamily buildings. A combination of single family and multifamily units characterizes the inner and outer ring areas, excluding counties with limiting topographic conditions, such as parts of Bergen, Passaic, and Morris counties. Single family homes dominate Nassau and Suffolk counties, however. Future development of multifamily units in Dutchess, Orange, Rockland, and Middlesex counties would increase densities there.

Gains in dwelling-unit density, representing new housing construction, were made not only in suburban areas but also in most sections of the core, especially Bronx, Queens, and Kings counties (Figure 9). Suburban areas with important gains were Nassau,

Suffolk, Rockland, and Middlesex counties, and Greater Bridgeport Planning Region, Manhattan, Newark, and New Haven (city) had net housing losses.

Major population density increases during 1960 to 1970 occurred in Nassau and Suffolk counties (Figure 10). Suffolk County's population rose 68.7% mainly because of a net immigration of 336,737 (a 50.1% net migration rate). Population density also increased in Richmond, Queens, and Bronx counties.

Table 10, prepared from population estimates published by the Census Bureau for SMSAs and constituent counties, illustrates changes in population since the 1970 census. Six of the 28 counties discussed in this monograph were not included in SMSA classifications in 1972 and consequently do not appear in Table 10.

Population changes between 1970 and 1972 were consistent with trends established between 1960 and 1970. Within New York City, Bronx and Queens maintained nearly stable populations, with slight increases. Manhattan and Brooklyn continued to lose population and apparently have not yet established an equilibrium. Staten Island was the only borough showing a significant increase (4.3%) over the two years.

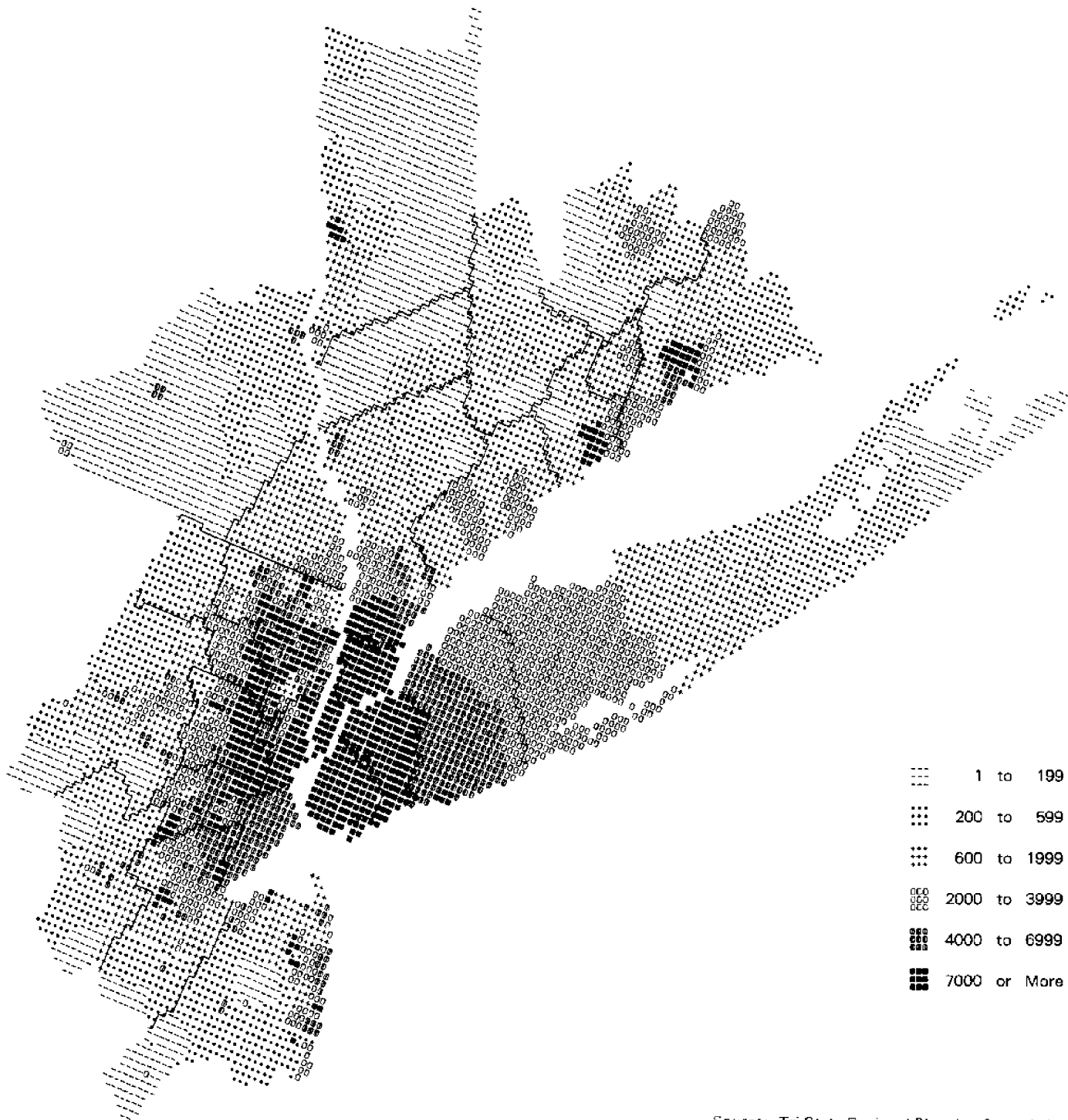
In the suburban areas, Nassau County lost population for the first time, strengthening the 1960-1970 indication that the county was well into its mature phase and may be stabilizing. Bergen was the only other suburban county to lose population. The inner ring counties of Union, Essex, and Hudson had only slight increases in population. Westchester and Passaic counties grew slower than expected. Major growth occurred in the outer ring where Suffolk County had the greatest population change in absolute numbers, an increase of 53,500. Putnam County had the highest percent increase, 10.3%. Most other outer suburban counties continued to grow at steady rates.

Population is normally measured by counting the number of persons occupying residential quarters in a particular area on the census day. However, vacation or recreation areas — for example, the counties of Cape May, Atlantic, and parts of Ocean and Suffolk — have important seasonal population fluctuations seldom reflected in the census day count. One attempt to measure this variation in Atlantic City showed that the peak summer population was more than double the year-round population.* The

*Estimates of summer population were made for the 1970 Criminal Justice Comprehensive Plan for Atlantic County, NJ.



DISTORTION IS CAUSED BY COMPUTER SYSTEM LIMITATION,
RESULTING IN APPROXIMATE SCALES OF 1 IN. = 19 MI.(VERTICAL)
AND 1 IN. = 24 MI.(HORIZONTAL).

