BULLETIN 639 MARCH, 1943

Levels of Living and Population Movements in Rural Areas of Ohio, 1930-1940

A. R. Mangus and Robert L. McNamara

OHIO
AGRICULTURAL EXPERIMENT STATION
Wooster, Ohio

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LEVELS OF LIVING AND POPULATION MOVEMENTS IN RURAL AREAS OF OHIO, 1930-1940

A. R. MANGUS AND ROBERT L. McNAMARA[1]

INTRODUCTION

The relation of rural population to natural resources and economic opportunity affects the welfare of 1,070,000 people living on farms in Ohio and 1,224,000 people living in rural-nonfarm areas of the State, including villages up to 2,500. Urban areas of the State are populated with 4,613,000 people whose economic life is also closely related to that of the rural people. The urban population is now short of a sufficient number of children for permanent replacement of urban residents who die. If birth and death rates at various ages in 1940 should continue unchanged for several decades and if there were no net migration to cities, the urban population of Ohio would eventually decline by 22 per cent each generation of about 30 years. On the same assumptions, the rural-farm population is sufficiently reproductive to increase itself by 24 per cent each generation, and the rural-nonfarm population to increase itself by 18 per cent each generation.[2] Marked increases in birth rates have been observed in 1941 and 1942, but such increases were stimulated by conditions created by defense and war activities and are not indicative of a reversal of long-time trends in reproductivity.

Urban growth and population maintenance will depend largely upon migrations of peoples from rural areas if differential reproduction rates return to prewar levels. Rural areas have throughout American history furnished cities not only with foods and fibers, but also with additional workers for factories, offices, and shops. The total number of workers engaged in agricultural pursuits in the United States has been declining since 1910, and their proportion of the Nation's total labor force has been declining for the last 120 years, or as long as statistics are available. In 1940, less than 2 out of every 10 workers (17.6 per cent) were employed in agriculture, whereas in 1820, more than 7 out of every 10 workers (71.8 per cent) had been engaged in providing foods and fibers for the population.[3]

While employment opportunities in nonfarm industries have during prosperous periods persistently attracted workers from farms to factories and induced rural dwellers to become urban dwellers, population pressure in many rural areas has been a repellent force, causing country people, particularly youth, to move to cities. Reliable estimates indicate that during the last decade, only about half the male youth reaching maturity on farms in Ohio were needed to replace their elders who died or retired from farming occupations. To keep the total working force in agriculture constant, it was necessary for about one-half of the farm youth coming to maturity to seek opportunities in nonfarm occupations. The present war is providing a most import-

[1]In the preparation of this report, the authors received many helpful suggestions from J. I. Falconer, Chief, Department of Rural Economics and Rural Sociology, Ohio Agricultural Experiment Station, and from O. E Baker, Conrad Taeuber, and Margaret Jarman Hagood, of the Bureau of Agricultural Economics, United States Department of Agriculture.

[2]Sixteenth Census of the United States· 1940. Series P-5a, No. 3. April 18, 1941.

[3]Sixteenth Census of the United States: 1940. Series P-9, No 11. March 28, 1942.

ant stimulus to agriculture, but at the same time, munition industries and the armed services are taking additional thousands of youth from farms, thereby accentuating very greatly long-time trends of movement from farms.

Large-scale population movements are assumed to be related to economic and social opportunity. Such migrations are usually selective as to certain population factors, particularly age and sex. Consequently, the age distribution and the proportion of men and women in the population of both the receiving and the dispersing areas are distorted, and this distortion has important social and economic effects.

Much attention has been given to the fundamental trends of population change now occurring; and the essential facts regarding the basic changes in growth, distribution, and composition of population are widely known. Attention is directed in this study to the fact that the basic trends of population change do not operate uniformly in all areas within any given state or region. Space differences in population characteristics become as important as time differences, calling for differential types of adjustment in different areas. Basic dissimilarities between rural and urban residents are existent, but variations among rural areas are, in some respects, equally striking. Many of these area differences in population are closely associated with area differences in levels of living as measured by the extent to which farm people purchased and used certain consumer goods before the war.

It is the purpose of this bulletin to analyze the recent growth and change in the rural population of Ohio in relation to level-of-living areas within the State. Such an analysis includes the construction of an up-to-date level-of-living index of Ohio counties and the use of the index to subdivide the State into relatively homogeneous areas. The population analyses by areas include the recent growth and present composition of the rural-farm and rural-nonfarm populations and the factors producing growth and changes in composition—fertility rates, death rates, and net migrations.

Most of the data presented in this report are from the Fifteenth Decennial Census of the United States 1930 and the Sixteenth Decennial Census of the United States 1940. In addition to published reports, several special tabulations were furnished by the Bureau of the Census; for example, detailed statistics of the rural-farm and rural-nonfarm population by age, sex, color, and nativity for all Ohio counties were specially tabulated for 1930, and comparable data were furnished for 1940. The Division of Vital Statistics of the United States Bureau of the Census provided data on resident births by age of mothers and resident deaths by age for selected groups of Ohio counties for the years 1939 and 1940.

AREA DIFFERENCES IN LEVELS OF LIVING AND POPULATION DENSITY

VARIATION IN LEVELS OF LIVING

Previous Ohio studies have provided useful maps of county variation in rural levels of living in the State.[4] Those maps, based on 1930 Census data, portray large differences in material conditions of rural living in different sec-

[4]Lively, C E, and R. B Almack. 1938. A method of determining rural social subareas with application to Ohio Ohio State University and Ohio Agricultural Experiment Station Mimeograph Bulletin No 106 Columbus, Ohio
Hagood, Margaret Jarman. 1941. Factor analysis in subregional delineation. Rural Sociology 6: 3: 216-233
Mangus, A. R., and Howard R. Cottam. 1941. Levels of living, social participation, and adjustment of Ohio farm people. Ohio Agricultural Experiment Station Bulletin 624, p. 6. Wooster, Ohio.

tions of Ohio. To serve the purposes of the present study, a new composite index of county levels of living was constructed using information available from the 1940 Census pertaining to the rural-farm population. This new composite index is based on nine variable measures in relation to the total rural-farm population of each county. Each separate measure was expressed as a percentage of its State average, and all were averaged together for a combined index for each county (appendix table 1). The nine variables were:

Per cent of farms—
having automobiles
having telephones
on hard-surfaced roads
with dwellings lighted by electricity
within ¼ mile of an electric power line
having automobiles which were 1936 or later models

Per cent of rural-farm homes having—
running water
private bath
indoor toilet

The county indexes ranged in value from 32 per cent of the State average in Pike County to 193 per cent in Cuyahoga County (last column appendix table 1). Although no rural-nonfarm measures entered directly into these indexes, rural-farm and rural-nonfarm levels of living are so closely related that the composite as constructed can be taken as a rural level-of-living index.

On the basis of variability in the composite county level-of-living index, Ohio was divided into four areas. For convenience, and in harmony with accepted terminology, these areas were designated:

Urban-industrial area
Western-agricultural area
Transitional area
Southeastern area

The urban-industrial area, with the highest level-of-living index, includes that part of rural Ohio adjacent to the large industrial centers and subject to metropolitan influences. Included are all northeastern Ohio, the areas adjacent to Cincinnati and Dayton, and Franklin County, in which is located the city of Columbus. Western and central Ohio, except the urbanized sections around Columbus, Dayton, and Cincinnati, are included in the western-agricultural area. In this area, the level-of-living index is 106, compared with 135 in the urban-industrial area. The southeastern Ohio area consists of those counties having the lowest level-of-living indexes; included is the area lying north and west of the Ohio River from Adams to Belmont Counties, which comprises much of the most hilly section of the State. In level of living, the counties designated transitional are intermediate between the southeastern area and the areas to the north (fig. 1).

These four areas are clearly differentiated not only on the basis of the composite level-of-living index, but also by the several items entering into that index (table 1).

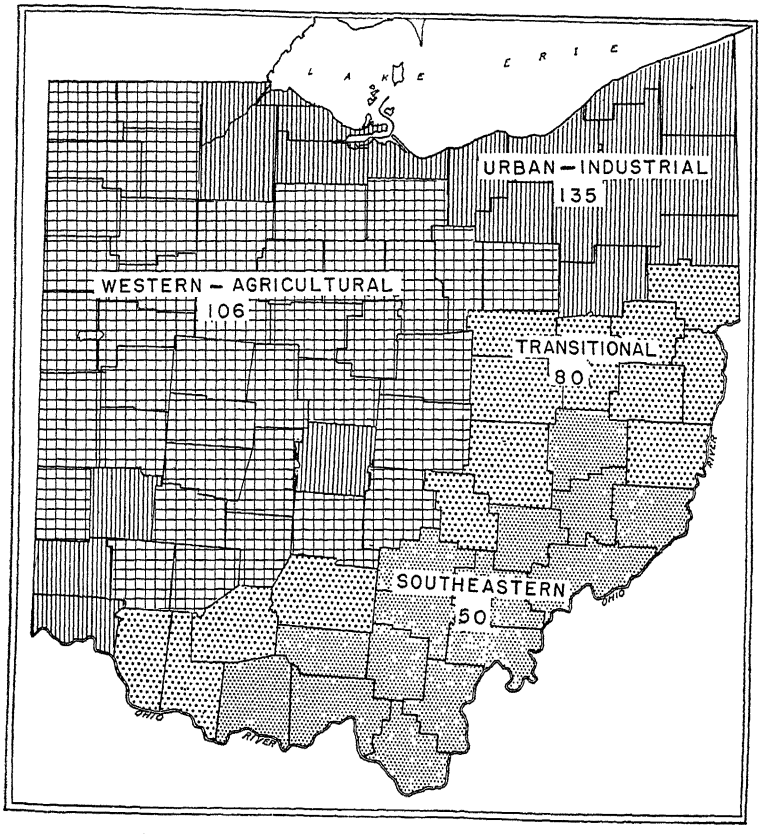

Fig. 1.—Level-of-living areas of Ohio, 1940

(Numbers indicate level-of-living index)

TABLE 1.—Level-of-living factors in subareas of Ohio, 1940

(Median county)

Factor	All areas	Urban-industrial area	Western-agricultural area	Transitional area	Southeastern area
Per cent of farms having—					
Automobiles	80.8	84.0	91.0	76.0	62.0
Telephones	38.0	37.0	44.0	28.5	28.0
Electric power line adjacent	73.1	90.0	85.0	63.5	28.0
Hard-surfaced road adjacent	42.4	63.0	44.0	26.0	18.0
Electrified dwelling	61.4	82.5	69.0	48.0	20.0
Per cent of rural-farm dwellings having—					
Running water	23.1	38.0	20.0	19.0	7.5
Private bath	15.8	27.0	14.0	11.0	4.0
Indoor toilet	17.2	29.0	15.0	12.5	5.0
Per cent of rural-farm automobiles—					
1936 or later models	43.8	48.5	46.0	40.0	33.0
Composite level-of-living index	100.0	135.0	106.0	80.0	50.0

Source: Appendix table 1.

VARIATION IN POPULATION DENSITY

Population density is often cited as an index of economic opportunity, or pressure of people upon resources. Crude density of population per square mile of land is, however, deceptive in this respect unless account is taken of the quality of the land, level of technical development, and availability of other resources. It is to be assumed that population pressure is greater in those areas having the lowest levels of living as measured by the index used here and least in those areas having the highest level-of-living index. To obtain some check on the validity of this assumption, two further measures were devised: (1) the number of acres of land available for crops per capita of the rural-farm population and (2) the value of farm land per capita in the four level-of-living areas (table 2).

TABLE 2.—Density of the rural-farm population in relation to land available for crops and to total land value in level-of-living areas of Ohio, 1940

Area	Acres available for crops*	Total value of farm land	Rural-farm population	Acres per capita	Land value per capita
All areas:	15,657,989	$819,044,149	1,070,293	14.6	$764
Urban-industrial	3,006,954	236,970,903	274,936	10.9	859
Western-agricultural	8,360,855	442,536,507	452,394	18.5	979
Transitional	2,490,305	87,658,255	174,920	14.2	500
Southeastern	1,799,875	51,878,484	168,043	10.7	308

Source: Sixteenth Census of the United States: 1940.
*Includes cropland harvested, crop failure, cropland idle or fallow, and plowable pasture.

The expected correlation between the population density measures and the level-of-living index was found except in the urban-industrial area (table 2). In the urban-industrial area, where the level-of-living index was highest (135), the amount of land that could be plowed for crops averaged only 10.9 acres per capita, a number only slightly above that in the southeastern area. Land value per capita in the urban-industrial area amounted to only $859. Although that amount was higher than the value in the southeastern and transitional areas, it was 12 per cent lower than the value in the western-agricultural area, where the level of living was lower. The comparatively high level of living in the urban-industrial section is due, not to a superior agricultural base, but to proximity to nonfarm industries, from which much of the total income of rural-farm residents is derived. Many families living in that area and classified as rural-farm residents by the Census derive only a fraction of their income from farming operations; the remainder is derived from employment of family members in nonfarm occupations. This conclusion is borne out by the fact that the 1940 Census reported that 30.8 per cent of the 60,539 farm operators in the area had worked for 100 days or more off their farms during 1939; this number did not include other members of farm operator families who also worked off the farm. In the western-agricultural area, less than 14.0 per cent of the farm operators worked for 100 days or more off their farms in 1939. In the southeastern and transitional areas, the proportion was higher, amounting to about 24.0 per cent. In these areas, however, much of the off-farm work of farmers was on WPA and other relatively unremunerative jobs.

AGE GROUP REPLACEMENT AND NET MIGRATION IN THE RURAL POPULATION, 1930-1940

GENERAL FEATURES OF RURAL POPULATION CHANGE

From 1930 to 1940, children under 15 years of age in the rural-farm population of Ohio declined nearly 31,000, or by 10.0 per cent, as a result of declining births since 1925. During that same decade, however, the rural-farm population above the 15-year level increased 97,000, or 14.0 per cent. Similarly, the rural-nonfarm population had during the decade of the thirties a decline of 17,000, or about 5.0 per cent, in children and an increase of nearly 107,000, or 13.5 per cent, in people 15 years old and over.

The greatest net gain was found in the urban-industrial area, where suburbanization and opportunities to engage in part-time farming were important factors. The relative amounts of increase in rural population in the other areas were in inverse relation to the level-of-living indexes as computed for this study (table 3). It would appear that during the depression decade, those areas least well prepared economically to provide adequately for increased populations were the areas that increased their population most, if the urban-industrial area is left out of the reckoning.

TABLE 3.—Net change in the rural population 15 years old and over, Ohio, 1930-1940, by level-of-living area

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Area	Rural-farm population		Change 1930-1940	
	1930	1940	Amount	Per cent
All areas	693,651	790,788	97,137	+14.0
Urban-industrial	167,921	209,669	41,748	+24.9
Western-agricultural	309,185	334,973	25,788	+ 8.3
Transitional	112,736	127,121	14,385	+12.8
Southeastern	103,809	119,025	15,216	+14.7
	Rural-nonfarm population		Change 1930-1940	
All areas	790,188	896,852	106,664	+13.5
Urban-industrial	332,006	392,453	60,447	+18.2
Western-agricultural	221,164	241,549	20,385	+ 9.2
Transitional	146,287	160,206	13,919	+ 9.5
Southeastern	90,731	102,644	11,913	+13.1

The large increases in the adult rural population indicated in table 3 call for careful study and analysis to determine the sources of the increases in different level-of-living areas and in different age and sex groups.

For purposes of this study, changes in the rural population 1930 to 1940 in each area have been analyzed for both men and women and for various 5- or 10-year age intervals up to 65 years and over. Total net change during the decade has been broken down into its two major components: (1) excess or deficit of age group replacement resulting from the aging of the population and (2) net migration. Owing to lack of reliable data for computing these components for the younger ages, the analysis has been limited to the population 15 years old and over in 1940. This limitation bars from consideration

those children who were born after the 1930 Census enumeration and also those who in 1930 were less than 5 years old and who were to some extent underenumerated in the Census count. Although the population 15 years old and over includes some individuals who would ordinarily be considered below the level of adulthood, it is here referred to for convenience as the adult population.

It is the purpose of this chapter to present a summary discussion of differential volumes and rates of age group replacement, net migration, and total net change in different level-of-living areas of Ohio by age and sex of persons 15 years old and over. The period of change covers the decade between the census enumerations of April 1, 1930, and April 1, 1940. The more detailed discussion is limited to the rural-farm population, but tabular materials for an equally complete analysis of the rural-nonfarm population are included in the appendix and in the main body of this bulletin.

Before the results of the analysis of rural population changes 1930-1940 are presented, it is necessary to introduce a brief description of the methods employed and definitions of the terms used in the study.

DEFINITION OF TERMS AND METHOD OF ANALYSIS

Total net change. The term total net change is employed in the usual sense to designate the actual increase or decrease between two census enumerations in the number of individuals of a particular class of the population. For example, between 1930 and 1940, young rural-farm men 20-24 years old increased from 39,013 to 49,109, a total net increase of 10,096.

Rate of total net change is simply the percentage of increase or decrease in a population group during a given time, such as a decade. For example, young rural-farm men 20-24 years old increased by 25.9 per cent.

Survivors. The term survivors as used in this study refers to the number of individuals in any given age group of an enumerated population who, on the basis of prevailing death rates, would be expected to survive for a given number of years, as one decade. The number of survivors at the end of a 10-year interval of any age group is computed by applying to that group a 10-year survival rate derived from a life table population. For example, the 1930 Census enumerated 59,979 boys 10-14 years old on Ohio farms. Reference to a life table for rural Ohio[5] shows that on the basis of death rates prevailing about 1930, 976.6 of every thousand of those boys would be expected to live another 10 years, that is, to 1940, when they would be 20-24 years old. Applying this rate to 59,979, the enumerated number of farm boys in 1930, provides an estimate of 58,576 survivors in 1940.

When the population of a given age interval, such as 20-24 years, is known for 1930 and 1940, and when the number of survivors who aged from 10-14 years to 20-24 years during the decade has been computed, it becomes a simple matter to determine the volume and rate of age group replacement and the volume and rate of net migration.

Age group replacement. The phrase age group replacement is used in this study to refer to the number of survivors from one age group of an enumerated population that would, in the absence of migration, be needed to maintain the numbers of a more advanced age group constant at the beginning and

[5]The life tables used in this study were prepared for rural Ohio 1930 by the Scripps Foundation for Research in Population and published in Population Statistics, Part 2 State Data, issued by the National Resources Committee, October, 1937, pp. 9-10.

at the end of a time period, as one decade. When the number of survivors is greater than that needed for mere replacement of an older group, the result is referred to as an *age group replacement excess.* If, however, the number of survivors is less than that needed for replacement, the result is called an *age group replacement deficit.*

An example will clarify these points. The 1930 Census enumerated 39,013 rural-farm men 20-24 years old in Ohio. In the absence of migration, 39,013 survivors from rural-farm boys 10-14 years old in 1930 were required to maintain the number of those 20-24 years old in 1940. As has been shown, however, the estimated number of survivors to 20-24 years of age in 1940 was 58,576. The difference between the number of survivors needed for replacement (39,013) and the number actually available (58,576), assuming none moved away from Ohio farms, represents an age group replacement excess of 19,563 persons.

The *rate of age group replacement* is computed by expressing the replacement excess or deficit as a percentage of replacement need. In the example, the age group replacement rate for the 20-24 year interval is 50.2 per cent; that is, the number of survivors is 50.2 per cent in excess of replacement needs.

Net migration. The term net migration is here used to refer to the net gain or loss during a decade to a defined class of individuals in a given area through movement of individuals of that class into and out of the area. In this study analysis is made of the volume and rate of net migration by place of residence for different age and sex groups.

