

The age structure and regional distribution of the United Kingdom population 1964 to 1981

I. INTRODUCTION

An article in the May issue of *Economic Trends* discussed the method by which the Government Actuary's Department makes projections of the future population of the United Kingdom⁽¹⁾. It gave the Government Actuary's Department's latest projections through to the year 2000. This article looks at some implications of those projections. Its main purpose is the discussion of the geographical distribution of the United Kingdom population. Some of the most significant features at a regional level are, however, related to the changing age structure of the population of the United Kingdom as a whole. Part II will therefore set the scene, as it were, by discussing the changing sex and age balance of the whole population. In Part III the broad features of regional development will then be discussed. Finally, in Part IV, there will be a brief discussion of each part of the United Kingdom in turn.

Figures of the age distribution of the population were given in the earlier article in *Economic Trends*⁽²⁾. Geographical distribution data were given in Appendix D to *The Registrar General's Quarterly Return for England and Wales*, No. 466, for the second quarter of 1965, repeated in Table 1 at the end of this article. This article is concerned primarily with the period from 1964 to 1981. It looks particularly at the years 1964 (the year for which the latest estimates based on actual data are available) and 1971 and 1981 (the years for which the estimates of the distribution of the population of England and Wales were made). Some comparisons will, however, also be made with the 1950's and early 1960's.

Although the projections of the future population have been made, and are here quoted, to the nearest thousand persons, it is not suggested that they can be accurate to that degree. Moreover, they would change were there any shift in the assumptions on which they are based. For instance, since the set of calculations analysed in this article was made, the Government have completed the first part of their review of the South East Study, and the net migration gains by South East England from the rest of England and Wales between 1964 and 1981 are now expected to be some 200 thousand lower than is shown here⁽³⁾. This has implications for the

figures for other regions, and also for natural growth within the South East; and the full reworking of the material on the basis of the latest data will have to take this into account. The figures do, however, give an indication of what could be expected to happen on certain assumptions. They are meant to indicate the likely direction of changes in the structure and distribution of the population of the United Kingdom.

The projections discussed in this article are those given in Appendix A to *The National Plan*⁽⁴⁾. Within England and Wales the regional breakdown is in terms of the old 'Standard Regions' as projections are not available for the new planning regions, but three of those Standard Regions—London and South-Eastern, the Southern, and the Eastern regions—are grouped together and referred to collectively as the South East⁽⁵⁾. Figures for Wales also include Monmouthshire, which is therefore excluded from the totals for England.

As in *The National Plan*, the population has been divided into three age groups—young persons, persons in the working age groups, and older persons. By 'young persons' is meant persons aged 0-14 years. The 'working age groups' are assumed to be from 15 to 64 in the case of men and 15 to 59 in the case of women. The expression 'older persons' thus comprises men aged 65 and over and women aged 60 and over. Although the working ages are in general considered as beginning at 15, some mention will be made in Part II of the effect of starting at 16 after 1971 so that account may be taken of the raising of the school leaving age at that time. This point has been taken into account in the estimates of changes in the working population. The working age groups will on occasion be split at 45, as different demographic characteristics are expected of the groups below and above that age. The expression 'dependent age groups' comprises all those persons outside the working age groups—both young persons and older persons.

(4) *The National Plan*, Cmnd. 2764 (H.M.S.O.) September 1965.

(5) This means that the South East as used in this article corresponds to the South East and East Anglia planning regions save that it excludes the Soke of Peterborough and includes Poole municipal borough. The North Midland Standard Region used here differs from the East Midlands planning region in including the Soke of Peterborough and the administrative county of Lincoln—Parts of Lindsey plus Grimsby county borough. Conversely, the East and West Ridings of Yorkshire differ from the Yorkshire and Humberside planning region in excluding the Parts of Lindsey and Grimsby. The South West as used here differs from the economic planning region of the same name by excluding Poole. The other Standard Regions are the same as the corresponding planning regions, and the Midland region is referred to as the West Midlands as it is identical with the planning region of that name.

(1) 'Projecting the population of the United Kingdom', *Economic Trends*, No. 139, May 1965.

(2) That article gave figures for 1970 and 1980. Detailed age breakdowns for 1971 and 1981, the years discussed in this article, for England and Wales will be found in *The Registrar General's Quarterly Return for England and Wales*, No. 464, for the fourth quarter of 1964. For Scotland see the *Digest of Scottish Statistics*, No. 26, October 1965.