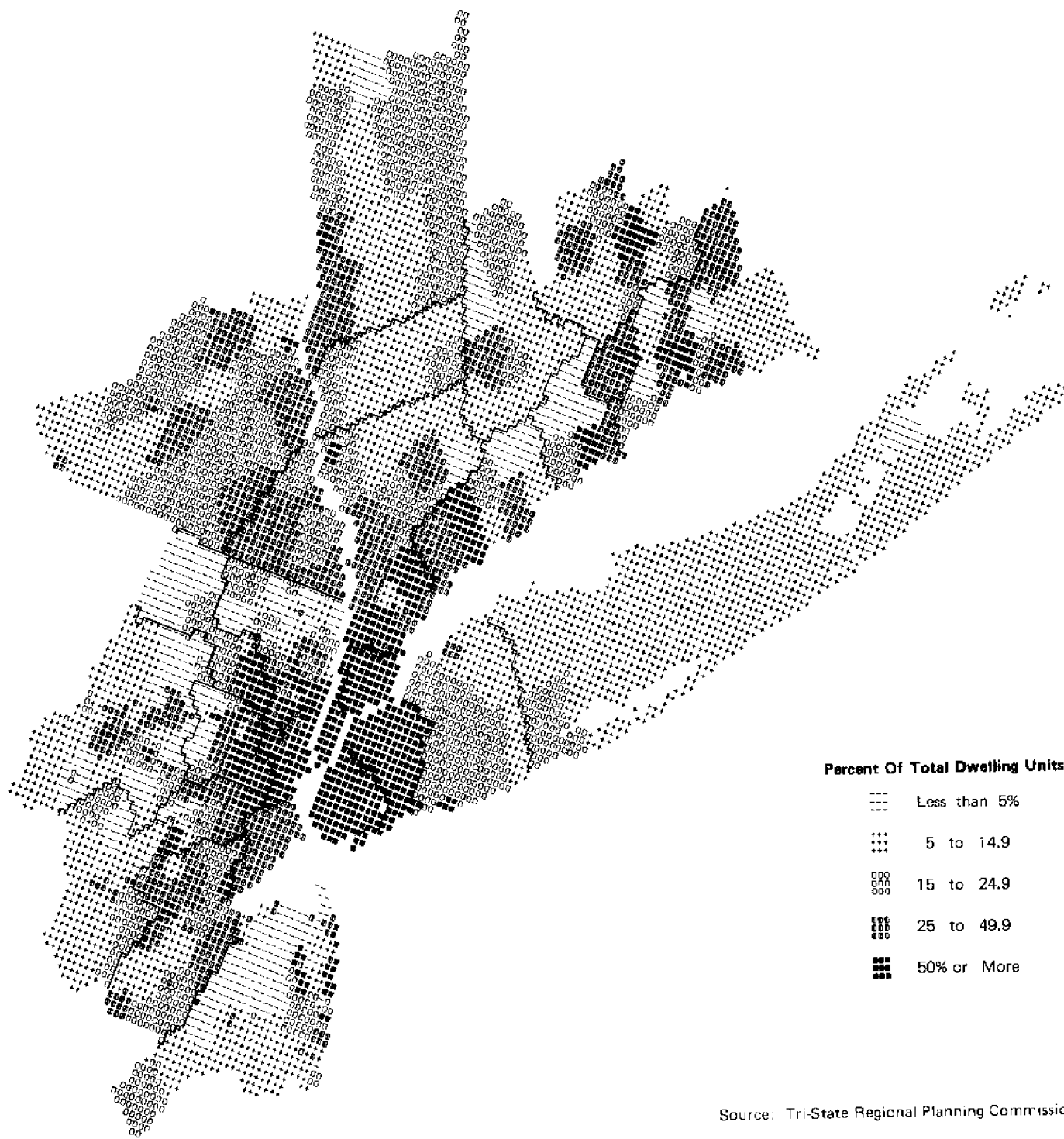


Source: Tri-State Regional Planning Commission

Figure 6. 1970 population



DISTORTION IS CAUSED BY COMPUTER SYSTEM LIMITATION,
RESULTING IN APPROXIMATE SCALES OF 1 IN. = 19 MI. (VERTICAL)
AND 1 IN. = 24 MI. (HORIZONTAL).

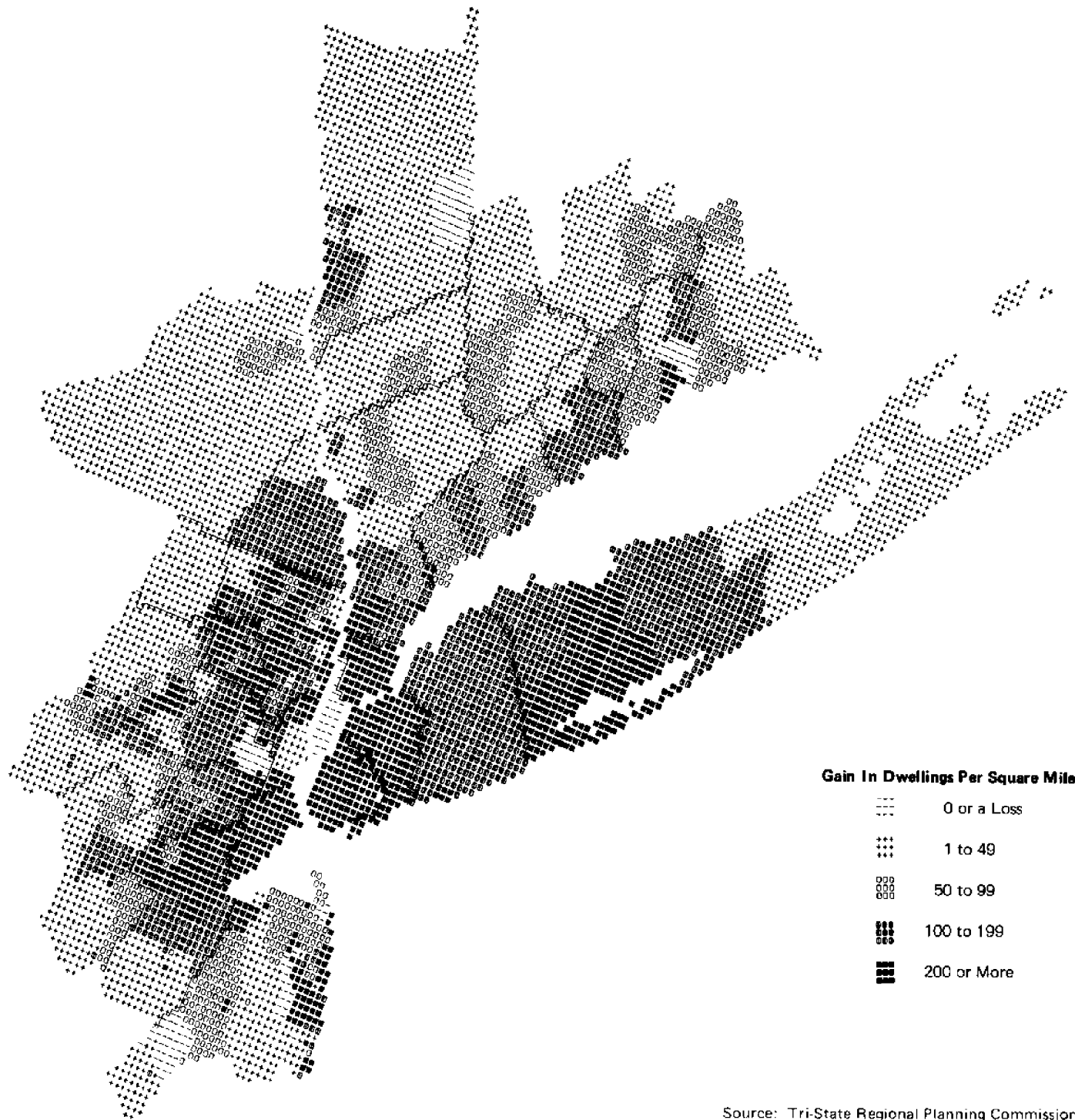


Source: Tri-State Regional Planning Commission

Figure 8. Apartments and two-family houses, 1970



DISTRIBUTION OF GAIN BY COMPUTER SYSTEM SIMULATION
RESULTING IN APPROXIMATE SCALES OF 1 IN. = 10 MILES VERTICALLY
AND 1 IN. = 24 MILES HORIZONTALLY