The method of computing net migration for different age-sex groups of the rural population for the period 1930-1940 is very simple. It consists of subtracting from the number of persons enumerated in a given age group in 1940 the survivors into that age group from a younger group in 1930. This method is based on the theory that the number of survivors to a given age interval represents the number of persons of that age interval who would have been enumerated if for the decade as a whole, no net migration affecting the group had occurred. Hence, although the Ohio rural-farm boys 10-14 years old in 1930 (59,979) who were expected to survive another 10 years to become 20-24 in 1940 numbered 58,576, the 1940 Census actually enumerated only 49,109 youths 20-24 on farms. The difference (49,109 minus 58,576) of 9,467 must be attributed to net migration of these boys away from farms, 1930-1940.[6]

The *net migration rate* is computed by expressing the volume of net migration of any age group during a decade as a percentage of the same age group at the beginning of the decade. In the example cited, the volume of

[6]It can be assumed that deaths were distributed prorata among migrants and non-migrants. The total volume of net migration as shown in this report may be somewhat understated, since some who died before migrating would have moved before the end of the decade had they lived that long. No correction has been made for this factor, however, since gross volumes of migration cannot be determined, and since the net results of migration were known to have been unevenly distributed throughout the decade of the thirties.

net migration for the particular age group (20-24 years in 1940) of rural-farm youths was —9,467. (The minus sign indicates a net loss for the decade.) The number of rural-farm youths 20-24 in 1930 was 39,013, and the rate of net migration was —24.3 per cent.[7]

The method of analysis can be summarized for one particular age group of rural-farm males as follows:

Number 20-24 years old 1930 (enumerated)	39,013
Number 20-24 years old 1940 (enumerated)	49,109
Total net change 1930-1940 (49,109—39,013)	+10,096
Total net change rate (+10,096/39,013)	+25.9
Number 10-14 years old 1930 (enumerated)	59,979
Ten-year survival rate per 1,000 (computed)	976.6
Survivors to 20-24 years in 1940 (59,979 × 0.9766)	58,576
Age group replacement (58,576—39,013)	+19,563
Net migration (49,109—58,576)	—9,467
Age group replacement rate (+19,563/39,013)	+50.2
Net migration rate (—9,467/39,013)	—24.3

In interpreting the migration statistics presented in this report, it must be remembered that they represent net figures and do not provide definite information regarding gross movement to and from given areas. In the example, 58,576 of the 59,976 Ohio rural-farm boys 10-14 years old in 1930 were, according to the survival rate used, still living in 1940, at which time they were 20-24 years old. The Census did not follow these boys through to find where they were located in 1940 but enumerated only 49,109 men 20-24 on farms. It can be assumed that the 49,109 youths enumerated on farms in 1940 consisted only in part of survivors of the farm boys 10-14 enumerated in 1930, that another part consisted of migrants to Ohio farms, either from nonfarm areas or from farms in other states. Hence, when survivors in 1940 are subtracted from enumerated youths in 1940, the difference of —9,467 represents a net movement away from farms; that is, the number of survivors who moved away from farms was 9,467 in excess of the number of male youths of the same age group who moved to Ohio farms during the thirties and were enumerated there in 1940.

THE AGE FACTOR IN RURAL-FARM POPULATION CHANGE

The adult rural-farm population of Ohio in all areas of the State increased by 97,000 between 1930 and 1940, an increase which amounted to 14.0 per cent of the rural-farm population 15 years old and over in 1930. That total addition to the adult rural-farm population occurred in spite of the fact that Ohio farms experienced a net loss of approximately 18,500 people through net migration to cities, towns, and villages of the State or to other states during

[7] It will be observed that 10-year net migration rates for different age groups when based on enumerated numbers in the same age groups may reflect both migration during the decade under consideration and also that of previous decades. In the example cited, the enumerator of the rate (—9,467) represents net migration of rural-farm youths 20-24 during the nineteen thirties. The denominator (39,013) represents the enumerated number of these youths 20-24 in 1930, a number that was itself much reduced, however, by net migration during the nineteen twenties. It has been suggested that the age structure of the 1930 rural-farm population does not provide "normal" bases for computing either net migration rates or age group replacement rates at different age levels 1930-1940, since an "abnormal" amount of net migration occurred during the decade of the nineteen twenties to distort the age structure at the end of that decade. It must be pointed out, however, that information is not available for determining what is a normal amount of migration at different age levels for a decade and, therefore, it is not possible to determine statistically what is a normal age structure for the rural-farm population. Since the age structure of 1940 is probably no more or less normal as to the effects of migration than that of 1930, and since there is some value in having common denominators for computing rates of net change, age group replacement, and net migration, the age groups of 1930 were retained as bases.

the decade. This apparent discrepancy is accounted for by the fact that the excess of population replacement in the adult rural-farm population amounted to about 116,000 for the decade. That replacement excess would have been sufficient to increase the rural-farm population by 16.7 per cent if no net movement away from farms had occurred. That potential rate of increase was, however, reduced to 14.0 per cent as a result of a net out-migration rate of 2.7 per cent (table 4).

The highest positive rates both of age group replacement and of net out-migration from farms were found for youths 20-29 years of age in 1940. Moreover, the total percentage increase in rural-farm youths of these ages was much greater than for any other age period under 65 years. These youths in their twenties in 1940 represented those individuals who were born between 1910 and 1920, when birth rates were much higher than in succeeding decades. They ranged in age from 10 to 19 years at the time of the 1930 Census enumeration. Their survivors 20-24 years of age in 1940 were approximately 44,000, or 65.4 per cent, in excess of the 67,991 youths of that age enumerated on farms in 1930, and their survivors 25-29 years of age in 1940 were 49,000, or 95.5 per cent, in excess of the 51,122 youths enumerated in their later twenties by the 1930 Census. In interpreting these high positive rates of age group replacement in rural-farm youths during the past decade, it must be remembered that the rate base used was the numbers of youths in their twenties living on farms in 1930. Their ranks at that time had been greatly depleted by large-scale migration away from farms during the industrially prosperous years which preceded the onset of the depression in the autumn of 1929. As a result of that migration in the nineteen twenties, young people 10-19 years old in 1930 outnumbered their older brothers and sisters 20-29 years old by 36.9 per cent. It was, however, the teen ages in 1930 that furnished the survivors 20-29 years old in 1940, and those survivors greatly outnumbered those in the decennial age interval just ahead of them in the age scale and whose place in that scale they came to occupy between 1930 and 1940.

If Ohio farms had retained all their replacement excess in youths between 1930 and 1940, the end of the decade would have found about 80 per cent more persons 20-29 years old on farms than were living on farms at the beginning of the decade. It is most notable, however, that during the nineteen thirties, the farms of the State experienced a net loss through migration of about 61,000 youths, 28,000 20-24 years old and 33,000 25-29 years old in 1940. It must be recognized that these are estimates which represent net migration, that is, the excess of movement of youths away from farms over the movement to farms in the State during a decade. Being net figures, they represent only a fraction of the total volume of youth migration which occurred, yet this volume of net movement is expressed in a net out-migration rate of 41.0 per cent for youths 20-24 years old and 65.4 per cent for those 25-29 years old in 1940.

Although the net movement of youths from farms between 1930 and 1940 was very great, whether viewed in total volume or in terms of rates per 100 enumerated population in 1930, the excess of age group replacement was so much greater that the percentage increase in youths was also greater than in other age intervals under 65 years. While the total adult farm population increased 14.0 per cent during the decade, young people 20-24 years old increased 24.4 per cent and those 5 years older increased 30.1 per cent (table 4).

TABLE 4.—Amounts and rates of change in the rural population of Ohio, 1930-1940, by residence and age

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Residence and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Rural										
Total net change	+203,801	+24,775	+28,895	+30,831	+20,012	+ 4,977	+ 8,743	+26,856	+26,051	+32,661
Net replacement	+225,262	+28,757	+64,615	+57,759	+15,022	−11,097	− 2,756	+17,558	+27,187	+28,217
Net migration	− 21,461	− 3,982	−35,720	−26,928	+ 4,990	+16,074	+11,499	+ 9,298	− 1,136	+ 4,444
Rural-farm										
Total net change	+ 97,137	+ 9,714	+16,584	+15,411	+ 5,647	− 1,896	+ 1,564	+12,634	+16,197	+21,282
Net replacement	+115,593	+ 3,113	+44,445	+48,857	+11,644	−12,684	−10,761	− 2,452	+12,302	+21,129
Net migration	− 18,456	+ 6,601	−27,861	−33,446	− 5,997	+10,788	+12,325	+15,086	+ 3,895	+ 153
Rural-nonfarm										
Total net change	+106,664	+15,061	+12,311	+15,420	+14,365	+ 6,873	+ 7,179	+14,222	+ 9,854	+11,379
Net replacement	+109,669	+25,644	+20,170	+ 8,902	+ 3,378	+ 1,587	+ 8,005	+20,010	+14,885	+ 7,088
Net migration	− 3,005	−10,583	− 7,859	+ 6,518	+10,987	+ 5,286	− 826	− 5,788	− 5,031	+ 4,291
Rate per 100 enumerated population, 1930										
Rural										
Total net change	+13.7	+12.5	+18.8	+23.1	+15.0	+ 3.6	+ 6.7	+11.3	+14.2	+18.5
Net replacement	+15.2	+14.6	+42.0	+43.3	+11.3	− 8.0	− 2.1	+ 7.4	+14.8	+16.0
Net migration	− 1.5	− 2.0	−23.2	−20.2	+ 3.7	+11.6	+ 8.8	+ 3.9	− .6	+ 2.5
Rural-farm										
Total net change	+14.0	+ 9.4	+24.4	+30.1	+10.5	− 3.1	+ 2.5	+10.6	+17.2	+26.8
Net replacement	+16.7	+ 3.0	+65 4	+95.5	+21.6	−20.5	−17.2	− 2.0	+13.1	+26.6
Net migration	− 2.7	+ 6.4	−41.0	−65.4	−11.1	+17.4	+19.7	+12.6	+ 4.1	+ .2
Rural-nonfarm										
Total net change	+13.5	+16.0	+14.3	+18.7	+18.1	+ 8.9	+10.5	+12.1	+11.0	+11.8
Net replacement	+13.9	+27.2	+23.5	+10.8	+ 4.3	+ 2.1	+11.7	+17.1	+16.6	+ 7.3
Net migration	− .4	−11.2	− 9.2	+ 7.9	+13.8	+ 6.8	− 1.2	− 5.0	− 5.6	+ 4.5

Source: Derived from appendix table 2.

Apart from youths 20-29 years old, the only other age interval of the rural-farm population of all areas which had a net loss due to migration during the nineteen thirties was the interval 30-34 years. These young adults experienced an age group replacement excess of 21.6 per cent and a net loss through migration of 11.1 per cent. The total volume of net out-migration for this group numbered about 6,000. When this movement is added to that for youths 20-29 years old, the results indicate a net movement of around 67,000 persons 20-34 years old away from Ohio farms during the decade ending in 1940.

The quinquennial age intervals of the rural-farm population covering the years 20-34 were distinctive in that exceedingly high positive rates of replacement were found in two of the three 5-year intervals and that these were the only intervals in the entire age span above the 15-year level which experienced net losses through migration 1930 to 1940. These age intervals each had a net loss from migration, but for each, its net loss from migration was less than its excess of population replacement. In this sense, these youth and young adult ages can be called ages of population dispersion, exporting large net numbers of individuals but still adding numbers to the base population.

If the quinquennial age intervals of the rural-farm population of Ohio between 19 and 35 years are called intervals of population dispersion from 1930 to 1940, then the other intervals, except that of 35-39 years, can be called intervals of population absorption during that decade. The youngest age interval included in this study, that of 15-19 years, retained all its replacement excess, which amounted to only 30 per cent, and in addition absorbed a net number of in-migrants amounting to 6.3 per cent. These young migrants to farms probably moved to the country as members of families rather than as detached individuals, such as those older youth who move from the country to cities.

A similar interval of rural-farm population absorption was found in the period 55-64 years. That interval had an excess of replacement in numbers amounting to 13.1 per cent, to which it added net in-migrants at a rate of 4.1 per cent during the decade under consideration.

The excess of population replacement of aged rural-farm people 65 years old and over amounted to about 21,000 between 1930 and 1940. The replacement rate of these aged people amounted to 26.6 per cent, which was a higher rate than that for any other age period except for youths 20-29 years old. There was, for all areas combined, practically no net migration of these old people; the estimates indicated that about as many aged people moved to farms as moved away from farms during the decade (table 4).

The middle years in the age scale of the rural-farm population were also distinctive in that each interval in the age period 35-54 years experienced replacement deficits between 1930 and 1940. The deficits in the 5-year interval 40-44 years and in the 10-year interval 45-54 years were overbalanced by net in-migration. Hence, these age intervals were increasing their members in the face of replacement deficits through the attraction of net numbers of migrants.

While the youth ages were intervals of population dispersion and most other intervals were periods of population absorption, the interval 35-39 was one of depopulation as a result of age group replacement deficit between 1930 and 1940. While that interval in the age span of the rural-farm population received a net of 11,000 migrants to farms and had a net in-migration rate of

17.4 per cent, that volume of in-migration was insufficient to match the deficit in population replacement in these ages. As a result, the rural-farm population in the age interval 35-39 declined a little more than 3.0 per cent during the decade of the nineteen thirties (table 4).

Probably one of the most notable features of rural-farm population change at different age levels 1930 to 1940 was the very close correlation between rates of age group replacement and rates of net migration. In-migration generally occurred at those age levels which had replacement deficits in numbers during the decade or which had relatively small replacement excesses. Out-migration, on the other hand, was found only at those age levels which had large replacement excesses. For example, a replacement excess of 49,000 youths 25-29 years old was accompanied by a net out-migration of 33,000. That age interval represented peak rates of replacement excess and of net out-migration. The highest rates of replacement deficit were found in the age intervals 35-39 and 40-44 years, and those intervals also had the highest rates of net in-migration (table 4).

The evidence suggests that when a given age interval of the adult rural-farm population is experiencing an excess in population replacement, pressure is thereby created which leads to accelerated out-migration of persons from that age period. On the other hand, when the members of a given age group are experiencing a deficit in population replacement, the shortage created thereby tends to attract in-migrants of the same ages to fill the developing shortage. These same tendencies were found for the rural-nonfarm population.

AGE AND SEX FACTORS IN RURAL-FARM POPULATION CHANGE IN DIFFERENT AREAS

As indicated in the preceding discussion, net migration affecting the rural-farm population is highly selective as to age. Sex is also an important factor in net migration, for rates of net migration at different age levels are often very different for men than for women. In the following pages, differential rates of net migration and population replacement among men and women at different age levels of the rural-farm population are analyzed for each of the four level-of-living areas defined for this study.

URBAN-INDUSTRIAL AREA

The urban-industrial area, which had the highest level-of-living index in 1940, also absorbed rural-farm population 15 years old and over during the decade 1930 to 1940, while each other major area was dispersing rural-farm population. The process of rural-farm population absorption was not, however, characteristic of all age groups, and notable sex differences in rates of change were observed.

Analysis of the rural-farm population changes in this area by sex and by age intervals revealed several features of change 1930-1940:

Unlike all areas combined, the farms of the urban-industrial area had an age group replacement deficit in young people of 15-19 years accompanied, however, by an overbalancing net influx of young migrants.

Like all areas combined, the urban-industrial area exported large net numbers of rural-farm youths in their twenties and smaller net numbers

of young adults in their early thirties. Replacement excesses in these ages were, however, sufficiently large to provide the area with a large net increase in rural-farm youths and young adults of these ages.

In the rural-farm population of the State as a whole, the age interval 35-39 years experienced a degree of depopulation as a result of replacement deficit and because the net in-migration was insufficient to compensate for the deficiency. The rate of replacement deficit was even higher for the urban-industrial area in this age interval, but it imported net numbers of people in their later thirties sufficiently large to balance the deficit and maintain a stationary population.

As in the rural-farm population of all areas combined, the urban-industrial area absorbed people in the middle years 40-54 years of age by attracting net numbers of in-migrants in excess of the replacement losses in people of those years.

Finally, the urban-industrial area absorbed elderly and aged rural-farm people 55 years old and over by retaining all the large replacement excesses in their numbers and by receiving net numbers of elderly in-migrants in addition.

The age group replacement loss in young people 15-19 years old on farms in the urban-industrial area between 1930 and 1940 was wholly accounted for by boys, for there was a positive replacement rate of 7.9 per cent in girls, as compared with a negative rate of 11.9 per cent in boys. That differential was a reflection of the fact that rural-farm girls tend to move away from farms at earlier ages than boys. In 1930, the number of boys 15-19 years old remaining on farms at that time was greater than the number of survivors from children 5-9 years old who had taken their places in the age scale in 1940. On the other hand, owing to migration of rural-farm girls, the sex ratio for the interval 15-19 years in 1930 was 128 males per 100 females in the rural-farm population of this area, and the number of girls remaining on farms at that time was less by 7.9 per cent than the survivors who replaced them in 1940 (table 5).

This positive replacement rate of 7.9 per cent for girls 15-19 years old was accompanied by a net in-migration of 13.9 per cent, while the negative replacement rate for boys, which amounted to 11.9 per cent, was accompanied by a net in-migration rate of 26.5 per cent. This differential net migration rate for boys and girls again reflected the earlier migration of girls from rural-farm homes (table 5).

The total volume of net migration of youths 20-29 from farms in the urban-industrial area included 7,000 women and 5,000 men. The rate of net out-migration for the age interval 20-24 was only 10.5 per cent for young men but was 57.3 per cent for young women. For those youths 5 years older, the net out-migration rate was, however, greater for men than for women, being 70.1 per cent for them, 59.6 per cent for the women.

Out-migration from farms continued into the age interval 30-34 years for men, but the area had a net in-movement to farms of women of that age period (table 5).

TABLE 5.—Amounts and rates of change in the rural-farm population of the urban-industrial area of Ohio, 1930-1940, by age and sex

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Both sexes										
Total net change	+41,748	+4,445	+ 5,786	+ 5,111	+2,536	+ 10	+1,807	+7,178	+7,497	+ 7,378
Net replacement	+26,851	— 799	+10,620	+12,648	+3,274	—4,602	—3,861	— 483	+4,196	+5,858
Net migration	+14,897	+5,244	— 4,834	— 7,537	— 738	+4,612	+5,668	+7,661	+ 3,301	+1,520
Male										
Total net change	+ 22,748	+2,058	+ 3,338	+ 3,008	+1,473	+ 87	+ 835	+3,677	+ 3,986	+ 4,286
Net replacement	+12,711	—1,668	+ 4,364	+ 7,370	+3,199	—1,825	—2,182	—1,158	+ 1,535	+3,076
Net migration	+10,037	+3,726	— 1,026	— 4,362	—1,726	+1,912	+3,017	+4,835	+ 2,451	+ 1,210
Female										
Total net change	+19,000	+2,387	+ 2,448	+ 2,103	+1,063	— 77	+ 972	+3,501	+3,511	+3,092
Net replacement	+14,140	+ 869	+ 6,256	+ 5,278	+ 75	—2,777	—1,679	+ 675	+2,661	+ 2,782
Net migration	+ 4,860	+1,518	— 3,808	— 3,175	+ 988	+2,700	+2,651	+2,826	+ 850	+ 310
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+24.9	+17.8	+35.3	+ 44.2	+20.2	+ 0.1	+11.4	+23.8	+33.0	+ 41.1
Net replacement	+16.0	— 3.2	+64.8	+109.4	+26.1	—29.2	—24.3	— 1.6	+18 5	+ 32.6
Net migration	+ 8.9	+21.0	—29.5	— 65.2	— 5.9	+29.3	+35.7	+25.4	+14.5	+ 8.5
Male										
Total net change	+24.8	+14.6	+34.3	+ 48.3	+23.8	+ 1.1	+10.3	+22.7	+30.9	+41.5
Net replacement	+13.9	—11.9	+44.8	+118.4	+51.7	—23.3	—26.9	— 7.2	+11.9	+29.8
Net migration	+10.9	+26.5	—10.5	— 70.1	—27.9	+24.4	+37.2	+29.9	+19.0	+11.7
Female										
Total net change	+25.1	+21.8	+36.8	+ 39.5	+16.8	— 1.0	+12.5	+24.9	+35.7	+40.5
Net replacement	+18.7	+ 7.9	+94.1	+ 99.1	+ 1.2	—35.1	—21.7	+ 4.8	+27.1	+36.4
Net migration	+ 6.4	+13.9	—57.3	— 59.6	+15.6	+34.1	+34.2	+20.1	+ 8.6	+ 4.1

Source: Derived from appendix table 3.