(3) See paragraph 37 of Appendix B to *The National Plan*, Cmnd. 2764 (H.M.S.O.) September 1965.

II. THE STRUCTURE OF THE UNITED KINGDOM POPULATION

The dependent age groups

There is a steady annual increase in the number of persons in the dependent age groups throughout the 1960's. The annual increases are expected to rise from fewer than 80 thousand persons a year in 1961-62 to more than 430 thousand a year in 1969-70. This is very largely due to the increase in the number of young people under 15—there was a decrease in the numbers in this group in 1960-61, but an increase of almost 300 thousand is expected in the year 1969-70. This increase reflects the fact that births in 1970 (1,080 thousand) are expected to be nearly 40 per cent. higher than the level at which births were occurring in the mid-1950's (1954-55: 790 thousand).

In the 1970's, the number of persons in the dependent age groups is expected to continue to grow—though not as rapidly as in the 1960's. The projected annual increase falls to between 150 and 200 thousand persons in the latter part of the 1970's, half the peak rate of 1969-70. This again is largely due to the younger element. The projected annual increase in young persons falls from 300 thousand to 100 thousand over this decade.

The working age groups

The number of persons in the working age groups is expected to follow a pattern opposite to that of the number of persons in the dependent age groups. The annual increase is expected to fall during the 1960's—from 440 thousand to 10 thousand a year—but to rise by the late 1970's to some quarter of a million a year.

This is largely due to variations in the number of births in the corresponding periods 15 years earlier. After rising sharply to a peak in 1947, births fell nearly as sharply to a low level which persisted from 1951 to 1955; and since then they have risen fairly steadily until, in 1964, they were nearly as high as in 1947. In the 15-44 age group the moderate increase of 1960-61 (160 thousand) was immediately followed by an unusually large increase in 1961-62 (450 thousand). This age group is expected to experience a decrease of 60 thousand in 1965-66, but to return thereafter to annual increases of some 300 thousand by the late 1970's.

Except for a short time in the mid-1960's, the number of persons in the working age groups above the age of 44 is expected to decrease throughout the period 1961-81.

During the period 1964-81 as a whole, the increase in the number of persons in the working age groups is only 40 per cent. of that in the number of persons in the dependent age groups. However, this proportion is 9 per cent. in 1964-71 and 70 per cent. in 1971-81.

One noteworthy feature of these figures results from the peak birth rate around 1947. People born in that period will reach their late teens in the mid-1960's; and the 15-19 age group, which increased by over half a million in the three years from mid-1961 to mid-1964, will fall back again by almost as much by 1971. In 1971 the total number of persons in the 15-19 age group will be less than 50 thousand (about 1 per cent.) above the level in 1961.

All age groups

Over a third of the increase of 520 thousand in the total population between 1961 and 1962 was due to migration (leading to an increase of 190 thousand). Natural increase (the 330 thousand excess of births over deaths) accounted for the remainder. With net migration falling dramatically to 15 thousand, the increase was only 340 thousand in the following year. The annual increments are expected to rise—mainly as a result of natural increase (the difference between births and deaths within the United Kingdom)—to some 460 thousand by 1970-71, and they are expected to remain slightly above that level during the 1980's. The resultant pattern of increases in typical years can be seen from the following table:

Annual changes in specified age groups

	Thousands				
	1961-62	1963-64	1970-71	1975-76	1980-81
Working age groups					
15 to 44	+ 454*	+ 223	+ 76	+ 217	+ 338
45 & over	— 14	— 57	— 34	— 24	— 71
Total	+ 440	+ 166	+ 42	+ 193	+ 267
Dependent* age groups					
Young	— 7	+ 117	+ 287	+ 191	+ 113
Older	+ 84	+ 133	+ 126	+ 82	+ 96
Total	+ 77	+ 250	+ 413	+ 273	+ 209
All age groups	+ 517	+ 416	+ 455	+ 466	+ 476

*Including some 190 thousand net gain by international migration. Migration at the 1963-64 rate would have given a figure of some 290 thousand here for persons in the younger working age groups, that is, aged 15-44.