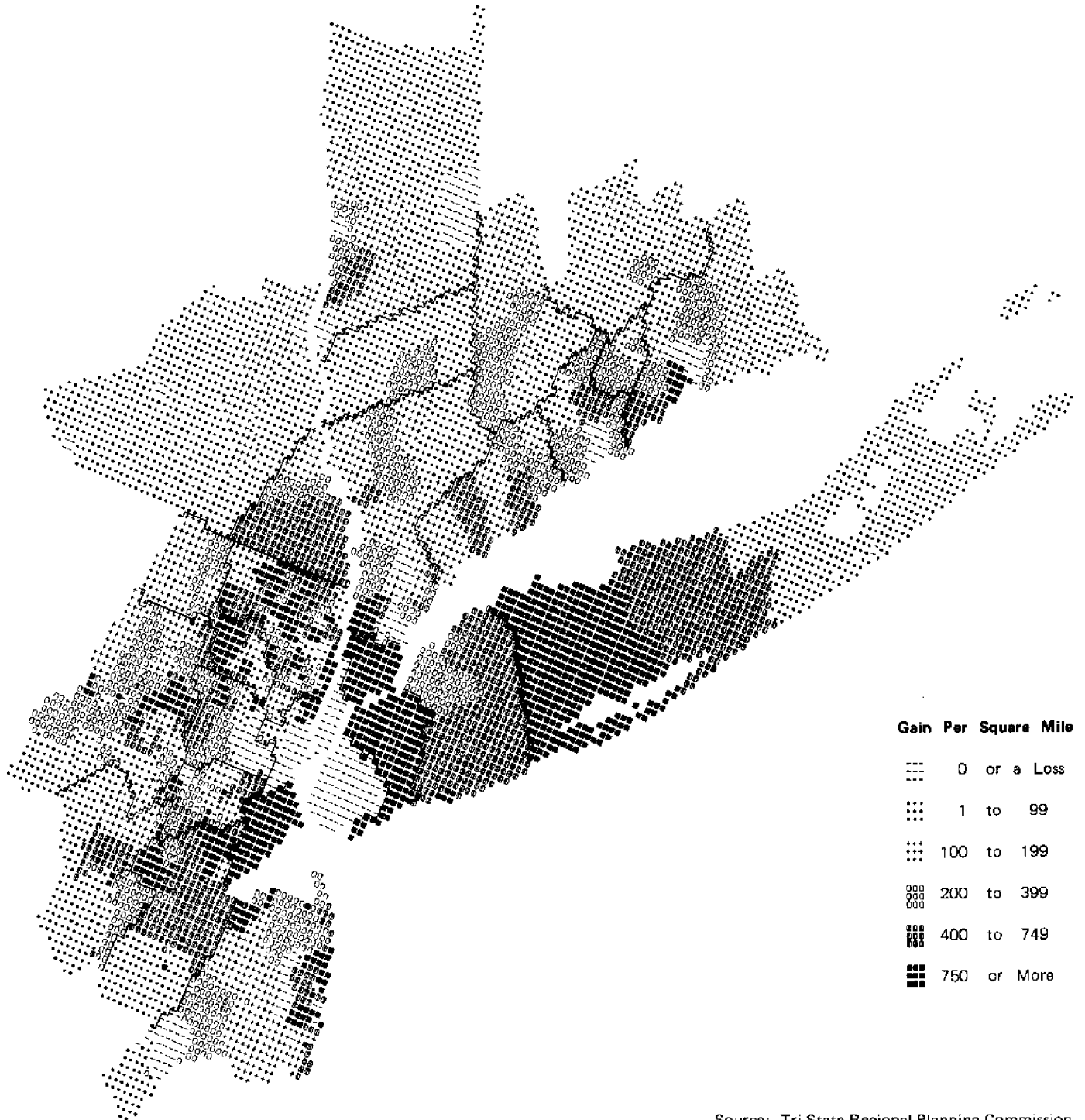


Source: Tri-State Regional Planning Commission

Figure 9. Housing change, 1960-1970



DISTORTION IS CAUSED BY COMPUTER SYSTEM LIMITATION,
RESULTING IN APPROXIMATE SCALES OF 1 IN. = 19 MI. (VERTICAL)
AND 1 IN. = 24 MI. (HORIZONTAL).

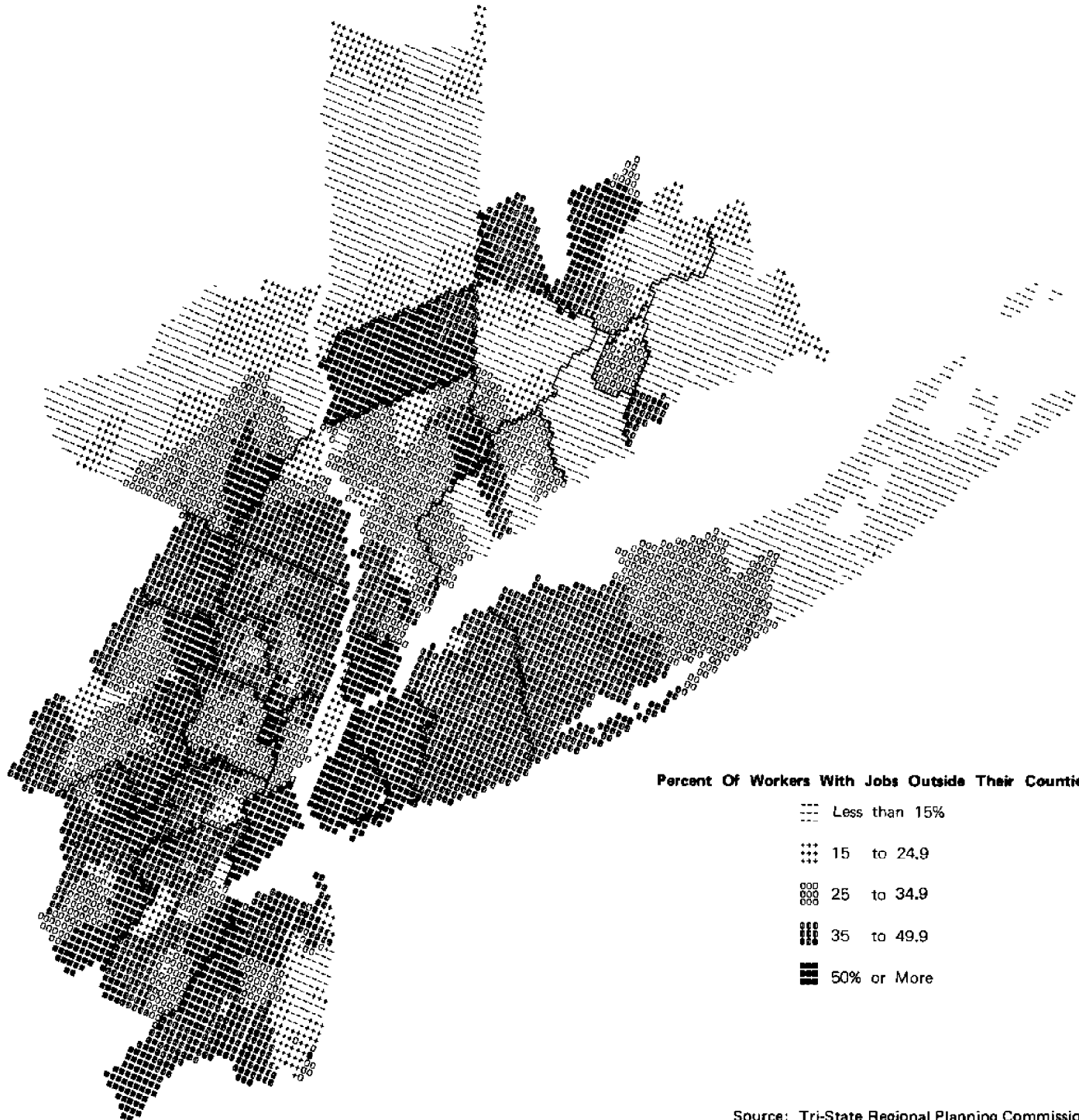


Source: Tri-State Regional Planning Commission

Figure 10. Population change, 1960-1970



DISTORTION IS CAUSED BY COMPUTER SYSTEM LIMITATION,
RESULTING IN APPROXIMATE SCALES OF 1 IN. = 19 MI.(VERTICAL)
AND 1 IN. = 24 MI.(HORIZONTAL).



Source: Tri-State Regional Planning Commission

Figure 11. Who works far from home

lack of complete data on seasonal populations for these counties indicates an important information gap.

Daily density fluctuations resulting from people working outside their resident counties are a difficult population change to measure accurately. It requires a net count of persons who work within a county but live elsewhere. Place-of-work data are available but not for all areas within the New York region. Consequently, the location of certain segments of the population during working hours is unknown.

Most sections have 35% or more of their residents working outside their boundaries, with the exception of the low-density northern fringe, some satellite cities, and the concentrated employment sites in Essex County, Hudson County, and Manhattan (Figure 11). Several areas, including Putnam County and all New York City boroughs except

Manhattan, have 50% or more of their labor force working in other counties. The population in these areas does not necessarily decrease during working hours; workers entering a county may offset those leaving it. The considerable daily movement implied by these figures reflects the high degree of economic interdependence in the region. (The transportation implications of this work pattern are discussed in another monograph in this series: Brail and Hughes, in press.)

Detailed place-of-work data are presented in Tables 11A, 11B, and 11C; data are limited to the New York SMSA. Table 11A shows that the homes of the work force are fairly well distributed throughout the nine counties but the jobs are concentrated in Manhattan (1.6 million of the total 4 million jobs). Brooklyn has nearly two-thirds fewer jobs than Manhattan.