For both sexes combined, the age interval 35-39 years maintained its numbers stationary between 1930 and 1940. Its replacement loss of 29.2 per cent was matched by the same rate of net in-migration. For women, that age interval was depopulated to a slight degree, as the replacement deficit in numbers was somewhat greater than the corresponding net in-migration. The opposite was true of men of that age interval (table 5).

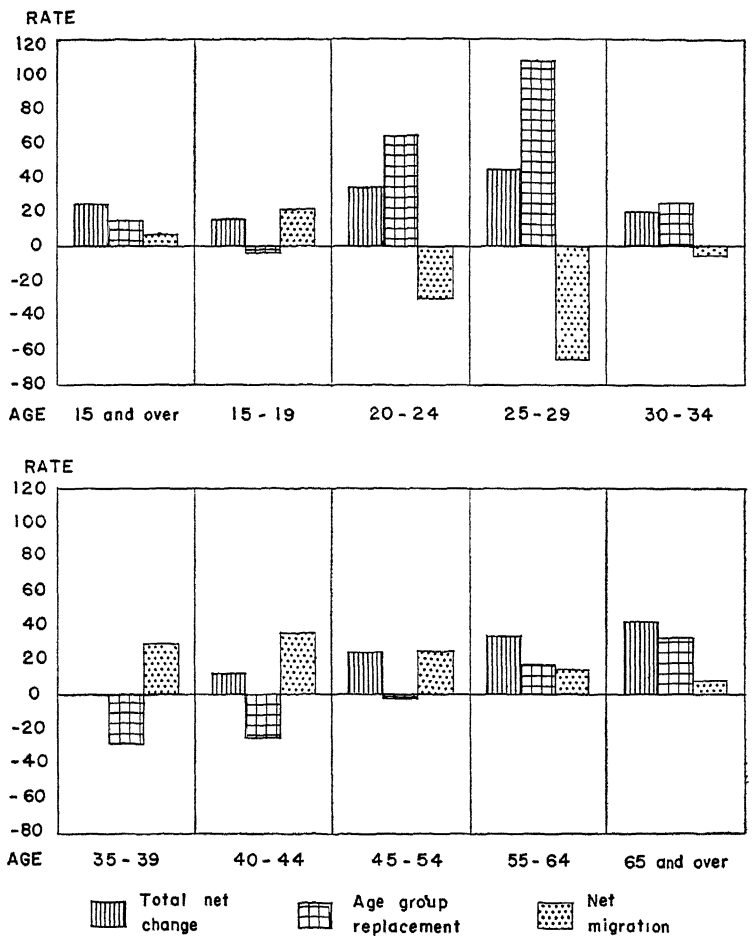

Fig. 2.—Rates of change in the rural-farm population, 1930-1940, in the urban-industrial area of Ohio, by age periods

(Source: table 5)

The rates of in-migration to farms of the urban-industrial area were at their maximum for men and women in the middle years 35-54. The net movement of these middle-aged people to farms of the area during the decade ending in 1940 included about 10,000 men and 8,000 women. In the three age intervals included in this broad age period, the rate of net in-migration ranged

from 24.4 to 37.2 per cent for men, from 20.1 to 34.2 per cent for women. These high rates of net in-migration were in all but one instance associated with losses in population replacement, and depopulation would have characterized these middle years if no net migration had occurred to counteract the effects of replacement deficits.

The total net change in the rural-farm population of the urban-industrial area 1930-1940, which was practically zero at the age level 35-39 years, showed a progressive increase in each successive age interval above that level for both men and women. Excesses of population replacement and net in-migration combined gave the farms of this area nearly 15,000 more elderly and aged farm residents in 1940 than they had possessed 10 years earlier. About two-thirds of this addition was provided through replacement gains and one-third through net in-migration (fig 2, table 5).

WESTERN-AGRICULTURAL AREA

The western-agricultural area, the second highest in level of living, was an area of rural-farm population dispersion between 1930 and 1940 (table 6). Its loss through net migration amounted to about half its gain through replacement. Volume and rate of net out-migration from the farms of this area were about twice as great for women as for men.

When analyzed by age intervals and by sex, the most notable features of change in the adult rural-farm population of the western-agricultural area 1930-1940 were:

Exceedingly high positive rates of age group replacement in rural-farm youths, especially those 20-29 years old, accompanied by very high rates of net out-migration of these young people

Strikingly high positive rates of population replacement in aged people and net movements of these away from farms of the area

Depopulation of men in the age groups 35-44 years and of women in the age groups 30-44 years

The absorption of migrants into the age interval 35-54 years

The farms of this area experienced a net loss of 32,000 youth and young adults 15-34 years old from 1930 to 1940 as a result of net migration. This total net movement included 14,000 men and 18,000 women. The volume and rate of net out-migration, as well as the rate of replacement excess, were greatest for those who were in their twenties in 1940.

The age group replacement gains for youths 20-24 years old in 1940 amounted to about 65.0 per cent; that is, the number of survivors in 1940 of the enumerated rural-farm population 10-14 years old in 1930 was 65.0 per cent greater than the enumerated rural-farm population 20-24 years old in 1930. The rate of replacement gain for older rural-farm youths in this area, that is, those 25-29 years of age, was even greater, being nearly 85.0 per cent. These high rates of replacement gain in rural-farm youths were due to the reduction in numbers of those 20-29 years in 1930 through net out-migration during the industrially prosperous nineteen twenties and to comparatively large numbers of births during the period 1910-1920.

TABLE 6.—Amounts and rates of change in the rural-farm population of the western-agricultural area of Ohio, 1930-1940, by age and sex

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Both sexes										
Total net change	+25,788	+1,558	+ 6,272	+ 5,488	+ 219	−2,782	−1,269	+3,644	+4,982	+7,676
Net replacement	+52,509	+2,472	+19,517	+20,098	+3,537	−5,601	−4,249	+1,027	+6,146	+9,561
Net migration	−26,721	− 914	−13,245	−14,610	−3,318	+2,819	+2,979	+2,617	−1,164	−1,885
Male										
Total net change	+16,539	+ 933	+ 4,041	+ 3,780	+1,359	− 871	− 674	+1,610	+2,354	+4,007
Net replacement	+25,320	+ 66	+ 8,815	+11,618	+4,068	−2,225	−2,678	− 831	+2,057	+4,430
Net migration	− 8,781	+ 867	− 4,774	− 7,838	−2,709	+1,354	+2,004	+2,441	+ 297	− 423
Female										
Total net change	+ 9,249	+ 625	+ 2,231	+ 1,708	−1,140	−1,911	− 595	+2,034	+2,628	+3,669
Net replacement	+27,189	+2,406	+10,702	+ 8,480	− 531	−3,376	−1,570	+1,858	+4,089	+5,131
Net migration	−17,940	−1,781	− 8,471	− 6,772	− 609	+1,465	+ 975	+ 176	−1,461	−1,462
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+ 8.3	+ 3.4	+20.8	+23.1	+ 0.9	− 9.8	− 4.4	+ 6.9	+12.2	+22.7
Net replacement	+17.0	+ 5.4	+64.8	+84.7	+13.9	−19.7	−14.8	+ 1.9	+15.1	+28.2
Net migration	− 8.7	− 2.0	−44.0	−61.6	−13.0	+ 9.9	+10.4	+ 5.0	− 2.9	− 5.5
Male										
Total net change	+10.1	+ 3.8	+23.8	+31.0	+11.0	− 6.2	− 4.7	+ 5.8	+10.4	+20.4
Net replacement	+15.4	+ .3	+51.9	+95.4	+33.0	−15.9	−18.5	− 3.0	+ 9.1	+22.6
Net migration	− 5.3	+ 3.5	−28.1	−64.4	−22.0	+ 9.7	+13.8	+ 8.8	+ 1.3	− 2.2
Female										
Total net change	+ 6.4	+ 3.0	+17.0	+14.8	− 8.6	−13.2	− 4.2	+ 8.1	+14.4	+25.7
Net replacement	+18.8	+11.6	+81.5	+73.4	− 4.0	−23.3	−11.0	+ 7.4	+22.4	+36.0
Net migration	−12.4	− 8.6	−64.5	−58.6	− 4.6	+10.1	+ 6.8	+ .7	− 8.0	−10.3

Source: Derived from appendix table 4.

Even though urban opportunities were scarce during the depression thirties, farms in this area were unable to retain even half of their replacement excess in youths. While there was in the western-agricultural area between 1930 and 1940 an excess of population replacement of approximately 40,000 rural-farm boys and girls 20-29 years old, during that same period the area lost about 28,000 youths in their twenties through net out-migration (table 6, fig. 3).

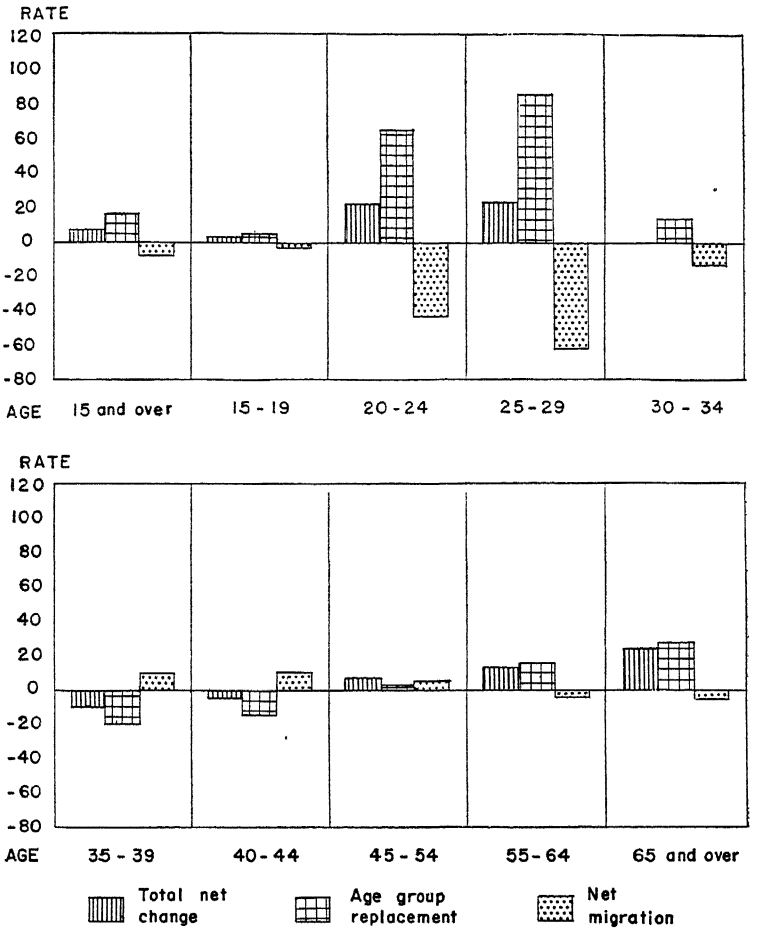

Fig. 3.—Rates of change in the rural-farm population, 1930-1940, in the western-agricultural area of Ohio, by age periods

(Source: table 6)

The age level made considerable difference in the volume of age group replacement excess and net migration of male and female youth. Women tend to move away from farm homes at younger ages than men, as is reflected in the fact that in the western-agricultural area there was a replacement gain

between 1930 and 1940 of 11.6 per cent in girls 15-19 years old in 1940 and that the excess was accompanied by a net loss through migration of 8.6 per cent. On the other hand, there was practically no replacement gain in boys 15-19 years old, and the net migration of boys of that age was to farms rather than away from farms, as in the case of girls. The earlier migration of young women is further attested by the differential rates of change in the older youth age intervals (table 6).

In general, the western-agricultural area of Ohio had between 1930 and 1940 comparatively high positive rates of population replacement of elderly people 55-64 years old and of aged people 65 and over, accompanied by considerable net out-migration of these older persons. The rates of change were, however, much greater for elderly and aged women than for men of these advanced years. The farms of the area under discussion retained most of their replacement excess in aged men, but movement of aged women away from farms was reflected in a net out-migration rate of 10.3 per cent for them (table 6).

Another feature of rural-farm population change in the western-agricultural area 1930-1940 was the depopulation of the middle years of life. The male survivors from the 1930 enumerated population were insufficient in numbers to replace those who aged beyond the intervals 35-39 and 40-44 years. The result was an age group replacement loss of about 17.0 per cent in men 35-44 years old. That deficit was compensated for only in part by a net in-migration, so that there were actually fewer men of these productive ages in the rural-farm population in 1940 than there had been 10 years earlier.

For rural-farm women, the depopulation in the middle years extended through the age intervals 30-44 years. Contrary to the general tendency, the age interval 30-34 years had a negative rate of population replacement of 4.0 per cent in women and in addition lost women through net migration at a rate of 4.6 per cent for the decade. As in the case of men, women 35-44 years old experienced population replacement losses compensated for only in part by net in-migration (table 6).

Unlike the other middle-age intervals of the rural-farm population of the western-agricultural area, the interval 45-54 years absorbed migrants from without. The female population of that age period retained all its substantial excess of population replacement and received a small net increment of migrants. The male population 45-54 years old had a negative rate of replacement of 3.0 per cent for the decade, but that deficit was greatly overbalanced by net in-migration, which increased its numbers in 1940 over those in 1930 by 5.8 per cent (table 6).

TRANSITIONAL AREA

During the interval 1930 to 1940, the farms of the transitional area of Ohio dispersed population of youth ages 20-34 years but absorbed population at all other ages between the 15- and 65-year levels. The net loss of young people 20-34 years old through migration amounted to about 11,000, including 6,000 men and 5,000 women. At all intervals of this broad age period, net losses due to migration were greatly overbalanced by age group replacement excesses, with the result that many more young people were residing on farms in the area in 1940 than in 1930.

TABLE 7.—Amounts and rates of change in the rural-farm population of the transitional area of Ohio, 1930-1940, by age and sex
(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15–19	20–24	25–29	30–34	35–39	40–44	45–54	55–64	65 and over
Amount										
Both sexes										
Total net change	+14,315	+1,814	+2,692	+2,373	—1,239	— 91	+ 319	+1,050	+1,755	+2,982
Net replacement	+17,313	+ 483	+7,327	+7,688	+2,086	—1,648	—1,664	—1,302	+1,173	+3,170
Net migration	— 2,998	+1,331	—4,635	—5,315	— 847	+1,739	+1,983	+2,352	+ 582	— 188
Male										
Total net change	+ 8,465	+ 990	+1,576	+1,497	+ 903	+ 162	+ 223	+ 551	+ 898	+1,665
Net replacement	+ 8,262	— 376	+3,265	+4,456	+1,916	— 627	— 989	—1,010	+ 145	+1,482
Net migration	+ 203	+1,366	—1,689	—2,959	—1,013	+ 789	+1,212	+1,561	+ 753	+ 183
Female										
Total net change	+ 5,920	+ 894	+1,116	+ 876	+ 336	— 71	+ 96	+ 499	+ 857	+1,317
Net replacement	+ 9,051	+ 859	+4,062	+3,232	+ 170	—1,021	— 675	— 292	+1,028	+1,688
Net migration	— 3,131	+ 35	—2,946	—2,356	+ 166	+ 950	+ 771	+ 791	— 171	— 371
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+12.7	+11.0	+24.9	+ 28.9	+14.9	+ 1.0	+ 3.3	+ 5.4	+10.9	+20.9
Net replacement	+15.4	+ 2.9	+67.8	+ 93.5	+25.0	—17.2	—17.3	— 6.7	+ 7.3	+22.2
Net migration	— 2.7	+ 8.1	—42.9	— 64.6	—10.1	+18.2	+20.6	+12.1	+ 3.6	— 1.3
Male										
Total net change	+14.0	+11.0	+25.3	+ 35.1	+22.1	+ 3.4	+ 4.5	+ 5.5	+10.1	+20.6
Net replacement	+13.7	— 4.2	+52.4	+104.5	+46.8	—13.3	—20.2	—10.0	+ 1.6	+18.3
Net migration	+ .3	+15.2	—27.1	— 69.4	—24.7	+16.7	+24.7	+15.5	+ 8.5	+ 2.3
Female										
Total net change	+11.3	+12.1	+24.4	+ 22.1	+ 7.9	— 1.5	+ 2.0	+ 5.4	+11.9	+21.2
Net replacement	+17.3	+11.6	+88.9	+ 81.7	+ 4.0	—21.1	—14.3	— 3.1	+14.2	+27.2
Net migration	— 6.0	+ .5	—64.5	— 59.6	+ 3.9	+19.6	+16.3	+ 8.5	— 2.3	— 6.0

Source: Derived from appendix table 5.

Rates of change in the youth population 1930-1940 were greatest for men in the age interval 25-29 years and for women in the age interval 20-24 years (table 7).

Despite the great volume of net migration of rural-farm youth out of the transitional area, the numbers of young men and women in their twenties and early thirties residing in the area in 1940 were considerably above those of 1930. The only other age group that approached these high rates of increase was aged people 65 years old and over. Both aged men and aged women increased in numbers by more than one-fifth. These increases were largely accounted for by the natural process of aging of the population. There were, however, a small net movement of aged men to farms in the area and a somewhat larger net movement of aged women away from the farms of the area (table 7).

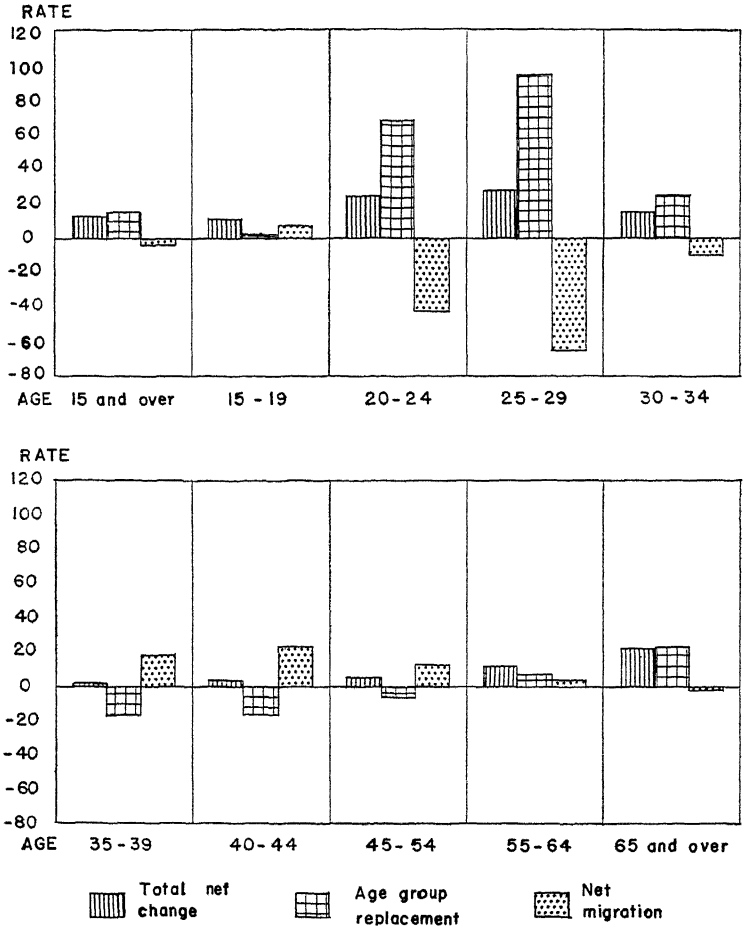

Fig. 4.—Rates of change in the rural-farm population, 1930-1940, in the transitional area of Ohio, by age periods

(Source: table 7)

In the age intervals 35-54 years, replacement deficits in numbers were accompanied by overbalancing in-migrations for both men and women, except for women 35-39 years of age. For both sexes combined, the rates of in-migration ranged from 12.1 per cent to 20.6 per cent among the different age intervals of this broad age period 35-54 years. Owing to losses from replacement, however, the total net increases ranged from only 1.0 per cent for those 35-39 years old to 5.4 per cent for those 45-54 years of age. Population replacement and net in-migration operated to increase the numbers of those 55-64 years old by 10.9 per cent between 1930 and 1940 (fig. 4, table 7).