The steady level of increases in the population as a whole in the 1970's results from the fact that, though growth in the working age groups is more rapid than before, growth in the dependent age groups is correspondingly less rapid. Most of the change is in the early 1970's, and the ratio of the total numbers in these groups will not change significantly between 1976 and 1981. This is reflected in the figures below. These show the number of persons in the working age groups per 100 persons in the dependent age groups for the United Kingdom as a whole. (Similar data for individual regions will be found in Table 4 at the end of this article.)

	1961	1964	1971	1976	1981
	163	163	145	137	137

The school leaving age

In general, changes in the school leaving age are ignored in this article, but it may be useful to point out that the removal of the 15-year-olds from the persons in the working age group in 1972 would mean a reduction of 800 thousand persons in that age group, and that by 1981 there will be over a million persons aged 15. Shifting the starting point of the working age group to 16 in 1972 would reduce the number of persons in the

working age groups per 100 persons in the dependent age groups given in the last paragraph from 145 in 1971 to 135 in 1972:

1971	1972	1976	1981
145	135	129	129

With this adjustment, the number of persons in the working age groups would be reduced below the 1964 level in 1972, and would not reach that level again until after 1976—by which time the number of persons in the dependent age groups would be 26 per cent. above its 1964 level.

The working population

It must be emphasised that when reference is made to the number of persons in the working age groups this includes all persons of the relevant ages (that is, men aged 15-64 and women aged 15-59) whether or not they are actually part of the working population. Conversely, men aged 65 and over and women aged 60 and over are excluded even if they are in employment. The Ministry of Labour have, however, made estimates of the size of the working population as such^(*), and in the production of their estimates of changes in the United Kingdom working population between 1964 and 1981 they have allowed for the effects of the change in the school leaving age. The estimates will be found in Appendix A to *The National Plan* and, in somewhat more detail for Great Britain, in the September issue of the *Ministry of Labour Gazette*. As these changes largely reflect changes in population size and structure, some of them have been quoted at relevant points in this article, and a summary table appears at the end (Table 7).

Sex structure

As deaths over the period through 1981 are expected to be of roughly equal numbers of men and women, the higher proportion of male births to female births and the fact that net immigration into United Kingdom is mainly male will lead to an increasing proportion of males in the population, though it is expected that it will be the mid-1990's before the numbers are equal.

Females per thousand males

1964	1971	1976	1981	1991	2001
1,045	1,040	1,031	1,022	1,006	992

In the working age groups (which cover fifty years in the case of men, but only forty-five years for women) the proportion of males is increasing. In the United Kingdom it was 50.6 per cent. in 1951, and rose to 52.1 per cent. in 1964. It is expected that this increase will continue and that this index will reach 52.7 per cent. by 1971 and—after a somewhat slower increase—52.9 per cent. in 1981. This increase will not be spread uniformly throughout the United Kingdom, however: a fall after 1964 is expected in both the South West and the North of England. The highest proportion of males in this group is in the West Midlands (52.8 per cent. in 1964 and 53.8 per cent. in 1981) and the lowest is in Scotland (50.8 per cent. in 1964 and 51.6 per cent. in 1981).

(*) These Ministry of Labour estimates are of civilians only. They are described in *The National Plan* as the 'labour supply'. They exclude employers and self-employed, but include registered unemployed.

III. REGIONAL DISTRIBUTION— GENERAL

Assumptions and methods

Switching from a national to a regional basis means changing from figures in terms of the *total* population to those on a *home* population basis. The *total* population figures include United Kingdom forces at home and overseas as well as all the civilians present in the United Kingdom. The *home* population excludes that part of the United Kingdom forces stationed abroad, but includes both foreign and Commonwealth forces in the United Kingdom—i.e. it is the *de facto* population, whereas the *total* population is the *de jure* population. The net difference amounted to 147 thousand persons in 1964, and this difference has been assumed not to change significantly in the period between 1964 and 1981.

Three national projections in terms of the total population were made by the Government Actuary's Department: for Scotland, for Northern Ireland, and for England and Wales as a whole. The transfer from a total to a home basis has been made by the General Register Office in consultation with the General Register Offices for Scotland and Northern Ireland.