Table 10. Population estimates, 1971 and 1972

	1 July 1972 (provisional)	1 July 1971	Change, 1970-1972	
			Number	Percent
NEW YORK				
New York City	7,847,100	7,886,500	-48,500	- 0.6
Bronx	1,478,800	1,478,300	7,100	0.5
Kings (Brooklyn)	2,567,100	2,602,400	-34,900	- 1.3
New York Co (Manhattan)	1,495,000	1,505,700	-44,200	- 2.9
Queens	1,998,000	1,995,600	10,800	0.5
Richmond (Staten Island)	308,200	304,600	12,800	4.3
Dutchess	228,500	227,900	6,200	2.8
Nassau	1,416,800	1,428,100	-12,100	- 0.8
Putnam	62,600	58,200	5,900	10.3
Rockland	239,900	236,500	10,000	4.3
Suffolk	1,180,500	1,157,000	53,500	4.7
Westchester	897,400	893,700	3,000	0.3
NEW JERSEY				
Atlantic	186,600	180,300	11,500	6.6
Bergen	896,800	899,000	- 300	Z
Essex	938,800	940,700	6,300	0.7
Hudson	610,700	604,900	2,800	0.5
Middlesex	595,600	595,000	11,800	2.0
Morris	393,700	391,500	10,200	2.7
Passaic	464,300	465,000	3,500	0.8
Somerset	201,900	201,800	3,500	1.8
Union	547,600	547,400	4,500	0.8
CONNECTICUT				
Fairfield	793,900	794,100	1,100	0.1
New Haven	760,800	758,000	15,900	2.1

Z—less than 0.05%

Source: US Bureau of the Census Series P 25(505) 1973

Table 11A. Place of work for counties in New York SMSA, 1970

Place of Work	Place of Residence										Total SMSA
	New York Co	Kings	Queens	Bronx	Richmond	Nassau	Westchester	Suffolk	Rockland		
Total workers reporting place of work	596,756	834,367	786,040	450,418	100,805	521,784	334,209	359,646	78,415		4,062,440
New York Co (Manhattan)	493,127	323,285	330,226	217,031	33,237	91,898	63,116	27,095	11,373		1,590,388
Kings (Brooklyn)	17,787	397,731	69,819	11,937	8,343	26,307	2,661	8,706	725		544,016
Queens	15,944	43,316	278,219	14,575	1,310	47,337	3,405	18,677	792		423,575
Bronx	19,689	7,928	16,096	156,989	459	5,223	16,516	2,014	3,200		228,114
Richmond (Staten Island)	550	2,772	1,037	339	44,616	325	98	100	48		49,885
New York City (county not reported)	10,526	14,563	8,120	8,657	1,381	2,592	2,281	908	318		49,346
Nassau	3,330	9,599	40,349	2,380	253	295,339	1,744	59,989	261		413,244
Westchester	4,901	2,402	5,586	17,867	189	3,044	222,644	1,944	5,445		264,022
Suffolk	1,049	2,243	5,983	906	195	22,076	683	229,368	97		262,600
Rockland	605	324	315	579	32	82	1,389	55	46,958		50,339
Other (outside SMSA)	29,248	30,204	30,290	19,158	10,790	27,561	19,672	10,790	9,198		186,911
Place of work not reported	89,420	104,286	73,003	61,851	9,224	37,147	32,102	9,224	4,200		420,457

Source: US Bureau of the Census PHC(1) 145. 1973

Table 11B. Percent distribution of place of work, New York SMSA, 1970

Place of Work	Place of Residence										Total SMSA
	New York Co	Kings	Queens	Bronx	Richmond	Nassau	Westchester	Suffolk	Rockland		
Total workers reporting place of work	596,756	834,367	786,040	450,418	100,805	521,784	334,209	359,646	78,415	4,062,440	
New York Co (Manhattan)	82.6%	38.7%	42.0%	48.2%	33.0%	17.6%	18.9%	7.5%	14.5%	39.1%	
Kings (Brooklyn)	3.0	47.7	8.9	2.7	8.3	5.0	0.8	2.4	0.9	13.4	
Queens	2.7	5.2	35.4	3.2	1.3	9.1	1.0	5.2	1.0	10.4	
Bronx	3.3	1.0	2.0	34.9	0.5	1.0	4.9	0.6	4.1	5.6	
Richmond (Staten Island)	0.1	0.3	0.1	0.1	44.3	0.1	Z	Z	0.1	1.2	
New York City (county not reported)	1.8	1.7	1.0	1.9	1.4	0.5	0.7	0.3	0.4	1.2	
Nassau	0.6	1.2	5.1	0.5	0.3	56.6	0.5	16.7	0.3	10.2	
Westchester	0.8	0.3	0.7	4.0	0.2	0.6	66.6	0.5	6.9	6.5	
Suffolk	0.2	0.3	0.8	0.2	0.2	4.2	0.2	63.8	0.1	6.5	
Rockland	0.1	Z	Z	0.1	Z	Z	0.4	Z	59.9	1.2	
Other (outside SMSA)	4.9	3.6	3.9	4.3	10.7	5.3	5.9	3.0	11.7	4.6	

Z—less than 0.05%

Source: US Bureau of the Census PHC(1) 145, 1973

Table 11C. Percent distribution of residences of persons working in county, New York SMSA, 1970

Place of Work	Place of Residence										Total Workers in SMSA Reporting Work in County
	New York Co	Kings	Queens	Bronx	Richmond	Nassau	Westchester	Suffolk	Rockland		
Total workers from SMSA	14.7%	20.5%	19.4%	11.1%	2.5%	12.8%	8.2%	8.8%	1.9%		4,062,440
New York Co (Manhattan)	31.0	20.3	20.8	13.6	2.1	5.8	4.0	1.7	0.7		1,590,388
Kings (Brooklyn)	3.3	73.1	12.8	2.2	1.5	4.8	0.5	1.6	0.1		544,016
Queens	3.8	10.2	65.7	3.4	0.3	11.2	0.8	4.4	0.2		423,575
Bronx	8.6	3.5	7.1	68.8	0.2	2.3	7.2	0.9	1.4		228,114
Richmond (Staten Island)	1.1	5.6	2.1	0.7	89.4	0.7	0.2	0.2	0.1		49,885
New York City (county not reported)	21.3	29.5	16.5	17.5	2.8	5.3	4.6	1.8	0.6		49,346
Nassau	0.8	2.3	9.8	0.6	0.1	71.5	0.4	14.5	0.1		413,244
Westchester	1.9	0.9	2.1	6.8	0.1	1.2	84.3	0.7	2.1		264,022
Suffolk	0.4	0.9	2.3	0.3	0.1	8.4	0.3	87.3	Z		262,600
Rockland	1.2	0.6	0.6	1.2	0.1	0.2	2.8	0.1	93.3		50,339
Other (outside SMSA)	15.6	16.2	16.2	10.2	5.8	14.7	10.5	5.8	4.9		186,911

Z—less than 0.05%

The percentage distribution of job locations for residents of each county within the SMSA is shown in Table 11B. Most Manhattan (New York County) residents (82.6%) work within that borough; few work in Kings, Queens, or Bronx counties and only 6.6% work outside New York City. In the other four boroughs most work places are divided between the borough of residence and Manhattan. Bronx and Queens have fewer residents working in the county than in Manhattan. In all four of these boroughs over 50% of the labor force work outside their borough of residence, but less than 25% of the employed residents work outside Manhattan and their borough of residence. In boroughs adjacent to suburban counties, a higher percentage of people work in the suburbs. Of the employed residents of Queens County, 10.5% work outside New York City, particularly in Nassau County (5.1%). A sizable proportion of Richmond County's labor force works outside the SMSA, presumably in New Jersey (category "other" in the table).

Each of the four suburban counties keeps over 56% of its labor force. Manhattan attracts approximately 15% to 20% of the workers from Nassau, Westchester, and Rockland counties, and 7.5% from the more distant Suffolk County; Suffolk has more residents working in adjacent Nassau County (16.7%) than in Manhattan. Similarly, 9.1% of Nassau County's residents work in adjacent Queens County. Rockland County, with easier access to suburban areas outside the New York SMSA, has 11.7% of its resident labor force employed in those counties.

Table 11C illustrates that, in general, people working in Manhattan do not live beyond Kings, Queens, and Bronx counties. With the exception of Manhattan, the majority of people working in a county also live there. Commuters come mainly from the county or counties nearest and most accessible. Where jobs are limited and the county is not easily accessible from other SMSA areas, almost all jobs are held by residents of that county — for example, 89.4% in Richmond County and 93.3% in Rockland County.