SOUTHEASTERN AREA

The volume, rates, and direction of rural-farm population changes in the southeastern area 1930-1940 were very similar to those in the transitional area. Like the transitional area, it exported large net numbers of youth 20-34 years old and imported somewhat smaller net numbers of people in the older ages and of young persons 15-19 years old. The volume of net out-migration 1930-1940 of youth included more than 6,000 men and 6,000 women aged 20-34 years.

The net in-migration of persons 35 years old and over included 4,700 men and 2,900 women. The rate of in-migration of these middle-aged and aged people was about 20 per cent for the age groups 35-44 years but declined steadily through each age interval to 5.3 per cent for those 65 years old and over.

In this as in all other areas, there was a strong tendency for high positive rates of population replacement to be accompanied by high rates of net out-migration at various age levels, and for high negative rates of replacement to be associated with accelerated rates of net in-migration (fig. 5, table 8).

RURAL-URBAN MIGRATION

If there had been no net migration across the State borders of Ohio between 1930 and 1940, each net loss to the rural population through migration in any age interval would appear as a net gain for the urban population of the State, and each net gain to the rural population would appear as a loss to the urban population.

In order to check the extent to which the net migration to and from rural areas could be accounted for by intrastate exchanges of population between country and city, net gains and losses resulting from migration were estimated for the adult population of the State as a whole and for its component rural and urban segments separately. Results indicate that while rural areas lost 18,000 women 15 years old and over through net migration between 1930 and 1940, urban places gained about 23,000 through the same channels. The difference between these figures is to be accounted for by a net influx of about 5,000 women into Ohio from other states, if the estimates are correct. The estimates indicate that rural areas combining both rural-farm and rural-nonfarm residences lost a small volume of men, about 3,000 in number, through net migration during the decade but that urban places also lost men through net migration to the extent of an estimated 20,000. These combined estimates indicate a net movement of 23,000 men and boys 15 years old and over from

TABLE 8.—Amounts and rates of change in the rural-farm population of the southeastern area of Ohio, 1930-1940, by age and sex

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Both sexes										
Total net change	+15,216	+ 1,827	+ 1,834	+ 2,439	+ 1,653	+ 785	+ 707	+ 762	+ 1,963	+ 3,246
Net replacement	+18,920	+ 957	+ 6,981	+ 8,423	+ 2,747	— 833	— 988	— 1,694	+ 787	+ 2,540
Net migration	— 3,704	+ 870	— 5,147	— 5,984	— 1,094	+ 1,618	+ 1,695	+ 2,456	+ 1,176	+ 706
Male										
Total net change	+ 8,474	+ 926	+ 1,141	+ 1,412	+ 1,076	+ 658	+ 374	+ 203	+ 873	+ 1,811
Net replacement	+ 9,163	+ 39	+ 3,119	+ 4,721	+ 2,102	— 129	— 557	— 1,312	— 5	+ 1,185
Net migration	— 689	+ 887	— 1,978	— 3,309	— 1,026	+ 787	+ 931	+ 1,515	+ 878	+ 626
Female										
Total net change	+ 6,742	+ 901	+ 693	+ 1,027	+ 577	+ 127	+ 333	+ 559	+ 1,090	+ 1,435
Net replacement	+ 9,757	+ 918	+ 3,862	+ 3,702	+ 645	— 704	— 431	— 382	+ 792	+ 1,355
Net migration	— 3,015	— 17	— 3,169	— 2,675	— 68	+ 831	+ 764	+ 941	+ 298	+ 80
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+14.7	+11.0	+17.2	+ 32.0	+21.3	+ 9.6	+ 8.6	+ 4.4	+13.5	+24.3
Net replacement	+18.2	+ 5.8	+65.3	+110.6	+36.3	—10.2	—12.0	— 9.9	+ 5.4	+19.0
Net migration	— 3.5	+ 5.2	—48.1	— 78.6	—14.5	+19.3	+20.6	+14.3	+ 8.1	+ 5.3
Male										
Total net change	+15.3	+10.3	+18.9	+ 35.3	+28.8	+16.5	+ 9.0	+ 2.3	+10.9	+23.9
Net replacement	+16.5	+ .4	+51.5	+117.9	+56.3	— 3.2	—13.5	—14.6	— .1	+15.6
Net migration	— 1.2	+ 9.9	—32.7	— 82.6	—27.5	+19.7	+22.5	+16.9	+11.0	+ 8.3
Female										
Total net change	+13.9	+11.9	+14.9	+ 28.4	+15.1	+ 3.1	+ 8.1	+ 6.8	+16.8	+24.7
Net replacement	+20.1	+12.1	+83.3	+112.4	+16.8	—16.3	—10.5	— 4.7	+12.2	+23.3
Net migration	— 6.2	— .2	—68.4	— 74.0	— 1.7	+19.9	+18.6	+11.5	+ 4.6	+ 1.4

Source: Derived from appendix table 6.

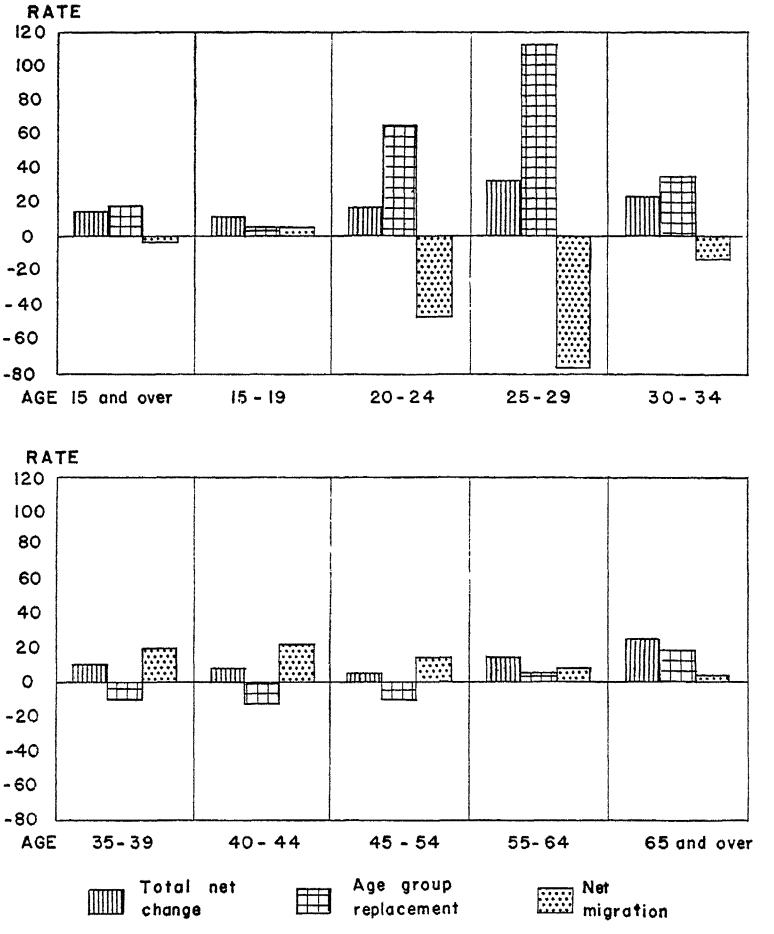

Fig. 5.—Rates of change in the rural-farm population, 1930-1940, in the southeastern area of Ohio, by age periods

(Source: table 8)

Ohio to other states or abroad (table 9). That Ohio did actually lose men and gain women through net migration 1930-1940 is partly verified by the fact that the sex ratio in 1930 of 107 men per 100 women 15 years old and over was reduced to 105 men per 100 women in 1940.

In general, the State as a whole had net losses due to migration of men and boys 15 to 64 years of age and of women 30 to 64 years old. The greatest volume of net loss was concentrated in the middle years 45-64. At the same time, the State as a whole had large net gains through in-migration of aged men and women 65 years old and over and of young women 15-29 years old. At most age levels, however, the major part of the net movement to or from rural areas was accounted for by rural-urban migration within the State. In

nearly all age intervals under 65 years for both men and women, a net loss to the rural population was associated with a net gain to the urban population of the same age interval, or a net gain to the rural population was associated with a net loss to the urban population of comparable age and sex. Consequently, the total volume of net migration at these age levels was much less for the State as a whole than for rural and urban areas separately. For example, the estimates indicate a net loss to Ohio of 6,700 male youths 20-24 years old, but rural areas lost 14,300 of these male youths, and urban areas gained 7,600 (fig. 6, table 9).

TABLE 9.—Estimated amounts and rates of net migration at specified ages for the rural and urban population, Ohio, 1930-1940

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Age, years	Male			Female		
	State	Rural	Urban	State	Rural	Urban
Total	—23,400	— 3,300	—20,100	+ 5,200	—18,200	+23,400
15-19	— 3,700	+ 1,300	— 5,000	+ 1,700	— 5,400	+ 7,100
20-24	— 6,700	—14,300	+ 7,600	+ 7,900	—21,400	+29,300
25-29	+ 1,000	—16,400	+17,400	+ 7,200	—10,500	+17,700
30-34	— 5,700	— 900	— 4,800	— 6,500	+ 5,900	—12,400
35-39	— 2,700	+ 8,400	—11,100	— 2,800	+ 7,700	—10,500
40-44	+ 400	+ 7,800	— 7,400	— 2,000	+ 3,700	— 5,700
45-54	—10,100	+ 7,800	—17,900	—12,600	+ 1,400	—14,000
55-64	—11,500	+ 400	—11,900	— 9,200	— 1,500	— 7,700
65 and over	+15,600	+ 2,600	+13,000	+21,500	+ 1,900	+19,600
15-34	—15,100	—30,300	+15,200	+10,300	—31,400	+41,700
35 and over	— 8,300	- 27,000	—35,300	— 5,100	+13,200	—18,300
	Rate					
Total	—1.0	— 0.4	— 1.2	+ .2	— 2.6	+ 1.4
15-19	—1.3	+ 1.2	— 2.7	+ .6	— 5.8	+ 3.6
20-24	—2.4	—17.4	+ 3.9	+ 2 8	—30.0	+13.7
25-29	+ .4	—24.1	+ 9.1	+ 2 7	—16.2	+ 8.9
30-34	—2 2	— 1.3	— 2.6	— 2 6	+ 9.0	— 6.7
35-39	—1.0	+11.7	— 5.6	— 1.1	+11.3	— 5.7
40-44	+ .2	+11.5	— 4.3	— .9	+ 5.9	— 3.6
45-54	—2 6	+ 6.2	— 6.8	— 3.5	+ 1.3	— 5.6
55-64	—4 5	+ .4	— 7.6	— 3 8	— 1.8	— 4.8
65 and over	+7.7	+ 2.8	+12.1	+10.1	+ 2.3	+15.0
15-34	—1.4	— 9.4	+ 2.0	— 2.1	—10.6	+ 5.2
35 and over	— .6	+ 5.9	— 3.9	— .9	+ 3.2	— 2.1

With the findings regarding age group replacement and net migration in the rural population of different areas of Ohio between 1930 and 1940 summarized, it remains to discuss some of the effects of a decade of rural population change and the outlook for future migration of the rural population.

EFFECTS OF AGE GROUP REPLACEMENT AND NET MIGRATION

The preceding chapter of this report has described the rate of rural-farm population growth in the State of Ohio, in its constituent areas, by age groups, and for the two sexes 1930-1940. It has described also the two major components of population change, namely, age group replacement and net migration, in the various segments of population. Purpose of the present chapter

is to describe the effects of these population changes on the age composition of the rural population, on the proportions of the sexes, and on rural institutions and rural wealth.

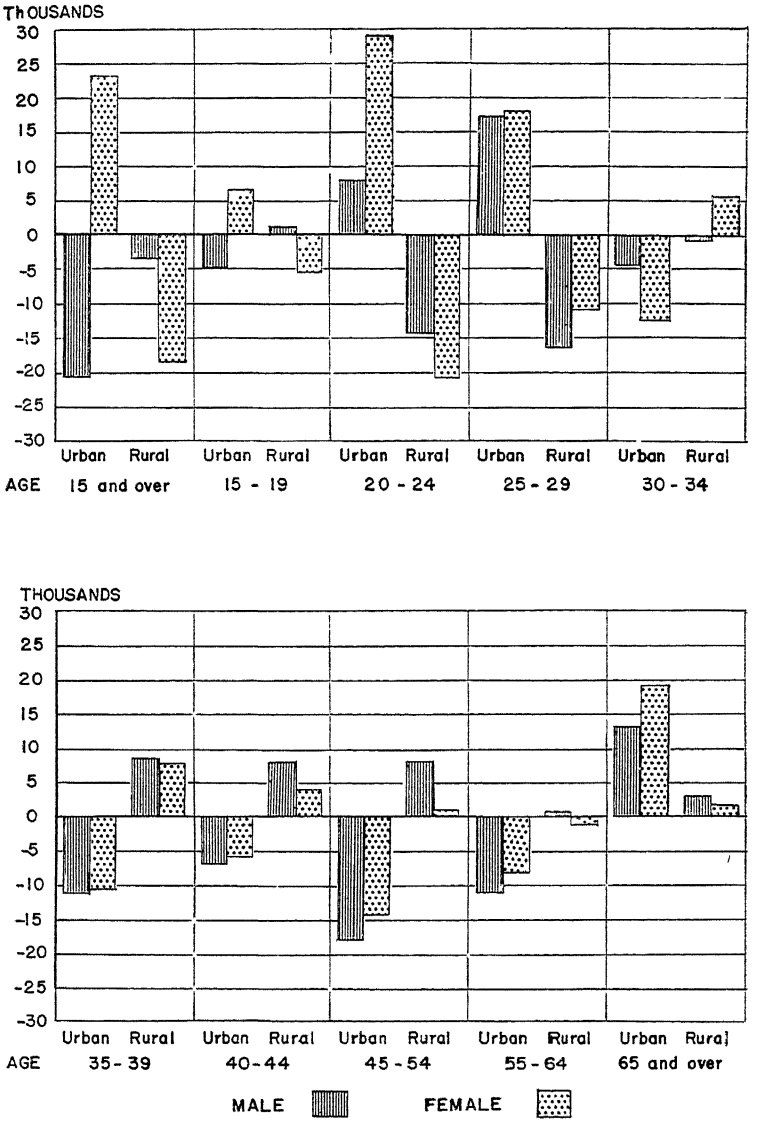

Fig. 6.—Estimated net migration at specified ages, 1940, for the rural and urban population, Ohio, 1930-1940

(Source: table 9)

EFFECT ON AGE DISTRIBUTION

Before an analysis of the age distribution of the rural population is made, it must be emphasized that the population of Ohio, both rural and urban, has been getting older each decade for as long as statistics are available (table 10).

TABLE 10.—Per cent distribution of the population of Ohio, by broad age groups and by sex, 1880 and 1940

Age group, years	1940			1880		
	Total	Male	Female	Total	Male	Female
All ages	100.0	100.0	100.0	100.0	100.0	100.0
Under 15	22.8	23.1	22.5	36.5	36.6	36.3
15-24	17.8	17.6	17.9	20.6	20.3	21.1
25-44	30.0	29.6	30.3	25.7	25.6	25.7
45-64	21.6	22.2	21.2	13.2	13.4	13.0
65 and over	7.9	7.6	8.0	4.0	4.1	3.9
Median age	30.8	30.9	30.8	21.5	21.6	21.4

RURAL-URBAN DIFFERENCES, 1940

Owing to large-scale migration from farms to cities and higher birth rates in rural areas, the age distribution of the rural-farm population differs widely from that of the urban population. Unlike cities, rural areas have an excess of children and of aged people but a deficiency of people in the productive ages 20-44 years. Only 31.3 per cent of the people living on farms in Ohio were in the productive age period 20-44 years in 1940, while 36.7 per cent of the rural-nonfarm and 40.8 per cent of the urban population were in this age period (table 11).

TABLE 11.—Per cent distribution of the rural and urban population of Ohio, by broad age groups, 1940

Age group, years	The State	Urban	Rural-farm	Rural-nonfarm
All ages	100.0	100.0	100.0	100.0
Under 20	31.9	29.9	36.7	35.7
20-44	38.7	40.8	31.3	36.7
45-64	21.6	22.1	22.6	18.8
65 and over	7.9	7.2	9.5	8.9
Median age	30.8	31.5	29.9	29.4

Source: Sixteenth Census of the United States: 1940. Series P-6, No. 44. March 28, 1942.

AREA DIFFERENCES

The total rural-farm population of Ohio increased by 66,000 between 1930 and 1940 according to census enumerations of those years, an increase of 6.6 per cent. During this decade, young farm people 15-34 years old increased 47,000, or 17.1 per cent. Older farm people 35-44 years old about held their own in numbers, but those above the 45-year level increased 50,000, or 17.1 per cent. At the same time, children under 15 years declined 31,000, or 10.0 per cent, as a result of declining numbers of births since 1925.

These differential rates of rural-farm population change, which resulted from the joint effects of net migration and age group replacements, served to redistribute to an appreciable extent the population among different age levels during the course of a single decade. For example, in 1930, children under 15 years old comprised 31.0 per cent of the population on farms, but in 1940, children comprised only 26.1 per cent of the total. On the other hand, youths and young adults 15-34 years old, whose share of the total rural-farm population was only 27.6 per cent in 1930, comprised 30.3 per cent of the total in 1940. Again, the proportion of older people past 45 years in the total rural-farm population, which was only 29.0 per cent in 1930, increased to 32.0 per cent in 1940 (table 12).

TABLE 12.—Change in the per cent distribution of the rural-farm population in Ohio areas, 1930 to 1940, by age groups

Age group, years	All areas		Urban-industrial area		Western agricultural area		Transitional area		Southeastern area	
	1940	1930	1940	1930	1940	1930	1940	1930	1940	1930
All ages.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 15	26.1	31.0	23.7	29.7	26.0	31.1	27.2	30.7	29.2	32.8
15-19.....	10.6	10.3	10.7	10.5	10.3	10.1	10.5	10.1	10.9	10.7
20-24.....	7.9	6.8	8.1	6.9	8.0	6.7	7.7	6.6	7.5	6.9
25-29.....	6.2	5.1	6.1	4.8	6.5	5.3	6.1	5.1	6.0	4.9
30-34.....	5.6	5.4	5.5	5.2	5.7	5.7	5.5	5.1	5.5	4.9
35-44.....	11.6	12.4	12.1	13.2	11.7	12.7	11.2	11.8	10.6	10.6
45-54.....	12.2	11.8	13.6	12.7	12.5	11.8	11.7	11.9	10.6	11.1
55-64.....	10.3	9.4	11.0	9.5	10.1	9.1	10.2	9.9	9.8	9.4
65 and over.....	9.5	7.8	9.2	7.5	9.2	7.5	9.9	8.8	9.8	8.6
Median age ...	29.4	26.9	31.3	28.0	29.4	27.0	28.8	27.6	27.0	24.7

Source: Derived from appendix tables 2-6.

This shift toward the older age levels between 1930 and 1940 served to increase the median age of the rural-farm population by 2.5 years, or from 26.9 years to 29.4 years; that is, in 1940, one-half of the rural-farm population was older than 29.4 years, and one-half was younger than that.

The age distribution of the rural-farm population differed considerably among the four level-of-living areas of Ohio both in 1930 and in 1940. The proportion of children in the population of the different areas was in reverse relation to the level-of-living index in those areas (table 12).

Although the proportion of children in the rural-farm population was highest in the areas of lowest level of living, the decline in their proportions was greatest in the areas with highest level-of-living indexes. In the urban-industrial area, for example, children comprised 29.7 per cent of the rural-farm people in 1930 but only 23.7 per cent in 1940, a decline of 6.0 percentage units. At the opposite extreme in level of living was the southeastern area, where the proportion of children in the total rural-farm population declined only 3.6 percentage units 1930-1940 (table 12).

Although the proportion which children made up of the rural-farm population was greatest in the poorer areas and least in the more prosperous areas, the opposite was true of farm people 45-64 years old. These older people made up 24.6 per cent of the farm people in the urban-industrial area in 1940, but their share of the total decreased to only 20.4 per cent in the southeastern area. From 1930 to 1940, the proportion of these older people increased in each area, and the increases were greatest in the more prosperous areas.