The geographical split of the England and Wales total was done in two stages. The first stage reflected only the age structure and distribution of the mid-1964 population, with appropriate allowances for regional differences in fertility and mortality existing in the early 1960's. Thus, at this stage, the forecasts were 'static' in that no allowance was made either for migration into or out from England and Wales (including that from or to Scotland and Northern Ireland) or for population movements within England and Wales. Static forecasts for 1971 will be found in Appendix A of *The National Plan*. They are not discussed in detail here as their value is limited by the fact that migration has a side effect on natural increase. Migrants usually have a different age distribution from the populations which they leave and join, and the consequent births and deaths can make appreciable differences to the births and deaths calculated on a static basis (see Table 5 at the end of this article). In the second stage of the preparation of regional projections, therefore, allowances had to be made both for migration flows as such and for the consequent effects on natural increase.

The migration assumptions in respect of Scotland, of Northern Ireland, and of England and Wales as a whole were discussed in the article in the May issue of *Economic Trends* mentioned above. Those assumptions are not considered to be inconsistent with more recent policy decisions. Inter-regional population movements within England and Wales have been taken at the same level in each year of the period 1964-1981. In deciding on the appropriate levels for these movements, the chief factors taken into account were the corresponding levels in the recent past and the changes expected in migration from outside England and Wales. Changes in external migration can be expected to have an impact on migration within the country because the economic and social forces encouraging people to move operate both on external and internal movements. The strength of these forces may not always be identical in the case of

internal and external movements (retirement migration, for example, may be expected to be largely restricted to movements within the country), but a reduction in the supply of migrants from abroad must be expected in many cases (for example, where employment is a major element) to lead to an increasing pressure for internal population movements. With this in mind, the levels of internal migration given in Table 6 at the end of this article were determined; although, in the case of the South East, account has not been taken of the findings of the first part of the Government's review.

Adding to the internal movements discussed in the last paragraph each region's share of migration from outside England and Wales (which was distributed according to the 1951-61 pattern) gives the following pattern for net regional gains/losses by migration for 1965, 1970 and 1980. These may be compared with the figures for 1959-64 which are also quoted.

		<i>Annual migration (net)</i>			
		Thousands per year			
		1959-64	1965	1970	1980
Northern England	..	— 7	—10	—10	— 9
East and West Ridings	..	— 6	— 9	—10	—10
North West England	..	— 7	—10	—10	—10
North Midlands	..	+ 13	+ 8	+ 7	+ 6
West Midlands	..	+ 19	+13	+11	+ 9
South East England	..	+ 89	+60	+51	+42
South West England	..	+ 28	+11	+11	+12
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England	+129	+63	+50	+40
Wales	— 2	— 3	— 2	— 2
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England and Wales	..	+127	+60	+48	+38

The table above shows the assumed net population movement into/out of each region. It does not incorporate the effects of migration on subsequent births and deaths. These population movements are analysed further in Table 6 at the end of this article. That table shows separately the net movement between each region and: the remainder of England and Wales; and the rest of the world (including Scotland and Ireland).

The sex/age distribution of the net movement of migrants from outside England and Wales is that estimated by the Government Actuary's Department in the course of producing their projections for England and Wales as a whole. For movements within England and Wales, the movements in the year preceding the last census—i.e. in the period April 1960 to April 1961—have been used as a guide in order to split the assumed levels of migration.

The methods used in making these regional projections will be discussed in more detail in a forthcoming publication in the General Register Office's series of *Studies on Medical and Population Subjects*.

General results

The results of the projections are summarised in Table 1 at the end of this article. The largest gains between 1964 and 1981 are in the South East, North Midlands, and North West, as will be seen from the table below. The changes in 1951-64 are shown for comparison, and the regions and countries are listed in the order of the

size of their increases during that period. The order of increases for the period 1964-1981 is shown in the last column of the table.

		<i>Increase in home population</i>		
		1951-64	1964-81	
		Thousands	Thousands	Order
South East England	..	1,743	3,062	1
West Midlands	..	501	1,043	2
North Midlands	..	378	703	4
South West England	..	299	506	5
North West England	..	249	796	3
Northern England	..	171	321	8
East and West Ridings	..	157	364	7
Scotland	104	446	6
Wales	87	246	9
Northern Ireland	..	87	213	10
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United Kingdom	..	3,776	7,700	

The chief changes in the order are in respect of the North West, which rises from fifth to third place, and Scotland, which rises from eighth to sixth.