The figures for Richmond and Rockland counties should be interpreted cautiously. Both counties are easily accessible from New Jersey counties not included in the New York SMSA, and it is expected that the counties would attract workers from New Jersey. The same caution is applicable to Manhattan.

The pattern established in Tables 11A, 11B, and 11C is that people tend to reside either in the county where they work or in an adjacent county. Even those who work in Manhattan, where long-distance

commuting might be expected, tend to reside in an adjacent county.

Internal Migration

Intraregional migration has played an important role in population distribution since 1920. Table 12 presents the 1965 residence of persons living in the New York SMSA in 1970. Between 1965 and 1970, an average of 34.6% of the people moved; notable deviations from the average are Nassau (27.4%) and Rockland (42.2%) counties. Of the 3.7 million persons who changed residence in the five-year period, 2 million stayed within New York City. Only 342,941 residents of the four suburban counties — Nassau, Rockland, Suffolk, and Westchester — reported moves from the city.

Within the city, about 80% of the moves were made between any two of the five boroughs. However, 63.3% of Manhattan's newly moved residents came from the five boroughs; 17.9% came from outside the New York SMSA — from suburban counties not included in the New York SMSA or from outside the region entirely. Over 10% of the new residents of four of the boroughs moved from abroad between 1965 and 1970.

About half of the suburban county residents who moved remained within the New York SMSA, excluding New York City. As with the boroughs, the majority were short-distance moves, possibly within the same county and probably between adjacent counties. A high proportion of the new residents of Nassau and Rockland counties came from outside the New York SMSA.

Economic Characteristics

Within the scope of this paper, a brief description of median family income and occupational distribution is more appropriate than a thorough analysis of social and economic characteristics.

The 1969 median family income for the area (\$11,162) was well above the national median (\$9,590) (Table 13). The median family income decreased toward the core: the median for New York City (\$9,673) was \$1,000 to \$2,000 less than for the suburbs; Bronx's \$8,306 was less than Nassau County's \$14,631 (Figure 12). Some suburban fringe areas (including New Haven and Bridgeport) also had median incomes below that for the region.

Median family income for SMSA and SCA combined was higher in 1959 and in 1969 than that

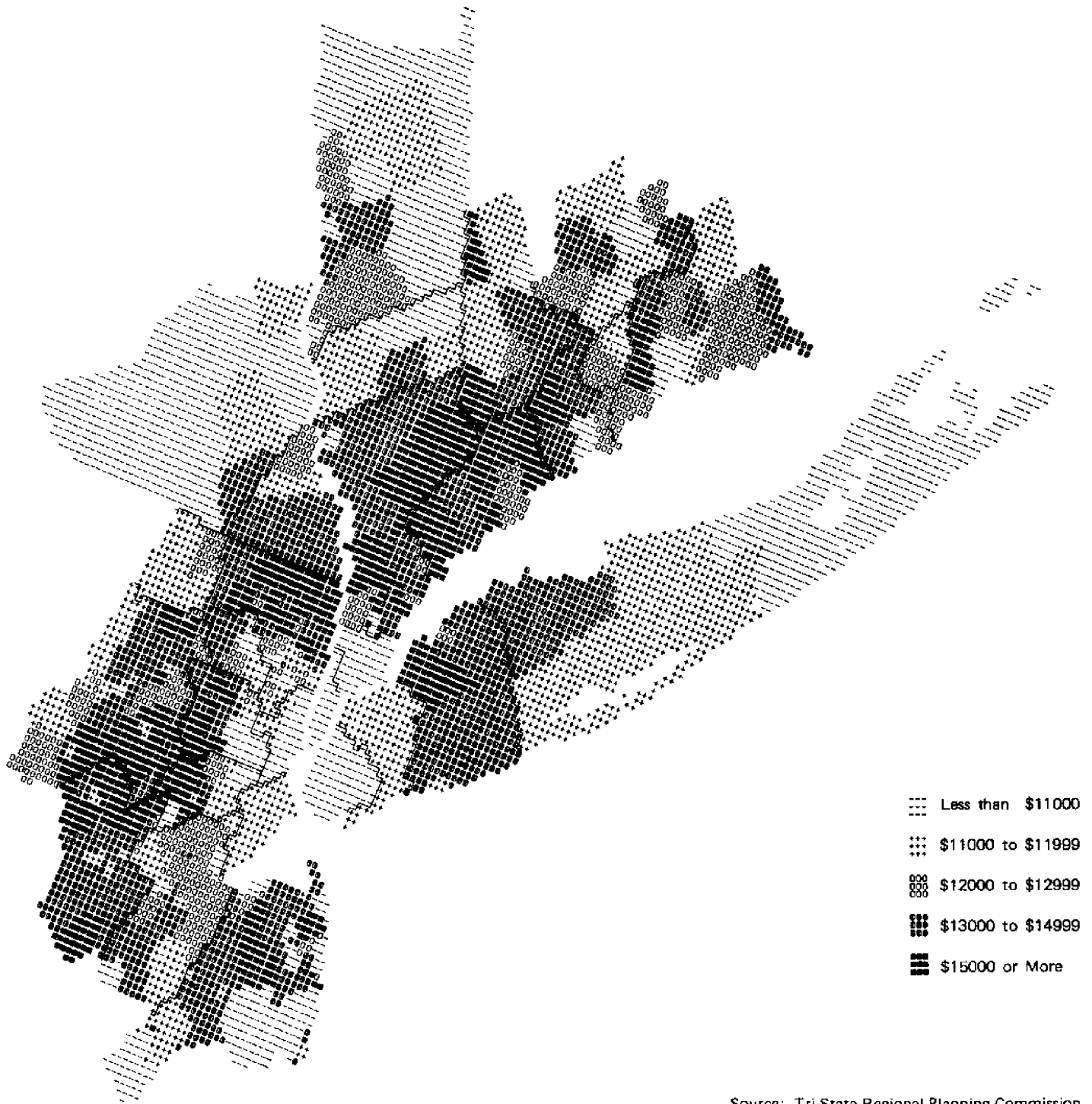
Table 12. Residence in 1965 of persons living in New York SMSA, 1970

	Residence in 1970										Total SMSA	
	New York Co	Kings	Queens	Bronx	Richmond	Nassau	Westchester	Suffolk	Rockland			
Residence in 1965												
*Persons, 5 years old and over, 1970	1,448,267	2,376,264	1,847,993	1,338,194	268,346	1,330,088	827,793	1,013,150	208,345			10,658,440
*Same house as in 1970	811,004	1,418,090	1,145,973	761,305	153,623	928,282	492,762	583,170	113,456			6,407,665
*Different house	528,806	821,428	625,157	488,073	99,520	364,185	295,884	377,329	87,856			3,688,238
In New York City	334,562	665,769	481,540	401,929	85,477	141,302	59,200	112,364	30,075			2,312,218
In other part of this SMSA	19,745	10,477	26,944	7,906	1,765	173,794	169,963	211,254	36,448			658,296
Outside this SMSA	94,771	45,177	42,670	24,770	8,782	36,193	48,606	44,030	17,857			362,856
Abroad	79,728	100,005	74,003	53,468	3,496	12,896	18,115	9,681	3,476			354,868
Percent Distribution												
*Same house as in 1970	56.0	59.7	62.0	56.9	57.2	69.8	57.4	57.6	54.5			60.1
*Different house	36.5	34.6	33.8	36.5	37.1	27.4	35.7	37.2	42.2			34.6
In New York City	63.3	81.1	77.0	82.4	85.9	38.8	20.0	29.8	34.2			62.7
In other part of this SMSA	3.7	1.3	4.3	1.6	1.8	47.7	57.4	56.0	41.5			17.8
Outside this SMSA	17.9	5.5	6.8	5.1	8.8	9.9	16.4	11.7	20.3			9.8
Abroad	15.1	12.2	11.8	11.0	3.5	3.5	6.1	2.6	4.0			9.6

*Total persons includes persons not reporting residence in 1965, not shown in table



DISTORTION IS CAUSED BY COMPUTER SYSTEM LIMITATION,
RESULTING IN APPROXIMATE SCALES OF 1 IN. = 19 MI. (VERTICAL),
AND 1 IN. = 24 MI. (HORIZONTAL).