There were no significant area differences in the proportions of young people 15-34 years old in the rural-farm population of Ohio in 1930 or in 1940. The median age was, however, in direct ratio to the level-of-living index, ranging in 1940 from 27.0 years in the southeastern area up to 31.3 years in the urban-industrial area (table 12).

Similar trends in age distribution and redistribution of the rural-nonfarm population 1930 to 1940 are shown in appendix table 2.

EFFECT ON PROPORTIONS OF MEN AND WOMEN

RURAL-URBAN DIFFERENCES

An excess of women has been included in the net migration from farms and villages to cities. The result is that males outnumber females in rural areas of Ohio, that the reverse is true in urban areas (table 13).

Differential rates of migration by sex and age have served to produce widely different proportions of men and women in the rural and urban populations at various age levels. For example, the exceedingly high net migration rates for young women 15-29 years old have resulted in females' far outnumbering males of the same ages in urban areas. At the same time, a great excess of male youth is left on farms (table 13).

TABLE 13.—Number of males per 100 females in the rural and urban population, by age, Ohio, 1940

Age, years	Total	Urban	Rural		
			Total	Farm	Nonfarm
All ages	100	96	109	115	104
Under 5	103	103	104	105	103
5- 9	104	103	105	106	104
10-14	103	101	106	108	104
15-19	100	95	111	120	103
20-24	97	90	116	138	99
25-29	96	92	107	121	98
30-34	97	95	105	110	102
35-39	98	95	105	104	106
40-44	101	98	108	102	114
45-49	105	103	111	106	115
50-54	107	105	112	111	114
55-59	105	102	113	118	109
60-64	103	96	116	125	106
65 and over	93	82	113	132	98

Source: Sixteenth Census of the United States: 1940. Series P-6, No. 44. March 28, 1942.

Further analysis of sex ratios in rural and urban areas of Ohio in 1940 reveals several significant features. For the rural-farm population, the number of men per 100 women falls from a high point in the age group 20-24 to a low in the age group 40-44 (table 13). Beyond that age level, the sex ratio rises progressively (table 13). Since on the average, women live somewhat longer than men, excesses of women would naturally be expected in the later years of life. That there were not such excesses is due to a greater migration of women to urban areas.

No comparable discrepancies between the numbers of men and women occurred in the rural-nonfarm population, with the exception of the age groups 40-59 years. During these middle years, the number of males per 100 females ranged from 109 to 115 (table 13).

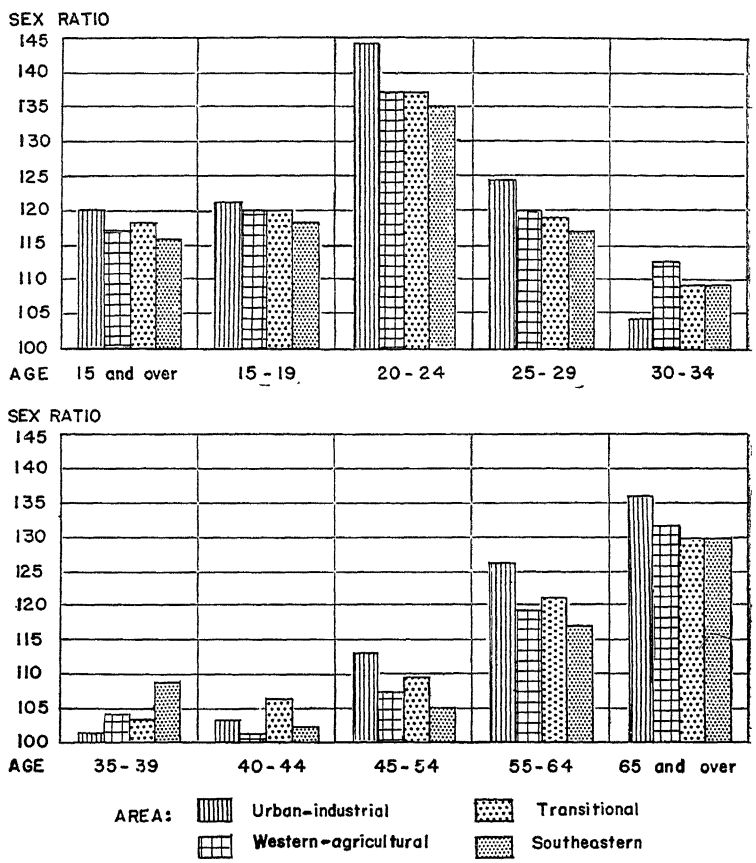

Fig. 7.—Number of males per 100 females in the rural-farm population 15 years old and over by age and area of residence, Ohio, 1940

(Source: table 14)

AREA DIFFERENCES

In the Ohio rural-farm population 15 years old and over in 1940, the number of men exceeded the number of women at all age levels not only for the State as a whole but for each level-of-living area. In general, the number of men per 100 women was highest in the urban-industrial area and lowest in the southeastern area. The other two areas were intermediate. For the age periods 20-29 years, the sex ratio tended to vary in direct proportion to the

level-of-living index. For these youth, the sex ratio was highest in the urban-industrial area, which also had the highest level of living, and lowest in the southeastern area, which also had the lowest level of living. Intermediate sex ratios were found in the transitional and western-agricultural areas. Similar area variations in sex ratios were found for aged persons 65 and over, as well as for the age period 55-64 years (fig. 7 and table 14).

Area variation in sex ratios at different age levels of the rural population 15 years old and over was much greater for the rural-farm than for the rural-nonfarm segment. The area variation appeared to have little relation to level of living in the several areas (table 14).

TABLE 14.—Number of males per 100 females in the rural population of Ohio, 15 years old and over, by residence and age, 1930 and 1940

Residence and age, years	All areas		Urban-industrial		Western-agricultural		Transitional		Southeastern	
	1940	1930	1940	1930	1940	1930	1940	1930	1940	1930
Rural-farm	118	115	120	120	117	113	118	115	116	115
15-19	120	122	121	128	120	119	120	122	118	120
20-24	138	135	144	147	137	129	137	136	135	131
25-29	121	109	124	117	120	105	119	108	117	111
30-34	110	95	104	98	113	93	109	97	109	98
35-39	104	97	101	99	104	96	103	98	108	95
40-44	102	103	103	105	101	102	106	104	102	101
45-54	109	111	113	115	107	110	109	109	105	110
55-64	121	125	126	131	119	124	121	122	117	124
65 and over	132	135	136	135	132	138	130	131	130	130
Rural-nonfarm	105	107	105	109	102	104	109	110	103	102
15-19	103	104	101	101	109	108	103	108	97	101
20-24	99	102	93	94	106	114	105	110	98	96
25-29	98	101	91	96	104	105	105	109	105	102
30-34	102	107	98	108	106	104	106	113	108	102
35-39	106	113	105	118	105	105	107	117	108	105
40-44	114	112	117	117	106	104	121	116	104	104
45-54	115	114	121	120	101	104	123	117	107	109
55-64	108	108	113	116	99	100	112	108	107	107
65 and over	98	101	103	109	95	99	98	97	93	92

Source: Computed from appendix tables 2-6.

The general trend between 1930 and 1940 was toward an increasing number of men per 100 women on farms in Ohio (table 14). Increases were found in each area except the urban-industrial, where the high sex ratio of 120 in 1930 remained at that same level in 1940. The general increase in sex ratios was accounted for entirely by the younger age levels of the rural-farm population, for in the age intervals above 40 years there were fewer men per 100 women in 1940 than in 1930 (table 14).

Trends in sex ratios in different areas and at different age periods of the rural-nonfarm population between 1930 and 1940 tended to be the opposite of those characteristic of the rural-farm population (table 14).

EFFECT ON RURAL WEALTH AND RURAL INSTITUTIONS

This study has revealed the very great importance of the rural-farm population of Ohio as a source of urban workers. The urbanward migration is highly selective of young people in the most productive years of their lives. It is evident that farming communities bear extremely heavy financial responsibilities in rearing children to maturity and providing their education only to

have many of them move to cities. Since farm families must feed, clothe, shelter, and educate large numbers of persons who eventually migrate to urban centers, and since urban residents thus inherit much farm property, it is evident that farm-to-city migration involves a considerable transfer of rural wealth, as well as rural population, to cities. As a result, in relation to urban areas, serious inequalities exist in many rural communities in maintenance of adequate health facilities, schools, and other essential community services.

THE OUTLOOK FOR FUTURE MIGRATION

Probably the most notable feature of rural population change revealed by this study was the very great volume of net migration of youths away from farms in Ohio. Although the gross movements to and from farms could not be determined, it was found that about 61,000 more persons 20-29 years old moved away from farms than moved to them during the decade 1930-1940. Even though this was a depression decade marked by widespread unemployment in cities, Ohio farms lost about two-thirds of their age group replacement in these youths through net migration. Had the times been more prosperous, the loss certainly would have been greater, for the excess of age group replacement over net migration was sufficient to increase the number of youths living on farms by 32,000, or 27.0 per cent, while the remainder of the rural-farm population increased only 3.8 per cent. It can be assumed that many of these young people remained on farms only because of lack of opportunities elsewhere.

THE OUTLOOK FOR THE IMMEDIATE FUTURE

The depression decade of the thirties has now been succeeded by the beginning of the war decade of the forties. The barriers which served to check the streams of net migration of youths from farms are now removed, and a virtual flood of movement is in process. The onset of the war found a vast reservoir of manpower and womanpower represented by rural youth. There were in 1940 a total of 151,000 young people 20-29 living on farms and an additional 196,000 living in rural-nonfarm residences in Ohio. In addition to these more mature youths, there were 113,000 rural-farm youths and 111,000 rural-nonfarm youths 15-19 years old in this State. The great majority of these have now matured beyond 18 years of age.

The manpower and womanpower represented by rural youth are being utilized in the war effort not only in the production of food but also in the munition factories and in the armed services. A survey in one Ohio county indicated that about 41.0 per cent of the rural-farm youth and 48.0 per cent of the rural-nonfarm youth residing there in 1940, at which time they were 18-27 years old, had moved away by April 1942. This percentage included the men who had been inducted into the armed services.[8]

It is evident that the effect of the war is to accentuate rural migration trends already in operation. It is also evident that analyses of data of population movements between the last two decennial census dates, such as have been undertaken here, have much predictive value both on a short-time and on

[8]Mangus, A. R., and C. E. Sower. 1942. War and migration of rural youth (A study of Ross County, Ohio). Department of Rural Economics and Rural Sociology Mimeographed Bulletin No. 149. The Ohio State University and Ohio Agricultural Experiment Station, Columbus, Ohio.

a longer-time basis. It has been demonstrated, for example, that net out-migration occurs in greatest volume in those segments of the population where the volume and rate of age group replacement excess are greatest. It has been further shown that high rates of age group replacement deficits in a given segment of population tend to discourage out-migration or to encourage net in-migration to that segment.

Further application of the methods used in the present study indicates that by 1945, the replacement gains in young rural-farm adults 20-34 years of age will be about 28,000 men and 21,000 women in excess of their numbers in 1940. Hence, if the relatively large numbers of these young people on farms in 1940 were to remain the same for 5 years, there still would be 49,000 to be drained away through migration. By 1950, this excess would amount to 44,000 men and 40,000 women.

It is unlikely, however, that Ohio farms will retain during this war decade such large numbers of young adults in their population as they had at the end of the depression decade in 1940. If it is assumed that the numbers of these youths in the rural-farm population will be reduced to the 1930 level as a result of the war migration, then the numbers of young migrants from farms will be very much larger. On this assumption, the net volume of out-migration by 1945 will amount to about 53,000 men and 34,000 women 20-34 years old. By 1950, there would be 69,000 young men and 53,000 young women available for migration away from Ohio farms (table 15). If larger net out-migration of young adult people from Ohio farms occurs during this decade,

TABLE 15.—Estimated age group replacement for men and women under 65 years of age in the rural-farm population of Ohio, 1940-1950

(Plus sign (+) indicates an excess; minus sign (—) indicates a deficit)

Sex and age, years	Enumerated population		Survivors of the 1940 population		Excess or deficit of survivors in 1945		Excess or deficit of survivors in 1950	
	1930	1940	In 1945	In 1950	Over 1930	Over 1940	Over 1930	Over 1940
Male	385,800	425,400						
10-14	60,000	55,100						
15-19	56,700	61,600	54,600		— 2,100	— 7,000		
20-24	39,000	49,100	60,700	53,800	+21,700	+11,600	+14,800	+ 4,700
25-29	26,700	36,400	48,200	59,800	+21,500	+11,800	+33,100	+23,200
30-34	26,300	31,100	35,700	47,400	+ 9,400	+ 4,600	+21,100	+16,300
35-39	30,500	30,500	30,500	35,000			+ 4,500	+ 4,500
40-44	31,600	32,400	29,800	29,800	— 1,800	— 2,600	— 1,800	— 2,600
45-49	32,000	34,800	31,400	29,000	— 600	— 3,400	— 3,000	— 5,800
50-54	30,800	34,100	33,500	30,300	+ 2,700	— 600	— 500	— 3,800
55-59	28,100	32,100	32,300	31,800	+ 4,200	+ 200	+ 3,700	— 300
60-64	24,100	28,300	29,400	29,700	+ 5,300	+ 1,100	+ 5,600	+ 1,400
Female	343,300	370,400						
10-14	55,000	50,800						
15-19	46,600	51,400	50,400		+ 3,800	— 1,000		
20-24	29,000	35,500	50,700	49,700	+21,700	+15,200	+20,700	+14,200
25-29	24,500	30,200	34,800	49,800	+10,300	+ 4,700	+25,300	+19,600
30-34	27,600	28,400	29,600	34,200	+ 2,000	+ 1,200	+ 6,600	+ 5,800
35-39	31,400	29,500	27,900	29,000	— 3,500	— 1,600	— 2,400	— 500
40-44	30,800	31,600	28,800	27,200	— 2,000	— 2,800	— 3,600	— 4,400
45-49	29,700	32,700	30,700	28,000	+ 1,000	— 2,000	— 1,700	— 4,700
50-54	27,000	30,600	31,400	29,500	+ 4,400	+ 800	+ 2,500	— 1,100
55-59	23,000	27,300	28,900	29,700	+ 5,900	+ 1,600	+ 6,700	+ 2,400
60-64	18,700	22,600	25,100	26,600	+ 6,400	+ 2,400	+ 7,900	+ 4,000

then their actual numbers in the rural-farm population will be reduced below those of 1930, the year which marked the end of a period of great industrial prosperity that attracted rural youth to cities in large numbers.

THE OUTLOOK FOR LONG-TIME TRENDS

The war services are now draining vast numbers of people away from farms and rural villages, but this war migration represents only a crest in a long-time wave of movement, particularly of young people, away from the country areas. That trend is likely to continue for a long time and can be regarded as a demographic necessity.

Although the migration of great numbers of youth from farms and from rural villages of Ohio to cities has produced many maladjustments in rural communities, even greater problems would certainly have resulted from complete lack of migration. In most rural areas, birth rates were sufficiently high to produce serious overpopulation if there had been no countermovement to relieve the situation. For example, even with an appreciable migration between 1930 and 1940, rural-farm youth in their twenties increased 26.9 per cent, but if there had been no net migration, their numbers on farms would have increased 78.4 per cent.

In addition to their absorption of great numbers of rural youths, and earlier of foreign immigrants, cities have in the past reared a large proportion of the productive workers needed for urban industries. Although urban birth rates have been far below those in rural areas, cities have maintained a favorable balance between actual numbers of births and deaths because of the concentration of urban women in the child-bearing age period and in the most fertile ages of the child-bearing period. In other words, although the number of births per woman in cities has been below that in rural areas, the urban areas contain disproportionately large numbers of potential mothers. This favorable position of urban areas is temporary, however, for even if present urban age-specific birth rates continue unchanged, the total number of urban births will decline as the population ages and as the number of women in the ages of highest fertility declines. Moreover, as the population becomes older, death rates per 1,000 population will increase.

As a result of migration, the rural population as compared with urban population contains a deficiency of women of child-bearing ages. Rural birth rates per 1,000 women remain sufficiently high, however, to produce a great surplus of rural population. In this discussion, numbers above that needed for replacement of those who die are considered surpluses. If urban birth rates per 1,000 women of different ages remain as they are at present, or if they decline, urban deaths will eventually outnumber urban births. In this event, the rural population will not be sufficiently reproductive to maintain both itself and the urban population without increasing the birth rates. All indications are that rural-urban migration of youth will be a continuing factor in Ohio and in the Nation as a whole.

In substantiation of these considerations, much concrete evidence could be presented. Only a very brief summary is attempted here.

DIFFERENTIAL BIRTH RATES

From available tabulations of the age and sex composition and of births by age of mothers, it was possible to compute age-specific birth rates for the entire State of Ohio combining rural and urban areas for the year 1939. From special tabulations supplied by the United States Bureau of the Census, including resident births by age of mother, it was possible to compute comparable birth rates for the rural parts of 26 Ohio counties combining the years 1939 and 1940. The 26 rural localities were scattered throughout the western-agricultural, transitional, and southeastern areas and are probably typical of those areas. No data were available for computing comparable urban rates, but such rates are necessarily below those representing averages for the entire State.

RURAL-STATE DIFFERENCES

The number of births per 1,000 women of child-bearing ages (15-49 years) was 41.6 per cent higher in the rural areas than in the State as a whole. Similar differences were found for each age interval of the child-bearing period. The rural birth rates were 26.0 to 29.4 per cent above the average for the State for the 5-year age intervals between 15 and 34 years. Differences were even greater for older women (table 16).

TABLE 16.—Average annual number of births per 1,000 women, by age, in Ohio, 1939, and in the rural areas of 26 Ohio counties, 1939-1940

Area	Age in years							
	15-49	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Ohio (State average)	52.7	40.9	116.0	98.6	72.8	39.2	13.7	2.0
26 rural localities.....	74.6	52.9	148.6	127.6	91.7	57.8	21.4	1.9
Rural as per cent of State average	141.6	129.3	128.1	129.4	126.0	147.4	156.2	95.0

Birth rates were generally highest for women 20-29 years old and were higher in the earlier than in the later twenties. For women 15-19 years old, birth rates were less than one-third of those for women 5 years older. For women 30 years old and over, birth rates drop rapidly with each successive age interval to the end of the child-bearing period (table 16).

As pointed out, urban areas have maintained a favorable balance between births and deaths because of a concentration of women of child-bearing age and of the most fertile years in cities. For example, in 1940, over one-half (57.1 per cent) of the entire female population of urban Ohio was included in the child-bearing ages 15-49 years. At the same time, the proportion of female population on farms at these ages was only 48.0 per cent, and for the rural-nonfarm female population, the proportion was only 51.3 per cent. Furthermore, urban women of child-bearing age were concentrated in the years of greatest reproductivity to a greater extent than were rural-farm women. Of all urban women 15-49 years old in 1940, it was found that 32.0 per cent were 20-29 years old, the ages of maximum birth rates. It was found that only 27.4 per cent of the rural-farm women of child-bearing ages were in their twenties.[9]

[9]Computed from Sixteenth Census of the United States: 1940. Series P-6, No. 44. March 28, 1942.

Since rural-urban net migration rates were particularly high for women in their twenties, it is evident that if such migration should cease, urban areas would not only lose their increase from the migrants themselves but would also soon lose their favorable age distribution of the female population. Even though present age-specific birth rates were to continue, cities would eventually have too few women of child-bearing ages to reproduce themselves. The city seems likely to continue as a population vacuum attracting rural youth.

AREA DIFFERENCES

By using as a sample the 26 counties for which rural births were tabulated by age of mothers, it was possible to obtain estimates of age-specific birth rates for 3 of the level-of-living areas, as shown in table 17. In general, birth rates were highest in the southeastern area, lowest in the western-agricultural area, intermediate in the transitional area. The most prolific age period for women was found to be 20-24 years in all areas. For that age group, birth rates ranged from 138 per 1,000 women in the western-agricultural area to 158 in the southeastern area. Women under 20 years of age bear children in much larger proportions in the counties of southeastern Ohio than in the western area of the State. There were 22 more births per 1,000 women 15-19 years old in both the transitional and southeastern areas than in the western-agricultural area (fig. 8, table 17).