Source: Tri-State Regional Planning Commission

Figure 12. 1970 median family income

Table 13. Median family income, 1959 and 1969
(dollar values in those years)

	1959	1969	Increase
United States	\$5,657	\$ 9,590	69.5%
New York State	6,371	10,617	66.6
New York—Northeastern New Jersey SCA	6,696	11,162	66.7
New York SMSA	6,548	10,862	65.8
New York City	6,091	9,673	58.8

Sources: US Bureau of the Census, *Statistical Abstract of the United States: 1972; County and City Data Book, 1972; Census of Population: 1960*, vol. 2, pt. 34.

for the state and the nation. However, income growth in the city and the region was less than that in the state and the nation. The national median family income increased by 69.5% from 1959 to 1969, the region's increased 65.8%, and the city's increased 58.8%.

Table 14 shows the occupational distribution of the SCA's 6.5 million employed labor force. Professionals, technicians, and managers and administrators make up 25.7% of the employed labor force. When sales and clerical workers (31.7%) are added, the majority (57.4%) of the area's employed are white-collar workers.

Table 14. Occupations in the New York—Northeastern New Jersey SCA, 1970

Total employed persons 16 years old and over	6,522,650
Professional, technical and kindred workers	1,089,077
Managers and administrators, except farm	589,077
Sales workers	512,778
Clerical and kindred workers	1,555,468
Craftsmen, foremen, and kindred workers	755,084
Operatives, except transport	748,735
Transport equipment operators	242,330
Laborers, except farm	226,103
Farmers and farm managers	4,797
Farm laborers and farm foremen	6,600
Service workers, except private household	717,905
Private household workers	75,976

Source: US Bureau of the Census, *City and County Data Book, 1972*

Population Projections

The most complex demographic question is: What will future changes be? Population projections address this question but there are no definitive answers. For historical perspective, we discuss early New York area projections before more recent ones.

The earliest population projections were based on graphic extrapolation. Area population totals for several time periods were graphically plotted with a connecting line that was extended freehand to a future date. In a 1900 report expressing New York City's need to develop new water supplies, John R. Freeman used graphic techniques to project the city's population to 1940. In 1922 Nelson P. Lewis plotted a semilogarithmic curve based on New York's past population and extended it to 1965. Freeman's 1940 projection was only 2.6% high but Lewis's 1960 projection was 35.2% high (Table 15). The Regional Survey of New York and Its Environs (1929) used the Lewis projection and three others, each forecasting the regional population from 1930 to 2000 using sophisticated mathematical approaches. Goodrich fitted a modified exponential curve to the data, assuming a maximum regional population of 25 million. Pearl and Reed, in an innovative approach, developed skewed logistic curves, assuming an upper asymptote of 34.9 million for the region and 15.4 million for the city. By 1970 their projection was 50.6% higher than the population recorded in the census. Wilson and Luyten used Pearl and Reed's method with slight curve-fitting modifications and an upper asymptote of 16.7 million. While Pearl and Reed's regional projection was 25% higher than the 1950 census, Wilson and Luyten's was only 3% lower (Carrothers 1960). However, by 1970 Wilson and Luyten underprojected by 17%; Pearl and Reed continued to be 25% high.

Dissatisfied with the simplistic assumption that population growth would follow an extrapolated curve, demographers developed techniques based on components of population change (births, deaths, migration) and the influences of economic and physical conditions. Hoover (1960) used several of these new techniques for the 1956 New York Metropolitan Region Study but his regional projection for 1965 of 18 million was high; the 1970 census reported only 17.9 million.

Current projection efforts are cautious; disclaimers regarding unforeseen developments are now customary. Also, many demographers are presenting a range of projections based on various assumptions about the future. A projected range is preferable to a

Table 15. Population projections for NYC and region made from 1900, 1925, and 1965

Author	Projections for NYC (in thousands)												
	1910	1920	1930	1940	1950	1960	1965	1970	1975	1980	1985	1990	2000
Freeman (1900) ^a	4,460	5,525	6,649	7,652									
Lewis (1922)		6,622	7,920	9,068	10,520	11,278							
Pearl and Reed (1923)		7,032	8,372	9,672	10,861	11,376	11,892	12,745	13,424	13,948			
Hoover (1960)						7,903	NA	7,761	7,685				
Population reported by census	4,767	5,620	6,930	7,455	7,892	7,782	7,895						
	Projections for NY Region (in thousands)												
Author	1930	1940	1950	1960	1965	1970	1975	1980	1985	1990	2000		
Lewis (1922)	10,870	13,253	15,923	19,295	21,067	22,840	NA	26,788	NA	30,800	34,698		
Pearl and Reed (1923)	11,460	14,070	16,840	19,650	21,000	22,340	NA	24,810	NA	26,960	28,760		
Wilson and Luyten (1925)	10,370	11,840	13,110	14,130	14,510	14,890	NA	15,460	NA	15,870	16,160		
Goodrich (1925) ^b	9,670	11,000	12,300	13,820	14,630	15,430	NA	16,850	NA	18,460	19,780		
Hoover (1960) ^c					18,033	NA	20,810	NA	23,712	NA	NA	NA	NA
Population reported by census^c	11,643	12,518	13,951	16,139	16,139	17,935							

^aDate of publication appears in parentheses^bDate is approximate^cRegional boundary is slightly larger than the one used by projections made in the 1920s. Whereas the earlier projections were made for a boundary that included only parts of Fairfield, Monmouth, Orange, and Dutchess counties, the Hoover projection and the reported population include the total area of these counties. In addition, 14 other counties and New York City are included in the region, as defined for all categories in this table. For more detailed information regarding definitions of the region, see Vernon 1960, and Adams et al 1929.

Sources: Adams et al 1929; Hoover 1960

single projection if the range is not so wide as to be meaningless. Single and small area projections are fallible, especially beyond 10 years. The accepted rule is the larger the area, the more reliable the projection.

Table 16 presents recent Census Bureau projections* for the nation, the Northeast region, the Middle Atlantic division, New York State, and New Jersey. Different *cohort fertility rates* (expected number of births per woman in a lifetime, by age) are assumed for Series C and E: 2.78 and 2.11 children

per woman, respectively. Two internal migration assumptions (I and III) are used for each fertility assumption. "Series I assumes the continuation of 1960 to 1970 gross migration trends to 1990 whereas Series III assumes no net migration among states for the projection period" (US Bureau of the Census 1972).

The total US population is expected to increase between 11.7% and 14.8% from 1970 to 1980. The increase from 1980 to 1990 would be between 10.4% and 15.4%, depending on the fertility rate. The increase in the Northeast region would be lower than that in other regions (North Central, South, and

*The Census Bureau considers these provisional and anticipates modifying them.

Table 16. Population projections for nation, region, division, and state (in thousands)

	1970 Census	1975	1980	1985	1990
SERIES I-C					
United States	203,166	216,553	232,966	251,271	268,883
Northeast region ^a	48,994	51,558	54,833	58,555	62,144
Middle Atlantic division ^b	37,153	38,928	41,233	43,869	46,409
New York	18,191	19,100	20,275	21,611	22,897
New Jersey	7,168	7,783	8,514	9,338	10,152
SERIES III-C					
United States		216,553	232,966	251,271	268,883
Northeast region ^a		52,058	55,757	59,860	63,794
Middle Atlantic division ^b		39,439	42,181	45,204	48,093
New York		19,571	21,185	22,966	24,702
New Jersey		7,612	8,144	8,727	9,281
SERIES I-E					
United States		214,883	226,934	239,329	250,630
Northeast region ^a		51,187	53,499	55,927	58,152
Middle Atlantic division ^b		38,653	40,246	41,930	43,470
New York		18,964	19,789	20,660	21,461
New Jersey		7,725	8,300	8,906	9,481
SERIES III-E					
United States		214,883	226,934	239,329	250,630
Northeast region ^a		51,686	54,409	57,195	59,731
Middle Atlantic division ^b		39,162	41,178	43,223	45,075
New York		19,431	20,675	21,951	23,147
New Jersey		7,558	7,949	8,342	8,694

^aNine states: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania

^bThree states: New York, New Jersey, and Pennsylvania

West). Within the Northeast region, the Middle Atlantic division would grow slower than the New England division. New York and New Jersey have projected percent increases greater than the Middle Atlantic division but about the same as the national average; they should maintain a stable percentage of the nation's population.