TABLE 17.—Average annual number of births per 1,000 rural women, by age, in level-of-living areas of Ohio, 1939-1940

Area	Age in years							
	15-49	15-19	20-24	25-29	30-34	35-39	40-44	45-49
All areas	74.6	52.9	148.6	127.6	91.7	57.8	21.4	1.9
Western-agricultural	66.8	39.5	138.1	120.9	86.2	52.3	18.1	1.7
Transitional	79.9	61.3	153.8	126.3	103.0	60.3	24.2	2.9
Southeastern	80.7	62.3	157.8	137.9	88.9	63.3	23.8	1.3

DIFFERENTIAL DEATH RATES

Although age-specific birth rates differed widely between rural and urban, and among rural level-of-living areas, death rates varied much less. Variation in the crude death rate among three of the rural level-of-living areas was negligible (table 18).

TABLE 18.—Average annual number of deaths per 1,000 population, by age groups, in Ohio, 1939, and in three rural areas, 1939-1940

Area	Age in years									
	Total	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over
Ohio	11.2	11.2	1.0	1.9	2.8	5.0	10.1	20.7	46.7	132.8
Rural areas	12.0	12.7	1.0	2.1	2.8	4.1	7.7	16.3	40.7	127.9
Western-agricultural	11.8	11.2	.9	2.3	2.3	3.7	7.0	15.4	41.9	124.4
Transitional	12.2	12.5	1.1	1.8	2.8	4.3	8.8	18.5	40.7	128.5
Southeastern	12.0	14.5	1.0	2.2	3.4	4.4	7.9	15.7	39.0	132.4

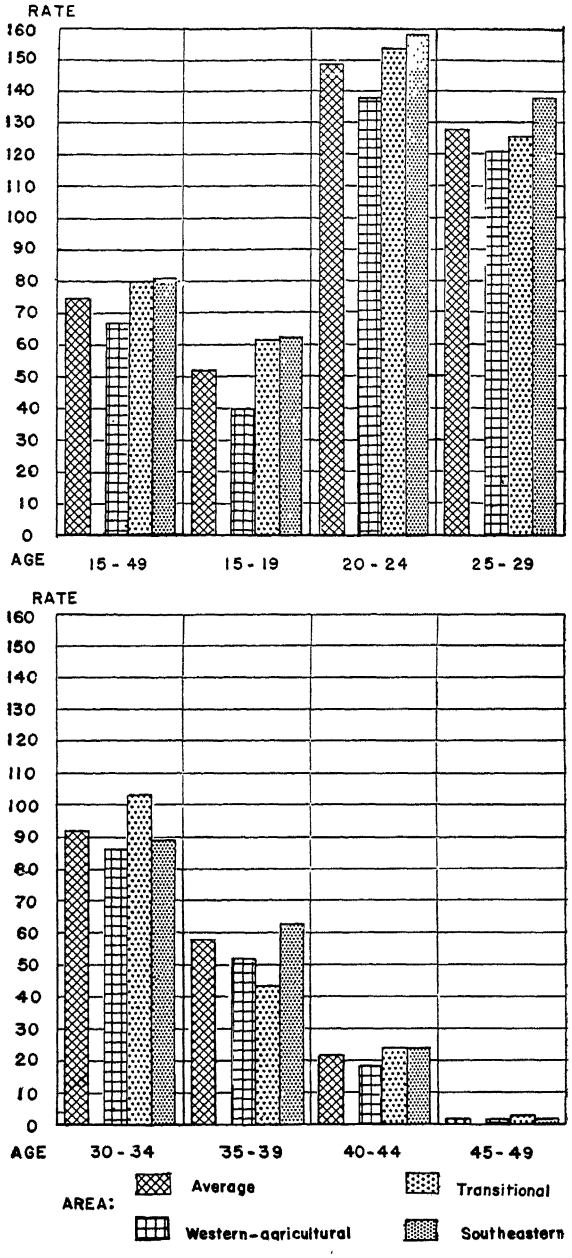

Fig. 8.—Average annual number of births per 1,000 rural women, by age, in level-of-living areas of Ohio, 1939-1940

(Source: table 17)

There are, however, several interesting features in a comparison of age-specific death rates for rural areas and the entire State of Ohio. For example, the death rate among children under 5 years old was 1.5 per 1,000 greater for rural areas than for the State as a whole, indicating lower child death rates in urban areas. No important differences in death rates for rural and urban areas were found for the age groups 5-44 years. For the later years, however, rural rates were considerably below the averages for Ohio (table 18).

Among the three rural level-of-living areas for which resident deaths by age were available for sample localities, differences in age-specific death rates were notable only for young children and for aged people (table 18).

It is evident that differences in birth rates in rural areas of Ohio reflect differences in rates of age group replacement in the population, since death rates per 1,000 population are much the same in all areas, rural and urban. Rural areas delineated by the present study as having the lowest levels of living continue to have the largest proportions of youth available for migration to cities.

DIFFERENTIAL FERTILITY RATIOS

It has not been possible to compute birth rates for the entire rural-farm and rural-nonfarm populations, since vital statistics are not separately tabulated for these population groups. It is possible, however, to derive an additional vital ratio from the population census, the number of children under 5 years of age per 1,000 women 20-44 at the time of census enumeration. This fertility ratio reflects the relative number of births during the 5 years preceding the enumeration and offers an excellent measure of effective population fertility. From tabulations supplied by the United States Bureau of the Census, fertility ratios have been computed for the rural-farm and rural-nonfarm, as well as for the urban, population for 1930 and 1940. These ratios can be used to measure both time and space differences in fertility.

RURAL-URBAN DIFFERENCES

For the State of Ohio as a whole, there were in the 1940 population 376 children under 5 per 1,000 women 20-44 years old. The comparable figure for urban areas was lower, 321, and for rural areas was considerably higher, 520. Thus there were about 200 more children per 1,000 women of child-bearing age in rural than in urban areas. When the fertility ratios of 1940 are compared with those of 1930, the general downward trend of birth rates is reflected. During that period, the decline was more rapid in urban than in rural areas. The urban ratio registered a decline of 18.7 per cent, falling from 395 in 1930 to 321 in 1940. At the same time, the rural fertility ratio dropped from 605 to 520, a decline of only 13.9 per cent.

For the rural-farm and rural-nonfarm populations, the fertility ratios and changes from 1930 to 1940 are given in table 19.

AREA DIFFERENCES

Rural population fertility ratios were widely different in the various level-of-living areas, being highest in those areas with the lowest levels of living and lowest in those with the highest levels of living. For example, in 1940 there were 192 more children per 1,000 women in the rural-farm population of

the southeastern area, with the lowest level of living, than were in the urban-industrial area, with the highest level of living. Similarly, there were 176 more children per 1,000 women in the rural-nonfarm population of the one area than in that of the other (table 19).

TABLE 19.—Number of children under 5 per 1,000 rural white women 20-44 years of age, by location of residence, Ohio, 1930 and 1940

Area	Rural-farm			Rural-nonfarm		
	1940	1930	Per cent change	1940	1930	Per cent change
All areas	544	609	—10.7	503	601	—16.3
Urban-industrial	453	546	—17.0	458	576	—20.5
Western-agricultural	550	601	— 8 5	505	546	— 7.5
Transitional.....	583	625	— 6.7	538	659	—18.4
Southeastern . . .	645	725	—11.0	634	731	—13.3

Source: The Fifteenth Census of the United States, 1930, and the Sixteenth Census of the United States, 1940. Special tabulations.

Calculations based on life tables for the native white rural population of Ohio 1930 showed that, subject to death rates existing at the time, about 430 children per 1,000 women 20-44 years of age were required in the long run to maintain a stationary population; that is, about 430 children per 1,000 women were needed to meet population replacement requirements with no excess for long-time population growth. A comparable figure has not been determined for 1940, but it is probably not greatly below that of 1930. It is certain, however, that the fertility ratio in urban areas is substantially below permanent replacement needs. It is equally certain that rural areas are producing population greatly in excess of population replacement requirements, and that the excess is greatest in the poorer areas and least in the wealthier areas.

It is evident that migration from rural areas to cities is a natural phenomenon necessary for maintaining the population balance. Conditions which are basic to rural-urban migration are likely to persist far into the future.

CONCLUSIONS AND SUMMARY OF FINDINGS

The decade of the nineteen thirties was a period of tremendous social changes. Its beginning marked the end of an interval of great industrial prosperity and the onset of the Nation's greatest depression. Its ending marked the cessation of depression conditions and the initiation of conditions contingent upon the Nation's greatest war. Between its beginning and its ending were 10 years of dramatic events too well known to require mention here.

Beneath the dramatic events that occurred during the nineteen thirties, and not unrelated to them, were many basic but undramatic changes, scarcely noticed by the public, yet far-reaching in their consequences and implication. Among these basic but less visible changes, probably none were more important than those involving major shifts in population. It has been the purpose of this study to explore some of these shifts. This study has sought out the essential facts concerning the growth and redistribution of rural population among different social and economic areas and among different age groups in Ohio between 1930 and 1940.

The decade of the thirties was a most important one from the point of view of population trends in Ohio for several reasons:

It marked the reversal of a 130-year trend of increasing concentration of Ohio's population in urban places. For the first time in the history of the State, there was a more rapid rate of increase in the rural than in the urban population.

The decade also marked a slowing down of the decennial rate of growth in population for the State as a whole to only a fraction of that of preceding decades back to 1800.

A rapid aging accompanied the slowing growth of the population. During the past decade, the number of children up to 15 years of age declined; the total decline amounted to nearly a quarter of a million children. At the same time, people of working ages, and particularly elderly and aged persons, showed an accelerated increase. As a result of this age redistribution, the median age of the total population increased about 2 years between 1930 and 1940 and stood at 30.8 years at the latter date.

These general changes are reflected in the rural-farm and rural-nonfarm populations, the latter including residents of villages up to 2,500 inhabitants. In this study, the major focus of attention has been on rural-farm people, but parallel tabulations for the two segments of rural population, farm and nonfarm, have been presented. The study, utilizing statistics from the Fifteenth and from the Sixteenth Census of the United States, has been concerned with age group replacement and net migration as major factors in rural population change. Information regarding the process and results of rural population redistribution among contrasting areas of level of living and among various age periods of the adult population of both sexes has been assembled and analyzed for each of four separate areas.

It is the purpose of this chapter to present the main conclusions resulting from this investigation. These conclusions are stated in the form of a series of propositions, the proof for each of which is indicated by substantiating materials summarized from the main body of the report.

Proposition 1. *The rural population of Ohio may be divided geographically into fairly distinct areas with widely different levels of living.*

For purposes of this study, areas were delimited by plotting on a map of Ohio, by counties, selected items combined into a level-of-living index. Nine items were included in that index, each pertaining to the rural-farm population. These items were: automobiles of any age, automobiles of 1936 or later models, telephones, hard-surfaced roads, electric lighting, availability of electric power lines, and the household facilities—running water, private bath, and indoor toilet. These were expressed in terms of percentages based on the number of farms or farm dwellings in each county. These county averages were then converted to relatives based on corresponding state averages and combined into composite county indexes of level of living. Contiguous counties having about the same indexes were grouped together to form level-of-living areas. These areas, four in number, were designated: the urban-industrial area, comprising northeastern Ohio and other counties adjacent to metropolitan centers; the western-agricultural area, including the western and central part of the State; the southeastern area; and the transitional area between the southeastern area and the areas to the north and west.

The area level-of-living index, constituted by the median county average, ranged from a low of 50 in the southeastern area to a high of 135 in the urban-industrial area. Intermediate were the other two areas, with an index of 106 in the western-agricultural area and 80 in the transitional area.

Proposition 2. *The level-of-living indexes as constructed for this study were roughly proportional to economic opportunity and population pressure in the different areas.*

As a corollary to this proposition, it can be stated that population pressure on economic opportunities was greatest in the low-level areas and was less at each higher level. Evidence for this condition was found in area variation in the amount of arable land per capita and in the value of farm land per capita. The number of acres of plowable land per person living on farms ranged from only 10.7 in the southeastern area, to 14.2 in the marginal area, and to 18.5 in the western-agricultural area in 1940. In these same areas, the value of farm land per capita was $308, $500, and $979, respectively. In the urban-industrial area, there were fewer acres of plowable land and smaller land values per capita than in the western-agricultural area, in spite of its higher level-of-living index. This apparent discrepancy was explained by the greater opportunity of farm people in this area to supplement their farm income with earnings from industrial employment in adjacent urban centers. In this area, 3 out of every 10 of the farm operators themselves worked for 100 days or more off their farms in 1939, and other members of rural-farm families also had opportunities for employment in nonfarm occupations.

Proposition 3. *Between 1930 and 1940, the rural population of Ohio tended to shift to greater concentration in the poorest and in the most prosperous areas of the State.*

It might be expected that over a period of time, rural people would tend to shift from areas of greater population pressure to areas of lesser pressure. Such was not the case during the depression decade 1930-1940. It is true that during that decade the rate of increase in the adult rural population was very much greater in the urban-industrial area, where the level of living was higher, than in any other area, but it was found that the rate of increase in the southeastern area, with the lowest level-of-living index, was also comparatively high as compared with the areas intermediate in level of living.

The level-of-living index and percentage increase in the adult rural-farm and rural-nonfarm population 1930-1940 in the different areas were as follows:

	Level-of-living index, 1940	Per cent increase in adult rural population		Per cent distribution of adult rural-farm population	
		Farm	Nonfarm	1940	1930
All areas	100	13.4	14.0	100.0	100.0
Urban-industrial	135	24.9	18.2	26.5	24.2
Western-agricultural	106	8.3	9.2	42.4	44.5
Transitional	80	12.7	9.5	16.1	16 3
Southeastern	50	14.7	13.1	15.0	15.0

Proposition 4. *Population shifts during the decade of the thirties resulted in increased concentrations of rural people in the youth ages and in the older ages above the 45-year level.*

Children under 15 years of age in the rural-farm population of Ohio declined 31,000 between 1930 and 1940. This loss in rural-farm children amounted to 10.0 per cent, and the proportion which children comprised of the total rural-farm population dropped from 31.0 per cent to only 26.1 per cent during the decade. This loss in numbers of rural-farm children was accompanied by an increase of 47,000 youth and young adults 15-34 years old, an increase of 17.1 per cent. The per cent which this youth group comprised of the total rural-farm population rose from 27.5 to 30.3. There was practically no change in numbers of rural-farm people 35-44 years old from 1930 to 1940, but those 45-64 increased 29,000, or 13.5 per cent, and aged rural-farm people past 65 increased 21,000. This increase in aged people amounted to 26.8 per cent, and their proportion of the total rural-farm population increased from 7.8 to 9.5 per cent during the 10-year period.

In the rural-nonfarm population, there was between 1930 and 1940, a decline of 17,000 children, amounting to 4.8 per cent. Accompanying this decrease in children was an increase of 57,000 young people 15-34 years old, an increase which amounted to 16.7 per cent. Above the 35-year age level, the 10-year increase in the rural-nonfarm population amounted to about 10.0 per cent.

During the decade, the median age of the rural-farm population of Ohio increased from 26.9 to 29.4 years, and the median age of the rural-nonfarm population increased from 27.6 to 28.9 years.

These shifts in age distribution 1930-1940 were characteristic of each of the four level-of-living areas within the State. The differential rates of change at different age levels in these areas are shown in table 20.

Proposition 5. *The greatest percentage increases in the rural-farm population between 1930 and 1940 were among youths in their twenties and among aged people 65 years old and over; and among the youths, the increase was much greater for men than for women.*

Corollary a. *The number of men per 100 women 20-29 years old living on farms increased greatly between 1930 and 1940.*

Corollary b. *As a general rule, young women have moved away from farms at a more rapid rate than young men.*

Owing to sex differences in rates of migration of youths from farms prior to 1930, there were in that year 123 men per 100 women 20-29 years old living on farms. In 1940, this sex ratio had increased 7 points to 130 men per 100 women. In 1940, the sex ratio among rural-farm youths tended to be in proportion to the level-of-living index in the Ohio areas, ranging from 126 in the southeastern area to 135 in the urban-industrial area. The increase in number of male youths per 100 female youths was greatest in the western-agricultural area. In that area, there were 11 more young men per 100 young women in 1940 than in 1930; in the transitional area, there were 6 more; and in the southeastern area, there were only 4 more. The smallest increase was in the urban-industrial area, where there were already in 1930, 133 young men for each 100 young women living on farms.

TABLE 20.—Per cent change in the rural population, by broad age groups, 1930-1940, by areas

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Area	Under 15 years		15-34 years		35-44 years		45-64 years		65 years and over	
	Farm	Nonfarm	Farm	Nonfarm	Farm	Nonfarm	Farm	Nonfarm	Farm	Nonfarm
All areas	—10.0	— 4.8	+17 1	+16.7	+ 0.3	+ 9.7	+13.5	+11 7	+26.8	+11.8
Urban-industrial	— 7 7	— 3.9	+27.3	+18.2	+ 5.8	+14 6	+27.7	+23.0	+41.1	+13.5
Western-agricultural	—15.6	— 1.3	+10.9	+15.1	— 7.1	+ 6.6	+ 9.2	+ 2 5	+22.7	+ 9.0
Transitional	— 4.1	—10.8	+18.5	+13.8	+ 2.1	+ 1.7	+ 7.9	+ 6.6	+20.9	+12.1
Southeastern	— 3.3	— 5.3	+18.3	+19.4	+ 9.1	+ 8.2	+ 8.6	+ 4.4	+24.3	+15.5

Proposition 6. *Redistribution of the adult rural population of Ohio among the several level-of-living areas of the State was primarily a result of two factors: (a) differential rates of net migration, and (b) differential rates at which children maturing into the adult ages were replacing adult migrants and decedents.*

Corollary a. *General death rates among adult rural people were about the same in all level-of-living areas of Ohio.*

Corollary b. *If there were no net rural migration during the course of a decade, a substantial geographic redistribution of adult rural population would nevertheless occur as a result of area differences in rates of adult replacements.*

The net migration rate 1930-1940 for the rural-farm population 15 years old and over ranged from a net in-movement of 8.9 per cent in the urban-industrial area to a net loss of 8.7 per cent in the western-agricultural area. Both the transitional and the southeastern area had net losses due to net migration; the rate for the first was 2.7 per cent, for the other, 3.5 per cent. The adult rural-farm population of the urban-industrial area increased 24.9 per cent between 1930 and 1940, but without net migration, it would have increased only about 16 per cent as a result of adult replacements. On the other hand, the adult rural-farm population of the western-agricultural area increased only 8.3 per cent but would have increased 17.0 per cent if it had suffered no net loss through migration.

The general annual death rate among rural people 15 years old and over in Ohio was about 15 per 1,000 during 1939 and 1940. No significant area differences in that rate were found.

Proposition 7. *Rural population reproduction rates in Ohio were in inverse ratio to level-of-living indexes in different areas.*

The best available measure of differences in rural population fertility is the number of children under 5 per 1,000 women 20-44 years of age as enumerated by the Census. In 1940 there were 192 more children per 1,000 rural-farm women in the southeastern area, where the level of living was lowest, than in the urban-industrial area, where the level-of-living index was highest. The range of this fertility ratio was from 453 in the urban-industrial area, to 555 in the western-agricultural area, to 583 in the transitional area, and to 645 in the southeastern area.

If 430 children per 1,000 women were taken as the number necessary to maintain a stationary population, then the rural-farm fertility rate in the southeastern area was sufficient to increase its farm population 50.0 per cent per generation of about 28 years. On this same assumption, the rate of natural increase per generation was only 5.3 per cent in the urban-industrial area, 27.9 per cent in the western-agricultural area, and 35.6 per cent in the transitional area.

A similar indication of the relation of population fertility to level of living in different areas was indicated by birth rates computed for 1939 and 1940. The annual average number of births per 1,000 rural women 15-49 years of age ranged from 81 in the southeastern area to only 66 in the western-agricultural area. It was not possible to obtain a comparable rate for the urban-industrial area because of lack of data.