Although projections are available for New York City and the metropolitan area, none provide a projected range of population. Therefore, Table 17 is only one of several possible scenarios for future population growth. The fact that we have included

local forecasts does not make them valid nor their projection methods superior; nor did we examine the likelihood of the assumptions particular to a forecast, although all are derived from established techniques.

Table 17 indicates the region would grow to approximately 25.8 million people by 2000; this is higher than the "medium" regional projection of the Regional Plan Association (1975). The projections in Table 17 indicate that populations in 11 counties would exceed one million by 2000; there are only 6 such counties now. Suffolk County, forecast as the second largest in the region, would have a population

Table 17. Population projection for counties in the New York region, 1970-2000

	1970 Census	1975	1980	1985	1990	1995	2000	% Increase 1970-2000
NEW YORK								
New York City	7,894,862	7,929,976	7,917,130	7,902,320	7,861,133	7,803,877	7,794,532	- 1.3
Bronx	1,471,701	1,471,069	1,458,337	1,441,001	1,423,668	1,406,817	1,400,710	- 4.8
Kings	2,602,012	2,591,335	2,544,746	2,504,425	2,458,886	2,412,288	2,399,868	- 7.8
New York Co	1,539,233	1,500,274	1,456,674	1,443,572	1,422,044	1,404,497	1,408,208	- 8.5
Queens	1,986,473	2,022,963	2,069,451	2,086,583	2,095,272	2,092,650	2,078,911	4.7
Richmond	295,443	344,335	387,922	426,739	461,263	487,625	506,835	71.9
Dutchess	222,295	246,412	282,749	344,783	404,071	461,468	515,634	132.0
Nassau	1,428,080	1,468,369	1,528,232	1,585,784	1,649,574	1,675,663	1,690,997	18.4
Orange	221,657	246,119	290,668	358,256	427,167	505,409	572,819	158.4
Putnam	56,696	71,237	87,153	106,223	127,006	145,021	161,040	184.2
Rockland	229,903	273,158	316,120	353,133	387,550	415,139	438,615	90.8
Suffolk	1,124,950	1,276,257	1,515,198	1,753,228	1,978,297	2,197,670	2,379,011	115.5
Sullivan	52,580	57,556	63,045	69,545	76,094	83,432	91,365	73.8
Ulster	141,241	153,767	170,453	191,746	211,620	234,485	256,695	88.1
Westchester	894,104	938,104	989,304	1,041,304	1,093,965	1,143,272	1,193,089	33.4
NEW JERSEY								
Atlantic	175,043	217,318	239,316	262,607	286,966	312,166	337,971	93.1
Bergen	897,148	967,342	1,032,031	1,096,730	1,160,812	1,223,702	1,284,898	43.2
Cape May	59,554	76,807	89,504	103,805	119,603	136,729	154,969	160.2
Essex	932,229	907,997	911,332	917,361	935,381	934,822	945,208	1.4
Hudson	609,266	509,432	487,588	469,617	454,729	442,322	431,927	- 29.1
Middlesex	583,813	657,227	742,890	832,459	924,755	1,018,566	1,112,722	90.6
Monmouth	461,849	509,964	576,807	646,499	718,183	791,029	864,233	87.1
Morris	383,454	468,092	554,985	649,900	751,774	859,334	971,154	153.3
Ocean	208,470	216,729	265,025	319,163	378,686	442,961	511,229	145.2
Passaic	460,782	473,434	503,711	537,254	573,576	612,165	652,502	41.6
Somerset	198,372	246,928	290,814	338,949	390,777	445,626	502,764	153.4
Union	543,116	596,693	627,201	656,963	685,708	713,229	739,363	36.1
CONNECTICUT								
Fairfield	792,814	NA	893,900	NA	990,500	NA	1,068,500	34.8
New Haven	744,948	NA	839,400	NA	928,100	NA	1,107,000	48.6

Sources: NYS Office of Planning Services 1972; Newling 1968; Bureau of Economic Analysis, US Department of Commerce, personal communication 12 February 1974

only 20,000 less than Kings County's 2,399,869 — an increase of 115.5%. Population in Westchester, Bergen, Middlesex, Fairfield, and New Haven counties would be over one million.

Within New York City, Bronx, Kings, and New York counties would lose population while Queens and Richmond would gain, the latter substantially. Hudson is the only county outside New York City expected to lose population by 2000.

Several suburban counties — Dutchess, Orange, Putnam, Suffolk, Cape May, Morris, Ocean, and Somerset — would double their populations in the 30-year span projected. All suburban counties except Essex and Hudson would have major increases; Nassau County would have the lowest growth rate — 18.4%.

In 1973 the Regional Plan Association made population and economic projections whose results have broad implications regarding the future character of the region. This was the first time an end to population growth had been projected as “the current prospect for the New York region.” This forecast assumes a continued decline in fertility until it stabilizes at slightly below 2.1 children per family and little or no net migration for the region after 1985.

The Regional Plan Association provided a range of three projections in March 1975: one assumes growth continuing with an unforeseen end; another assumes an even more rapid decline in fertility than that mentioned above, resulting in a population

decrease after 1985; the third, the “medium” projection, assumes a position between the two extremes. Changes in fertility are exceedingly difficult to predict, however.

In addition, other agencies' projections and the estimated population trend from 1970 to 1974 lend support to the expectation of an end to population growth in the region. The 1974 revised forecasts of the Port Authority of New York and New Jersey projected a rate of growth up to 1985 similar to that of the low Regional Plan projection. The Tri-State Regional Planning Commission (1975) concluded that present population trends in the region “signal a basic shift toward a much more stable situation.” The Census Bureau's estimate of the region's population in 1974 indicates that current population is actually below that expected by even the lowest projections (Regional Plan Association 1975).

The Regional Plan Association also forecast future employment and income in the region. Unlike population, employment and income are expected to continue expanding. The projections indicate that office jobs will grow by 90% and that per capita personal income will be “nearly two-and-a-half times as high in 2000 as it was in 1970 in dollars of the same purchasing power.” The combination of slowing population growth and increased income implies that in the future our concern will shift from accommodating population expansion to accommodating income growth and rising consumption.

Population Growth and Environmental Concerns

Just as there is more to urbanization and metropolitanization than population growth, the relationship between a growing population and environmental decline is not a simple one. The effects of population growth on the environment are of particular concern in industrialized countries where urbanization and increased per capita consumption are complex problems. Population expansion, a concomitant factor of urbanization, requires higher economic productivity, responding to greater consumption and resulting in more pressure on natural resources. We now recognize harmful environmental effects from the conversion of resources into power and products: strip mining

causes severe erosion; nuclear power produces radioactive wastes; coal combustion results in air pollution; dumping sewage into rivers, lakes, and oceans affects water quality in marine and freshwater environments.

Even if the population were to stabilize in the twenty-first century, the environment would still have to bear the impact of heavier consumption. We must anticipate multiple sources of environmental problems and not hope for an easy solution through “zero population growth.” Planning policies for the New York Bight region should be based on realistic programs and sound knowledge of the complexity of the problems resulting from a growing population.

Appendixes

A

Appendix A. Population of NYC and counties in NY region, 1800-1970

	1800	1820	1840	1860	1880	1900	1910	1920	1930	1940	1950	1960	1970
NEW YORK													
New York City ^a						3,437,202	4,766,883	5,620,048	6,930,446	7,454,995	7,891,957	7,781,984	7,894,862
Bronx ^b							430,980	732,016	1,265,258	1,394,711	1,451,277	1,424,815	1,471,701
Kings	5,740	11,187	47,613	279,122	599,495	1,166,582	1,634,351	2,018,356	2,560,401	2,698,285	2,738,175	2,627,319	2,602,012
New York Co ^b	60,515	123,706	312,710	813,669	1,206,299	1,850,093	2,331,542	2,284,103	1,867,312	1,889,924	1,960,101	1,698,281	1,539,733
Queens	16,916	21,519	30,329	57,391	90,574	152,999	284,041	469,042	1,079,129	1,297,634	1,550,849	1,809,578	1,986,473
Richmond	4,564	6,135	10,965	25,492	38,991	67,021	85,969	116,531	158,346	174,441	191,555	271,991	295,443
Dutchess	47,775	46,615	52,398	64,941	79,184	81,670	87,661	91,747	105,462	120,542	136,781	176,008	222,795
Nassau						55,448	83,930	126,120	303,053	406,748	672,765	1,300,171	1,478,080
Orange	29,355	41,213	50,739	63,812	88,220	103,859	116,001	119,844	130,383	140,113	152,255	183,734	221,657
Putnam		11,268	12,825	14,002	15,181	13,787	14,665	10,802	13,744	15,555	20,307	31,722	56,696
Rockland	6,353	8,837	11,975	22,492	27,690	38,298	46,873	45,548	59,599	74,251	89,276	136,803	229,903
Suffolk	19,735	23,930	32,469	43,275	53,888	77,582	96,138	110,246	161,055	197,355	276,129	666,784	1,124,950
Sullivan		8,900	15,629	32,385	32,491	32,306	33,808	33,163	35,272	37,901	40,731	45,272	52,580
Ulster	24,855	30,934	45,822	76,381	85,838	88,422	91,769	74,979	80,155	87,017	92,621	118,803	141,241
Westchester	27,373	32,638	48,686	99,497	106,988	184,257	283,055	344,436	520,947	573,558	625,816	808,891	894,104
NEW JERSEY													
Atlantic			8,726	11,786	18,704	46,402	71,894	83,914	124,823	124,066	132,399	160,880	175,043
Bergen	15,156	18,138	13,223	21,618	36,786	78,441	138,002	210,703	364,977	409,646	539,139	780,755	897,148
Cape May	3,065	4,265	5,324	7,130	9,765	13,201	19,745	19,460	29,486	28,919	37,131	48,555	59,554
Essex	22,269	30,793	44,621	98,877	189,929	359,053	512,886	652,089	833,513	837,340	905,949	923,545	932,299
Hudson ^c			9,483	63,717	187,944	386,048	537,231	629,154	690,730	652,040	647,437	610,734	609,766
Middlesex	17,890	21,470	21,893	34,812	52,286	79,762	114,426	162,334	212,208	217,077	264,872	433,856	583,813
Monmouth	19,872	25,038	32,909	39,346	55,538	82,057	94,734	104,925	147,209	161,238	225,327	334,401	461,849
Morris	17,750	21,368	25,844	34,676	50,861	65,156	74,704	82,694	110,445	125,732	164,371	261,620	383,454
Ocean				11,176	14,455	19,747	21,318	22,155	33,069	37,706	56,622	108,241	208,470
Passaic			16,734	29,013	68,860	155,202	215,902	259,174	302,129	309,353	337,093	406,618	460,782
Somerset	12,815	16,506	17,455	22,057	27,162	32,948	38,820	47,991	65,132	74,390	99,062	143,913	198,372
Union				27,780	55,571	99,353	140,197	200,157	305,209	328,344	398,138	504,755	543,116
CONNECTICUT													
Fairfield	38,208	42,734	49,917	77,476	112,042	184,203	245,322	320,936	386,702	418,384	504,342	653,589	797,814
New Haven	32,162	39,616	48,582	97,345	156,523	269,163	337,282	415,214	463,449	484,316	545,784	660,315	744,948

^a Five boroughs consolidated in 1898 to form present boundaries of New York City

^b Part of New York County taken to form Bronx in 1910

^c Part from Camden County added to Hudson in 1871

Source: Data from US Bureau of the Census

Appendix B. Native and foreignborn population of NYC, 1845-1970

	1845	1850	1860	1870	1880	1890	1900 ^{e,f}	1910 ^e	1920	1930	1940	1950	1960	1970
Total^a	371,223	515,547	813,669	947,292	1,206,299	1,515,301	3,437,222	4,766,883	5,620,048	6,930,446	7,454,995	7,891,957	7,781,984	7,894,862
Native	236,567	279,814	429,952	523,198	727,629	875,358	2,167,122	2,822,526	3,591,888	4,571,760	5,316,338	6,025,450 ^a	6,224,628 ^a	6,451,804
Puerto Rico-born								7,364	44,908	44,908	61,463	187,586	429,710	473,300
Negro		13,815	12,574	13,072	19,663	23,601	60,666	91,709	152,467	327,706	458,444	749,080	1,084,862	1,668,115
Foreignborn	134,656	235,733	383,717	419,094	478,670	639,943	1,270,100	1,944,357	2,028,200	2,358,700	2,138,657	1,860,930 ^a	1,558,686 ^a	1,437,058
Ireland	96,581 ^b	133,730	203,740	201,999	198,595	190,418	275,100	252,700	203,400	220,600	181,800	144,800	114,008	68,778
Germany	24,416 ^c	56,141 ^c	118,292 ^c	151,216	163,482	210,723	324,200	278,100	201,900	237,600	224,700	185,500	152,192	98,336
Great Britain		31,311	37,187	32,595	39,340	48,306	90,400	103,400	94,700	118,400	97,700	80,000	61,018	48,798
Russia				1,151	4,551	48,790	182,200	484,200	543,000	442,400	395,700	314,600	204,578	117,363
Italy				2,794	12,223	39,951	145,400	340,800	390,800	440,200	409,500	344,100	280,786	212,160
Austria-Hungary				3,258 ^d	8,844 ^d	39,415 ^d	122,000	266,900	307,800	187,100 ^d	256,800 ^d	176,300 ^d	129,868 ^d	79,741 ^d
Poland									238,300	238,300	194,200	179,900	168,824	119,604

^aNative and foreignborn combined differ slightly from "Total"

^bIreland plus Great Britain and possessions (1845 only)

^cGerman states

^dAustria and Hungary combined

^eEstimated

^fFive boroughs consolidated into New York City in 1898

Source: Data from Rosenwaike 1972

C

Appendix C. Percent population change by county

	1910	1920	1930	1940	1950	1960	1970
NEW YORK							
New York City	38.7%	17.9%	23.3%	7.6%	5.9%	- 1.4%	1.5%
Bronx	NA	69.8	72.8	10.2	4.1	- 1.8	1.5
Kings (Brooklyn)	40.1	23.5	26.9	5.4	1.5	4.0	1.0
New York Co (Manhattan)	26.0	- 2.0	- 18.2	1.2	3.7	-13.4	- 9.4
Queens	85.6	65.1	130.1	20.2	19.5	16.7	5.3
Richmond (Staten Island)	28.3	36.6	35.9	10.2	9.8	15.9	33.1
Dutchess	7.3	4.7	14.9	14.3	13.5	28.7	26.3
Nassau	51.4	50.3	140.3	34.2	65.4	93.3	9.8
Orange	11.7	3.3	8.8	7.5	8.7	20.7	20.6
Putnam	6.4	-26.3	27.2	20.5	22.7	56.2	78.7
Rockland	22.4	- 2.8	30.8	24.6	20.2	53.2	68.1
Suffolk	23.9	14.7	46.1	22.5	39.9	141.5	68.7
Sullivan	4.6	- 1.9	6.4	7.5	7.5	11.1	16.1
Ulster	3.8	-18.3	6.9	8.6	6.4	28.3	18.9
Westchester	53.6	21.7	51.2	10.1	9.1	29.3	10.5
NEW JERSEY							
Atlantic	54.9	16.7	48.8	- 0.6	6.7	21.5	8.8
Bergen	75.9	52.7	73.2	12.2	31.6	44.7	15.1
Cape May	49.6	- 1.4	51.5	- 1.9	28.4	30.8	22.7
Essex	42.8	27.1	27.8	0.5	8.7	1.9	0.7
Hudson	39.2	17.1	9.8	- 5.6	- 0.7	- 5.7	- 0.2
Middlesex	43.5	41.9	30.7	2.3	22.0	63.8	34.6
Monmouth	15.4	10.8	40.3	9.5	39.7	48.4	37.4
Morris	14.7	10.7	33.6	13.8	30.7	59.2	46.6
Ocean	8.0	3.9	49.3	14.0	50.2	91.2	92.6
Passaic	39.1	20.0	16.6	2.4	9.0	20.6	13.3
Somerset	17.8	23.6	35.7	14.2	33.2	45.3	37.8
Union	41.1	42.8	52.6	7.6	21.3	26.7	7.7
CONNECTICUT							
Fairfield	33.2	30.8	20.5	8.2	20.5	29.6	21.3
New Haven	25.3	23.1	11.6	4.5	12.7	21.0	12.8

Source: Calculated from US Bureau of the Census data

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