Proposition 8. *Redistribution of the population among various age groups is a result of differential replacement rates and differentials in net migration.*

Of each 1,000 children 10-14 years old in the enumerated population of 1930, it was estimated on the basis of life table experience that about 977 would be surviving after 10 years, when they would be 20-24 years old. If in 1930 the age period 10-14 years had 100,000 persons and the age period 20-24 had 97,700, the survivors would just replace the older group after a lapse of 10 years. If, however, the survivors outnumbered the individuals in the group replaced, the result would be a replacement gain, whereas if they were outnumbered by the replaced group, the result would be a replacement loss during the 10-year interval. If the survivors in a given age group, for example 20-24 years, in 1940 were equal to, less than, or greater than the numbers enumerated in that group by the census, it could be concluded that during the decade there occurred no net migration, a net in-migration, or a net out-migration affecting this age period.

This type of analysis was carried out for various 5- and 10-year age periods of the adult rural-farm and rural-nonfarm population for the period 1930-1940. For the rural-farm population of all areas combined and for both sexes, survivors were in excess of replacement needs in each 5-year age period between 15 and 34 years, and in each age period above 55 years. In the age period 35-54 years, however, survivors from 1930 were insufficient in numbers to meet replacement needs in 1940. There was a net out-migration of rural-farm people 20-34 years old but a net in-migration at all other age intervals above the 15-year level. The rate of in-migration was small for the age levels beyond 55 years.

Proposition 9. *The most mobile period in the life of rural people is 20-34 years.*

From 1930 to 1940 there was for the rural-farm population an excess of 105,000 survivors above the number necessary to meet replacement needs in the three 5-year intervals between 20 and 34 years. For the age group 25-29 years, this excess ranged up to 95.5 per cent, and of this surplus above replacement requirements, 65.4 per cent was drained away through net migration. During the decade, the total volume of net movement of persons 20-34 years old away from farms was nearly 67,000.

Proposition 10. *The rate of age group replacement in the adult years was very closely associated with net migration; excesses in replacements were associated with net out-migration, and deficits were associated with net in-migration.*

It would appear from this study that gains in age group replacements at any age level created population pressure at that point which encouraged out-migration to relieve the pressure. On the other hand, replacement losses at any age level tended to create a population vacuum at that point encouraging in-migration to fill the shortage in whole or in part. For example, the greatest age group replacement excess in the rural-farm population of Ohio between 1930 and 1940 was 49,000 youths 25-29 years old. This excess of survivors over those individuals they replaced was accompanied by a net out-migration of 33,000 of these youths. The greatest age group replacement deficit was in the age period

35-39 years. The deficit of survivors, which amounted to about 13,000, was accompanied by a net in-migration to farms of nearly 11,000 individuals of that age period.

Proposition 11. *The outlook is for continuing large-scale net migration, particularly of youth, away from Ohio farms.*

By 1945, the accumulated excess of survivors in the age periods 20-24, 25-29, and 30-34 years over the enumerated numbers in these same groups in the 1940 rural-farm population would amount to 28,000 males and 21,000 females, a total of 49,000. The excess over the 1930 enumerated population would amount to a total of about 87,000 including 53,000 men and 34,000 women. These numbers represent rural-farm manpower and womanpower available for shifts from farms to other areas of war service without reducing their numbers in the rural-farm population below those of 1930 or 1940.

By 1950, the accumulated excess of rural-farm youths and adults 20-34 years over their numbers in 1930 would amount to 122,000, and their excess over 1940 would amount to about 84,000. These excesses up to 34 years of age would be accompanied by comparatively small deficits in the middle years and by much smaller excesses in the older ages 55 years and over. Owing to declining numbers of births since the first half of the nineteen twenties, rural areas will have fewer youths to export in the future than they have had in the past if the youth ages are to maintain their proportions in the rural-farm population. Since, however, net reproduction rates in urban areas are already below those needed to maintain their populations permanently, and since reproduction rates are now approaching the bare replacement level in the more urbanized rural areas where level-of-living indexes are highest, it appears that the less prosperous rural areas will supply an increasingly large proportion of migrants to other areas so long as current area differentials in rates of population reproduction remain.

Proposition 12. *The more prosperous rural areas as measured by level-of-living indexes do not necessarily offer greater economic opportunities to migrants than do the less prosperous areas.*

The urban-industrial area absorbed rural-farm population between 1930 and 1940 because of opportunities to combine part-time farming with industrial employment in that area. The western-agricultural area, however, with its relatively high level-of-living index, did not retain even half its excess of survivors and had a much higher rate of net loss of rural-farm population due to migration than the less prosperous areas. Outside the ranges of direct metropolitan influences, the most prosperous farming areas have reached a comparatively stabilized agriculture. Such areas still have large surpluses of births, and they export large numbers of youths to cities.

APPENDIX

APPENDIX TABLE 1.—Level-of-living factors and composite level-of-living index for Ohio counties, 1940

County	Per cent of farms—					Per cent of automobiles 1936 or later model	Per cent of rural-farm dwellings—			Composite index, nine factors
	Having automobiles	Having telephones	Within ¼ mile of electric power line	On hard-surfaced road	Having dwelling lighted by electricity		Having running water	Having private bath	Having indoor toilet	
State average	80.8	38.0	73.1	42.4	61.4	43.8	23.1	15.8	17.2	100
Adams	69.0	13.3	23.6	21.8	15.5	24.8	1.5	.8	1.1	34
Allen	91.9	55.6	86.3	57.0	72.1	45.6	20.8	15.9	17.5	115
Ashland	84.6	55.5	68.4	31.9	55.4	40.9	21.2	14.4	16.8	99
Ashtabula	76.3	36.8	76.6	43.1	70.3	40.1	30.2	20.1	22.4	111
Athens	62.4	41.0	49.2	25.4	42.2	36.2	11.6	6.9	7.6	67
Auglaize	91.0	42.7	86.7	53.7	69.3	42.7	19.8	12.6	13.7	105
Belmont	63.7	20.2	66.0	29.8	45.9	37.1	18.2	10.6	12.3	75
Brown	75.6	34.9	41.5	29.0	25.4	28.2	4.4	3.3	3.5	53
Butler	89.1	53.0	91.2	56.8	78.9	48.8	25.8	18.9	20.6	123
Carroll	77.0	34.4	75.2	14.6	57.4	40.9	22.6	10.8	12.2	84
Champaign	92.2	52.0	94.2	56.2	81.8	50.5	16.9	12.2	13.1	110
Clark	89.1	51.2	93.2	62.3	86.5	57.8	28.8	20.9	21.9	132
Clermont	76.4	40.6	68.9	44.9	51.7	41.2	17.4	12.6	13.6	91
Clinton	86.9	42.3	78.2	39.9	63.7	48.1	17.0	13.1	13.8	97
Columbiana	78.8	40.6	71.9	32.1	59.3	45.0	32.8	17.9	20.3	107
Coshocton	77.6	22.8	62.9	13.4	49.7	43.2	20.7	9.6	10.3	74
Crawford	92.3	46.6	89.3	51.3	76.5	50.0	27.2	21.5	22.7	124
Cuyahoga	78.3	48.4	97.0	85.4	94.2	51.3	59.7	50.7	53.3	193
Darke	91.7	28.4	85.1	40.8	66.0	39.3	17.9	10.2	11.1	90
Defiance	90.7	45.6	80.1	52.1	59.1	43.5	25.6	13.3	15.1	106
Delaware	86.0	41.1	91.8	44.0	80.4	41.3	23.2	18.6	19.4	112
Erie	82.1	43.6	89.6	89.7	84.1	42.3	38.4	31.0	33.0	151
Fairfield	88.1	51.0	82.4	41.1	67.5	40.9	22.6	17.1	18.6	109
Fayette	88.6	52.6	81.6	46.6	65.8	48.4	19.8	13.7	14.9	106
Franklin	86.6	49.1	91.5	82.1	85.9	50.9	42.3	34.2	35.4	159
Fulton	92.2	49.1	85.2	42.6	73.7	44.4	37.1	21.6	23.5	125
Gallia	53.9	27.9	44.0	14.9	33.9	38.3	6.3	3.4	3.7	50

APPENDIX TABLE 1.—Level-of-living factors and composite level-of-living index for Ohio counties, 1940—continued

County	Per cent of farms—					Per cent of automobiles 1936 or later model	Per cent of rural-farm dwellings—			Composite index, nine factors
	Having automobiles	Having telephones	Within ¼ mile of electric power line	On hard-surfaced road	Having dwelling lighted by electricity		Having running water	Having private bath	Having indoor toilet	
Geauga	73.6	34.8	77.5	47.7	68.9	46.1	39.0	29.0	32.0	130
Greene	90.9	45.1	77.5	44.4	68.5	55.6	25.3	16.7	18.8	113
Guernsey	65.8	32.5	52.5	16.8	32.7	30.6	13.5	6.7	7.3	61
Hamilton	79.0	55.4	89.3	88.8	82.9	52.2	52.8	40.3	43.4	176
Hancock	93.9	54.9	84.9	72.1	75.2	46.0	20.4	16.0	17.0	119
Hardin	90.5	31.6	77.1	43.0	60.5	46.3	16.3	11.9	13.1	93
Harrison	75.5	19.8	44.7	26.7	36.2	38.5	25.5	13.0	13.9	77
Henry	93.8	52.8	87.2	67.5	75.2	48.7	27.6	16.0	16.8	121
Highland	81.5	27.9	72.8	36.3	48.7	34.2	8.5	6.2	6.7	71
Hocking	72.9	24.0	29.0	22.7	20.2	32.1	8.0	4.8	5.0	50
Holmes	58.3	23.5	66.7	11.8	47.3	43.3	29.8	14.4	16.9	84
Huron	86.0	44.4	90.0	58.9	81.1	38.9	23.1	17.2	18.5	115
Jackson	61.2	23.8	26.4	23.1	21.6	40.3	6.0	3.7	3.9	48
Jefferson	72.2	19.6	60.1	32.7	47.4	44.8	20.5	12.9	13.8	82
Knox	80.4	36.4	63.6	19.6	40.2	45.3	23.0	14.8	17.2	92
Lake	81.9	42.8	92.9	61.2	89.5	49.2	60.6	48.4	52.3	182
Lawrence	45.2	16.6	33.1	19.2	27.9	42.1	5.3	3.4	4.0	45
Licking	80.3	37.4	82.0	27.6	64.0	41.8	21.8	15.1	17.7	97
Logan	87.5	49.3	76.7	42.8	61.3	40.0	16.0	10.3	11.5	94
Lorain	86.5	44.3	97.3	65.1	89.2	45.5	40.0	30.7	33.7	149
Lucas	87.6	31.5	95.9	81.5	86.1	48.2	35.0	26.2	28.0	140
Madison	85.6	44.7	73.3	54.3	60.0	53.1	15.9	12.5	13.1	100
Mahoning	84.1	34.2	90.2	77.4	82.4	48.4	38.6	24.0	27.2	137
Marion	90.0	41.9	90.3	61.8	79.1	51.4	24.1	20.2	21.6	123
Medina	86.0	41.2	93.4	36.0	86.5	50.9	36.3	28.0	30.7	134
Meigs	51.1	47.2	37.5	15.3	33.0	32.5	7.6	3.9	4.1	54
Mercer	92.1	25.4	84.8	37.7	67.8	43.8	10.7	7.1	7.9	82
Miami	91.3	35.0	95.4	56.1	86.1	46.8	28.0	17.3	19.1	118
Monroe	55.8	37.4	18.4	16.0	12.3	30.4	8.5	4.8	5.2	47

APPENDIX TABLE 1.—Level-of-living factors and composite level-of-living index for Ohio counties, 1940-concluded

County	Per cent of farms—					Per cent of automobiles 1936 or later model	Per cent of rural-farm dwellings—			Composite index, nine factors
	Having automobiles	Having telephones	Within ¼ mile of electric power line	On hard-surfaced road	Having dwelling lighted by electricity		Having running water	Having private bath	Having indoor toilet	
Montgomery	88.4	49.2	90.0	68.3	81.5	54.2	37.1	25.5	27.8	142
Morgan	67.4	54.5	14.7	11.7	14.5	31.8	9.5	5.5	5.9	54
Morrow	86.8	23.0	81.6	33.3	59.9	35.0	11.7	8.2	9.3	77
Muskingum	74.5	41.9	64.3	19.9	51.9	38.8	18.3	12.0	12.8	83
Noble	66.2	61.8	26.7	17.8	16.1	33.6	12.3	4.3	4 7	60
Ottawa	87.1	25.8	82.7	60.5	72.1	42.1	29.0	23.6	24.9	120
Paulding	89.8	43.7	76.5	29.0	58.5	46.8	10.3	7.8	9.1	83
Perry	75.1	31.4	47.0	17.6	30.3	35.5	12.1	6.5	7.3	61
Pickaway	90.7	44.1	83.1	50.1	69.2	47.0	13.5	10.7	11.6	98
Pike	61.6	14.9	17.2	16.0	13.6	27.4	2.3	1.3	1.5	32
Portage	83.4	25.2	89.8	43.6	82.5	46.7	35.1	22.2	24.6	120
Preble	91.7	47.7	87.6	34.5	70.2	46.3	21 1	14.2	15.1	104
Putnam	89.3	61.3	80.5	59.3	67.9	50.1	18.0	13.3	14.0	111
Richland	84.5	49.4	73.4	37.1	61.1	44.8	26.9	18.1	20.3	109
Ross	76.9	33.1	51.8	24.1	40.3	37.5	9.8	6.3	6.8	65
Sandusky	88.3	36.6	77 6	65.3	67.4	45.7	28.0	20.2	22.1	119
Scioto	65.5	20.9	47.9	24.8	36.9	35.0	6.8	4.5	4.7	54
Seneca	92.8	45.7	90.6	86.7	77.0	43.5	18.8	12.4	14.6	116
Shelby	92.2	41.0	93.4	44.5	81.0	43.6	13.4	8.0	8.7	95
Stark	82.1	36.3	85.5	37.2	75.6	51.9	41.1	28.4	30.8	133
Summit	83.8	31.7	93.7	47.8	88.1	53.1	50.3	37.4	41.0	156
Trumbull	81.7	33.0	87.0	57.2	79.2	50.1	34.3	22.2	24.7	125
Tuscarawas	75.7	20.6	58.3	21.5	51.8	43.9	29.5	16.4	18.6	90
Union	89.8	38.8	93.1	40.5	78.5	43.1	14.9	10.6	11.6	96
Van Wert	90.9	39.5	77.9	38.5	62.5	47.4	15.6	11.3	12.2	93
Vinton	60.5	17.9	20.3	22.2	18.4	33.8	4.9	3.0	3.1	41
Warren	85.2	35.5	74.0	50.4	59.0	48.2	19.3	13.5	14.5	98
Washington	60.0	30.9	27.8	14.6	19.5	28.1	12.1	8.9	9.4	55
Wayne	83.3	36.6	87.6	21.4	72.9	52.1	37.7	23.2	25.5	120
Williams	93.7	27.0	87.5	36.0	70.6	41.3	25.6	15.5	17.2	102
Wood	90.2	31.0	86.7	77.7	76.3	48.4	25 2	19.0	21.4	122
Wyandot	93.5	44.0	76.0	56.8	57.1	43.4	20.0	16.0	16.8	106

Source: Sixteenth Census of the United States: 1940.

APPENDIX TABLE 2.—The rural population, by age, sex, and residence, Ohio, 1930 and 1940

Residence and age, years	Male			Female		
	1930	1940	Survivors in 1940 from 1930*	1930	1940	Survivors in 1940 from 1930*
Rural-farm	532,118†	571,873	.. ..	472,170†	498,426	....
Under 5	44,856	43,181	.....	42,580	41,207	.....
5- 9	55,658	45,870	.. ..	52,358	43,376	.....
10-14	59,979	55,082	.....	55,036	50,795	.....
15-19	56,684	61,591	54,745	46,561	51,368	51,613
20-24	39,013	49,109	58,576	28,978	35,466	53,860
25-29	26,671	36,368	54,836	24,451	30,165	45,143
30-34	26,332	31,143	37,617	27,598	28,434	27,957
35-39	30,493	30,524	25,682	31,414	29,482	23,536
40-44	31,600	32,363	25,199	30,795	31,601	26,440
45-54	62,816	68,857	58,505	56,667	63,260	58,526
55-64	52,289	60,400	56,021	41,785	49,871	50,355
65 and over	45,616	57,385	55,789	33,888	43,401	44,844
15 and over	371,514	427,740	426,970	322,137	363,048	382,274
15-34	148,700	178,211	205,774	127,588	145,433	178,573
35 and over	222,814	249,529	221,196	194,549	217,615	203,701
Rural-nonfarm	583,527†	625,041	.....	551,511†	599,286	.....
Under 5	58,074	56,436	.....	56,024	54,820	.....
5- 9	61,867	53,497	.....	59,787	51,607	.....
10-14	55,005	56,667	.....	53,390	54,448	.....
15-19	48,045	55,372	60,852	46,099	53,833	58,936
20-24	43,339	48,844	53,716	42,459	49,265	52,252
25-29	41,410	48,464	46,478	40,863	49,229	44,697
30-34	41,067	47,389	41,788	38,303	46,346	40,960
35-39	41,120	43,418	39,872	36,470	41,073	39,333
40-44	35,947	39,986	39,302	32,071	35,183	36,693
45-54	62,267	70,100	72,615	54,821	61,210	64,483
55-64	46,412	51,442	55,530	42,946	47,770	48,713
65 and over	48,501	53,426	52,463	48,048	54,502	51,174
15 and over	408,108	458,441	462,616	382,080	438,411	437,241
15-34	173,861	200,069	202,834	167,724	198,673	196,845
35 and over	234,247	258,372	259,782	214,356	239,738	240,396

*Estimated by applying 10-year survival rates computed from life tables.
†Unknowns included in total.
Source: Sixteenth Census of the United States: 1940. Series P-6, No. 44. March 28, 1942.

APPENDIX TABLE 3.—The rural population, by age, sex, and residence, urban-industrial area of Ohio, 1930 and 1940

Residence and age, years	Male			Female		
	1930	1940	Survivors in 1940 from 1930*	1930	1940	Survivors in 1940 from 1930*
Rural-farm	128,019	118,132		110,628	126,804	
Under 5	9,482	9,553		9,051	8,768	
5- 9	12,592	10,515		11,978	10,051	
10-14	14,440	13,811		13,183	12,569	
15-19	14,053	16,111	12,385	10,939	13,326	11,808
20-24	9,738	13,076	14,102	6,646	9,094	12,902
25-29	6,225	9,233	13,595	5,328	7,431	10,606
30-34	6,190	7,663	9,389	6,336	7,399	6,411
35-39	7,819	7,906	5,994	7,905	7,828	5,128
40-44	8,106	8,941	5,924	7,749	8,721	6,070
45-54	16,163	19,840	15,005	14,052	17,553	14,727
55-64	12,879	16,865	14,414	9,826	13,337	12,487
65 and over	10,332	14,618	13,408	7,635	10,727	10,417
15 and over	91,505	114,253	104,216	76,416	95,416	90,556
15-34	36,206	46,083	49,471	29,249	37,250	41,727
35 and over	55,299	68,170	54,745	47,167	58,166	48,829
Rural-nonfarm	248,841	273,852		232,122	261,774	
Under 5	25,630	24,355		24,561	23,435	
5- 9	27,121	23,645		25,945	22,592	
10-14	23,237	25,066		22,463	24,080	
15-19	18,861	23,050	26,676	18,602	22,814	25,577
20-24	17,491	19,868	22,693	18,645	21,378	21,985
25-29	18,289	20,687	18,246	18,972	22,771	18,036
30-34	19,734	22,487	16,865	18,242	22,905	17,987
35-39	19,734	21,370	17,610	16,765	20,300	18,262
40-44	17,221	19,876	18,885	14,749	16,938	17,476
45-54	26,852	33,630	34,819	22,433	27,729	29,648
55-64	17,799	21,194	23,947	15,306	18,781	19,934
65 and over	16,872	18,624	19,484	15,439	18,051	17,590
15 and over	172,853	200,786	199,225	159,153	191,667	186,495
15-34	74,375	86,092	84,480	74,461	89,868	83,585
35 and over	98,478	114,694	114,745	84,692	101,799	102,910

*Estimated by applying 10-year survival rates computed from life tables.
Source: Sixteenth Census of the United States: 1940, special tabulation.

APPENDIX TABLE 4.—The rural population, by age, sex, and residence, western-agricultural area of Ohio, 1930 and 1940

Residence and age, years	Male			Female		
	1930	1940	Survivors in 1940 from 1930	1930	1940	Survivors in 1940 from 1930*
Rural-farm	236,397	241,215		212,095	211,281	
Under 5	20,608	18,807		19,452	17,948	
5- 9	25,077	19,144		23,400	18,190	
10-14	26,424	22,437		24,346	20,997	
15-19	24,600	25,533	24,666	20,661	21,286	23,067
20-24	16,991	21,032	25,806	13,126	15,357	23,828
25-29	12,180	15,960	23,798	11,553	13,261	20,033
30-34	12,315	13,674	16,383	13,194	12,054	12,663
35-39	13,953	13,082	11,728	14,496	12,585	11,120
40-44	14,463	13,789	11,785	14,210	13,615	12,640
45-54	27,605	29,215	26,774	25,149	27,183	27,007
55-64	22,563	24,917	24,620	18,259	20,887	22,348
65 and over	19,618	23,625	24,048	14,249	17,918	19,380
15 and over	164,288	180,827	189,608	144,897	154,146	172,086
15-34	66,086	76,199	90,653	58,534	61,958	79,591
35 and over	98,202	104,628	98,955	86,363	92,188	92,495
Rural-nonfarm	153,769	162,489		147,583	158,219	
Under 5	12,976	13,698		12,561	13,440	
5- 9	14,330	12,846		13,633	12,553	
10-14	13,633	13,681		13,055	12,941	
15-19	13,435	14,644	14,095	12,450	13,471	13,439
20-24	12,227	13,238	13,314	10,744	12,490	12,777
25-29	10,357	12,584	12,997	9,877	12,051	12,071
30-34	9,428	11,498	11,789	9,094	10,877	10,365
35-39	9,598	10,099	9,972	9,162	9,635	9,507
40-44	8,376	9,138	9,023	8,060	8,652	8,712
45-54	16,550	16,797	16,936	15,854	16,673	16,202
55-64	14,791	14,932	14,759	14,773	15,111	14,088
65 and over	18,068	19,334	17,680	18,320	20,325	18,293
15 and over	112,830	122,264	120,565	108,334	119,285	115,454
15-34	45,447	51,964	52,195	42,165	48,889	48,652
35 and over	67,383	70,300	68,370	66,169	70,396	66,802

*Estimated by applying 10-year survival rates computed from life tables.
Source: Sixteenth Census of the United States: 1940, special tabulation.

APPENDIX TABLE 5.—The rural population, by age, sex, and residence, transitional area of Ohio, 1930 and 1940

Residence and age, years	Male			Female		
	1930	1940	Survivors in 1940 from 1930*	1930	1940	Survivors in 1940 from 1930*
Rural-farm	85,971	93,388		76,492	81,436	
Under 5	7,192	7,299		6,820	7,098	
5- 9	8,780	7,935		8,392	7,353	
10-14	9,724	9,414		8,819	8,604	
15-19	9,012	10,002	8,636	7,414	8,308	8,273
20-24	6,231	7,807	9,496	4,569	5,685	8,631
25-29	4,262	5,759	8,718	3,957	4,833	7,189
30-34	4,092	4,995	6,008	4,238	4,574	4,408
35-39	4,731	4,893	4,104	4,830	4,759	3,809
40-44	4,905	5,128	3,916	4,735	4,831	4,060
45-54	10,089	10,640	9,079	9,291	9,790	8,999
55-64	8,852	9,750	8,997	7,228	8,085	8,256
65 and over	8,101	9,766	9,583	6,199	7,516	7,887
15 and over	60,275	68,740	68,537	52,461	58,381	61,512
15-34	23,597	28,563	32,858	20,178	23,400	28,501
35 and over	36,678	40,177	35,679	32,283	34,981	33,011
Rural-nonfarm	110,631	114,111		103,251	106,361	
Under 5	11,395	10,457		11,021	10,091	
5- 9	11,949	9,694		11,837	9,337	
10-14	10,648	10,526		10,745	10,159	
15-19	9,595	10,524	11,753	8,925	10,180	11,669
20-24	8,602	9,622	10,399	7,853	9,177	10,516
25-29	8,022	9,267	9,282	7,358	8,787	8,654
30-34	7,464	8,121	8,294	6,628	7,664	7,576
35-39	7,571	7,219	7,724	6,487	6,764	7,083
40-44	6,607	7,024	7,143	5,706	5,802	6,350
45-54	11,982	12,744	13,359	10,239	10,358	11,471
55-64	8,530	9,583	10,686	7,904	8,525	9,098
65 and over	8,266	9,330	9,404	8,548	9,515	9,305
15 and over	76,639	83,434	88,044	69,648	76,772	81,722
15-34	33,683	37,534	39,728	30,764	35,808	38,415
35 and over	42,956	45,900	48,316	38,884	40,964	43,307

*Estimated by applying 10-year survival rates computed from life tables.
Source: Sixteenth Census of the United States: 1940, special tabulation.

APPENDIX TABLE 6.—The rural population, by age, sex, and residence, southeastern area of Ohio, 1930 and 1940

Residence and age, years	Male			Female		
	1930	1940	Survivors in 1940 from 1930*	1930	1940	Survivors in 1940 from 1930*
Rural-farm	81,620	89,138		72,896	78,905	
Under 5	7,574	7,522		7,257	7,393	
5- 9	9,209	8,276		8,588	7,782	
10-14	9,391	9,420		8,688	8,625	
15-19	9,019	9,945	9,058	7,547	8,448	8,465
20-24	6,053	7,194	9,172	4,637	5,330	8,499
25-29	4,004	5,416	8,725	3,613	4,640	7,315
30-34	3,735	4,811	5,837	3,830	4,407	4,475
35-39	3,985	4,643	3,856	4,183	4,310	3,479
40-44	4,131	4,505	3,574	4,101	4,434	3,670
45-54	8,959	9,162	7,647	8,175	8,734	7,793
55-64	7,995	8,868	7,990	6,472	7,562	7,264
65 and over	7,565	9,376	8,750	5,805	7,240	7,160
15 and over	55,446	63,920	64,609	48,363	55,105	58,120
15-34	22,811	27,366	32,792	19,627	22,825	28,754
35 and over	32,635	36,554	31,817	28,736	32,280	29,366
Rural-nonfarm	69,813	74,589		68,325	72,934	
Under 5	8,073	7,926		7,881	7,854	
5- 9	8,467	7,312		8,372	7,125	
10-14	7,487	7,394		7,127	7,268	
15-19	6,154	7,154	8,328	6,122	7,368	8,251
20-24	5,019	6,116	7,310	5,217	6,220	6,974
25-29	4,742	5,926	5,953	4,656	5,620	5,936
30-34	4,441	5,283	4,840	4,339	4,900	5,032
35-39	4,251	4,730	4,566	4,050	4,374	4,481
40-44	3,709	3,948	4,251	3,562	3,791	4,155
45-54	6,883	6,929	7,501	6,295	6,450	7,162
55-64	5,292	5,733	6,138	4,963	5,353	5,593
65 and over	5,295	6,138	5,895	5,741	6,611	5,986
15 and over	45,786	51,957	54,782	44,945	50,687	53,570
15-34	20,356	24,479	26,431	20,334	24,108	26,193
35 and over	25,430	27,478	28,351	24,611	26,579	27,377

*Estimated by applying 10-year survival rates computed from life tables.
Source: Sixteenth Census of the United States: 1940, special tabulation.

APPENDIX TABLE 7.—Amounts and rates of change in the rural-nonfarm population of the urban-industrial area of Ohio, 1930-1940, by age and sex

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Both sexes										
Total net change	+60,447	+ 8,401	+5,110	+6,197	+ 7,416	+5,171	+4,844	+12,074	+ 6,870	+4,364
Net replacement	+53,714	+14,790	+8,542	— 979	— 3,124	— 627	+4,391	+15,182	+10,776	+4,763
Net migration	+ 6,733	— 6,389	—3,432	+7,176	+10,540	+5,798	+ 453	— 3,108	— 3,906	— 399
Male										
Total net change	+27,933	+ 4,189	+2,377	+2,398	+ 2,753	+1,636	+2,655	+ 6,778	+ 3,395	+ 1,752
Net replacement	+26,372	+ 7,815	+5,202	— 43	— 2,869	—2,124	+1,664	+ 7,967	+ 6,148	+2,612
Net migration	+ 1,561	— 3,626	—2,825	+2,441	+ 5,622	+3,760	+ 991	— 1,189	— 2,753	— 860
Female										
Total net change	+32,514	+ 4,212	+2,733	+3,799	+ 4,663	+ 3,535	+2,189	+ 5,296	+ 3,475	+2,612
Net replacement	+27,342	+ 6,975	+3,340	— 936	— 255	+1,497	+2,727	+ 7,215	+ 4,628	+2,151
Net migration	+ 5,172	— 2,763	— 607	+4,735	— 4,918	+2,038	— 538	— 1,919	— 1,153	+ 461
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+18.2	+22.4	+14.1	+16.6	+19.5	+14.2	+15.1	+24.5	+20.8	+13.5
Net replacement	+16.2	+39.5	+23.6	— 2.6	— 8.2	— 1.7	+13.7	+30.8	+32.6	+14.7
Net migration	+ 2.0	—17.1	— 9.5	+19.2	+27.7	+15.9	+ 1.4	— 6.3	—11.8	— 1.2
Male										
Total net change	+16.2	+22.2	+13.6	+13.1	+14.0	+ 8.3	+15.4	+25.2	+19.1	+10.4
Net replacement	+15.3	+41.4	+29.7	— .2	—14.5	—10.8	+ 9.7	+29.6	+34.5	+15.5
Net migration	+ .9	—19.2	—16.1	+13.3	+28.5	+19.1	+ 5.7	— 4.4	—15.4	— 5.1
Female										
Total net change	+20.4	+22.6	+14.7	+20.0	+25.6	+21.1	+14.8	+23.6	+22.7	+16.9
Net replacement	+17.2	+37.5	+17.9	— 4.9	— 1.4	+ 8.9	+18.5	+32.2	+30.2	+13.9
Net migration	+ 3.2	—14.9	— 3.2	+24.9	+27.0	+12.2	— 3.7	— 8.6	— 7.5	+ 3.0

Source: Derived from appendix table 3.

APPENDIX TABLE 8.—Amounts and rates of change in the rural-nonfarm population of the western-agricultural area of Ohio, 1930-1940, by age and sex

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Both sexes										
Total net change	+20,385	+2,230	+2,757	+4,401	+3,853	+974	+1,354	+1,066	+ 479	+3,271
Net replacement	+14,855	+1,649	+3,120	+4,834	+3,632	+719	+1,299	+ 734	— 717	— 415
Net migration	+ 5,530	+ 581	— 363	— 433	+ 221	+255	+ 55	+ 332	+1,196	+3,686
Male										
Total net change	+ 9,434	+1,209	+1,011	+2,227	+2,070	+501	+ 762	+ 247	+ 141	+1,266
Net replacement	+ 7,735	+ 660	+1,087	+2,640	+2,361	+374	+ 647	+ 386	— 32	— 388
Net migration	+ 1,699	+ 549	— 76	— 413	— 291	+127	+ 115	— 139	+ 173	+1,654
Female										
Total net change	+10,951	+1,021	+1,746	+2,174	+1,783	+473	+ 592	+ 819	+ 338	+2,005
Net replacement	+ 7,120	+ 989	+2,033	+2,194	+1,271	+345	+ 652	+ 348	— 685	— 27
Net migration	+ 3,831	+ 32	— 287	— 20	+ 512	+128	— 60	+ 471	+1,023	+2,032
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+ 9.2	+8.6	+12.0	+21.8	+20.8	+5.2	+8.2	+3.3	+1.6	+ 9.0
Net replacement	+ 6.7	+6.4	+13.6	+23.9	+19.6	+3.8	+7.9	+2.3	—2.4	— 1.1
Net migration	+ 2.5	+2.2	— 1.6	— 2.1	+ 1.2	+1.4	+ .3	+1.0	+4.0	+10.1
Male										
Total net change	+ 8.4	+9.0	+ 8.3	+21.5	+22.0	+5.2	+9.1	+1.5	+1.0	+ 7.0
Net replacement	+ 6.9	+4.9	+ 8.9	+25.5	+25.0	+3.9	+7.7	+2.3	— .2	— 2.1
Net migration	+ 1.5	+4.1	— .6	— 4.0	— 3.0	+1.3	+1.4	— .8	+1.2	+ 9.1
Female										
Total net change	+10.1	+8.2	+16.3	+22.0	+19.6	+5.2	+7.3	+5.2	+2.3	+10.9
Net replacement	+ 6.6	+7.9	+19.0	+22.2	+14.0	+3.8	+8.1	+2.2	—4.6	— .1
Net migration	+ 3.5	+ .3	— 2.7	— .2	+ 5.6	+1.4	— .8	+3.0	+6.9	+11.0

Source: Derived from appendix table 4.

APPENDIX TABLE 9.—Amounts and rates of change in the rural-nonfarm population of the transitional area of Ohio, 1930-1940, by age and sex

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Both sexes										
Total net change	+13,919	+2,184	+2,344	+2,674	+1,693	— 75	+ 513	+ 881	+1,674	+2,031
Net replacement	+23,479	+4,902	+4,460	+2,556	+1,778	+749	+1,180	+2,609	+3,350	+1,895
Net migration	— 9,560	—2,718	—2,116	+ 118	— 85	—824	— 667	—1,728	—1,676	+ 136
Male										
Total net change	+ 6,795	+ 929	+1,020	+1,245	+ 657	—352	+ 417	+ 762	+1,053	+1,064
Net replacement	+11,405	+2,158	+1,797	+1,260	+ 830	+153	+ 536	+1,377	+2,156	+1,138
Net migration	— 4,610	—1,229	— 777	— 15	— 173	—505	— 119	— 615	—1,103	— 74
Female										
Total net change	+ 7,124	+1,255	+1,324	+1,429	+1,036	+277	+ 96	+ 119	+ 621	+ 967
Net replacement	+12,074	+2,744	+2,663	+1,296	+ 948	+596	+ 644	+1,232	+1,194	+ 757
Net migration	— 4,950	—1,489	—1,339	+ 133	+ 88	—319	— 548	—1,113	— 573	+ 210
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+ 9.5	+11.8	+14.2	+17.4	+12.0	— .5	+ 4.2	+ 4.0	+10.2	+12.1
Net replacement	+16.0	+26.5	+27.1	+16.6	+12.6	+ 5.3	+ 9.6	+11.7	+20.4	+11.3
Net migration	— 6.5	—14.7	—12.9	+ .8	— .6	— 5.8	— 5.4	— 7.7	—10.2	+ .8
Male										
Total net change	+ 8.9	+ 9.7	+11.9	+15.5	+ 8.8	— 4.7	+ 6.3	+ 6.4	+12.4	+12.9
Net replacement	+14.9	+22.5	+20.9	+15.7	+11.1	+ 2.0	+ 8.1	+11.5	+25.3	+13.8
Net migration	— 6.0	—12.8	— 9.0	— .2	— 2.3	— 6.7	— 1.8	— 5.1	—12.9	— .9
Female										
Total net change	+10.2	+14.1	+16.9	+19.4	+15.6	+ 4.3	+ 1.7	+ 1.2	+ 7.9	+11.3
Net replacement	+17.3	+30.8	+33.9	+17.6	+14.3	+ 9.2	+11.3	+12.0	+15.1	+ 8.8
Net migration	— 7.1	—16.7	—17.0	+ 1.8	+ 1.3	— 4.9	— 9.6	—10.8	— 7.2	+ 2.5

Source: Derived from appendix table 5.

APPENDIX TABLE 10.—Amounts and rates of change in the rural-nonfarm population of the southeastern area of Ohio, 1930-1940, by age and sex

(Plus sign (+) indicates a gain; minus sign (—) indicates a loss)

Sex and factor of change	Age in years, 1940									
	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65 and over
Amount										
Both sexes										
Total net change	+11,913	+2,246	+2,100	+2,148	+1,403	+803	+ 468	+ 201	+ 831	+1,713
Net replacement	+17,621	+4,303	+4,048	+2,491	+1,092	+746	+1,135	+1,485	+1,476	+ 845
Net migration	— 5,708	—2,057	—1,948	— 343	+ 311	+ 57	— 667	—1,284	— 645	+ 868
Male										
Total net change	+ 6,171	+1,000	+1,097	+1,184	+ 842	+479	+ 239	+ 46	+ 441	+ 843
Net replacement	+ 8,996	+2,174	+2,291	+1,211	+ 399	+315	+ 542	+ 618	+ 846	+ 660
Net migration	— 2,825	—1,174	—1,194	— 27	+ 443	+164	— 303	— 572	— 405	+ 243
Female										
Total net change	+ 5,742	+1,246	+1,003	+ 964	+ 561	+324	+ 229	+ 155	+ 390	+ 870
Net replacement	+ 8,625	+2,129	+1,757	+1,280	+ 693	+431	+ 593	+ 867	+ 630	+ 245
Net migration	— 2,883	— 883	— 754	— 316	— 132	—107	— 364	— 712	— 240	+ 625
Rate per 100 enumerated population, 1930										
Both sexes										
Total net change	+13.1	+18.3	+20.5	+22.9	+16.0	+ 9.7	+ 6.4	+ 1.5	+ 8.1	+15.5
Net replacement	+19.4	+35.1	+39.5	+26 5	+12.5	+ 9.0	+15.6	+11.2	+14.4	+ 7.7
Net migration	— 6.3	—16.8	—19.0	— 3.6	+ 3.5	+ .7	— 9.2	— 9.7	— 6.3	+ 7.8
Male										
Total net change	+13.5	+16.2	+21.8	+25.0	+19.0	+11.3	+ 6.4	+ .7	+ 8.3	+ 15.9
Net replacement	+19.6	+35.3	+45.6	+25.5	+ 9.0	+ 7.4	+14.6	+ 9.0	+16.0	+ 11.3
Net migration	— 6.1	—19.1	—23.8	— .5	+10.0	+ 3.9	— 8.2	— 8.3	— 7.7	+ 4.6
Female										
Total net change	+12.8	+20.4	+19.2	+20.7	+13.0	+ 8.0	+ 6.4	+ 2.5	+ 7.9	+15.2
Net replacement	+19.2	+34.8	+33.7	+27.5	+16.0	+10.6	+16.6	+13.8	+12.7	+ 4.3
Net migration	— 6.4	—14.4	—14.5	— 6.8	— 3.0	— 2.6	—10.2	—11.3	— 4.8	+10.9

Source: Derived from appendix table 6.

APPENDIX TABLE 11.—Change in the per cent distribution of the rural-nonfarm population in Ohio level-of-living areas, 1930 to 1940, by age groups

Age, years	All areas		Urban-industrial area		Western-agricultural area		Transitional area		Southeastern area	
	1940	1930	1940	1930	1940	1930	1940	1930	1940	1930
All ages.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 15.....	26.7	30.3	26.7	31.0	24.7	26.6	27.2	31.6	30.4	34.3
15-19.....	8.9	8.3	8.6	7.8	8.8	8.6	9.4	8.7	9.8	8.9
20-24.....	8.0	7.6	7.7	7.5	8.0	7.6	8.5	7.7	8.4	7.4
25-29.....	8.0	7.2	8.1	7.8	7.7	6.7	8.5	7.2	7.8	6.8
30-34.....	7.7	7.0	8.5	7.9	7.0	6.1	7.1	6.6	6.9	6.4
35-44.....	13.0	12.8	14.7	14.2	11.7	11.7	12.1	12.3	11.4	11.3
45-54.....	10.7	10.4	11.4	10.2	10.4	10.8	10.5	10.4	9.1	9.5
55-64.....	8.1	7.9	7.5	6.9	9.4	9.8	8.2	7.7	7.5	7.4
65 and over.....	8.9	8.5	6.8	6.7	12.3	12.1	8.5	7.8	8.7	8.0
Median age	28.9	27.6	29.3	27.4	30.6	30.4	27.9	26.4	25.9	24.6

Source: Derived from appendix tables 2-6.