The position of the South East is, of course, influenced by the fact that it has the largest population to start with. If the list is ordered in terms of *percentage* increases, the South East drops to third place. It also becomes clear that the regions and countries can be arranged in three groups—those with above average increase, those with about average increase, and those with below average increase. In the next table, the regions and countries are listed in order of their percentage increases over the whole thirty years 1951 to 1981:

		<i>Percentage increase</i>		
		1951-64	1964-81	1951-81
Group 1				
West Midlands	..	11	21	35
North Midlands	..	11	19	32
South East England	..	11	17	29
Group 2				
South West England	..	9	14	25
Northern Ireland	..	6	15	22
Group 3				
North West England	..	4	12	16
Northern England	..	6	10	16
Wales	3	9	13
East and West Ridings	..	4	9	13
Scotland	2	9	11
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United Kingdom	..	8	14	23

This table shows Northern Ireland, though having the smallest absolute increase in its population, holding its own in percentage terms. It is Scotland which is expected to have the smallest relative gain in its population. (The above changes are also expressed in terms of average annual increases in Table 3 at the end of this article.)

The South East and the two Midland regions accounted for 48.4 per cent. of the United Kingdom population in 1951. By 1981 this percentage would, according to these projections, rise to 51.4 per cent. These regions, occupying 28 per cent. of the area of the United Kingdom, would thus contain more than half its population.

The North West, however, is the most densely populated single region, and is expected to remain so. Its density in 1964 was 3.4 persons per acre. The next most densely populated region was the South East with 1.9 persons per acre—not much more than half the density of the North West. By 1981, the North West is expected to have 3.8 persons per acre and the South East 2.2 persons per acre. The next most densely populated regions are the West Midlands (1.9 persons per acre in 1981) and the East and West Ridings of Yorkshire (1.8 persons per acre in 1981). Scotland, on the other hand, in spite of the Central Clydeside Conurbation, has an average of only 0.3 persons per acre throughout the period under review; and Northern Ireland and Wales (0.5 persons per acre and 0.6 persons per acre respectively in 1981) are the other most sparsely populated areas. (See Table 8 at the end of this article.)

In the light of the above general comments, the last part of this paper will discuss the individual regions and countries making up the United Kingdom. Tables summarising many of the main features will be found at the end of this article following the diagrammatic presentation of the differing age structures of the various regional and national populations in the Appendix.

IV. INDIVIDUAL REGIONS AND COUNTRIES

Northern England

Northern England contains about 6 per cent. of the population of the United Kingdom. Its share of that population has been falling slightly—from 6.2 per cent. in 1951 to 6.1 per cent. in 1964—and this decline is expected to continue. The future shares are expected to be 6.0 per cent. and 5.9 per cent. in 1971 and 1981 respectively. In absolute terms, this future fall corresponds to a 10 per cent. rise in the population of the region: from 3.3 million in 1964 to 3.6 million in 1981. This corresponds to an annual average increase of 0.6 per cent., slightly higher than the 0.4 per cent. average annual increase in 1951-64.

The rate of increase in the population of Northern England is held down by emigration: the increase in the population of the region in the period between 1964 and 1981 is expected to be only 60 per cent. of what would be expected on the basis of a static projection. Some three-quarters of the net migration out of the region is expected to be to the remainder of England and Wales.

The pattern of changes in the population in the period 1964 to 1981 is as follows:

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	- 79	+ 74
45 and over	+ 45	- 20
Total	- 34	+ 54
Dependent age groups		
Young	+ 91	+ 76
Older	+ 71	+ 63
Total	+162	+139
All age groups	+128	+192

The number of persons in the working age groups is expected to increase by 20 thousand between 1964 and 1981. However, this consists of an increase of 16 thousand females and 4 thousand males; and, as activity rates for females are lower than those for males, this, combined with the raising of the school leaving age, leads to the expectation that the working population will be smaller in 1981 than in 1964. Northern England is the only region in which such a fall is expected.

The number of persons in the working age groups per hundred persons in the dependent age groups will change as follows:

1951	1961	1964	1971	1981
174	157	160	140	131

East and West Ridings of Yorkshire

The East and West Ridings of Yorkshire contained 8.1 per cent. of the population of the United Kingdom in 1951. This share fell to 7.8 per cent. in 1964, and the decline is expected to continue to 7.5 per cent. by 1981. This relative decline would correspond to a rise in absolute terms from 4.2 million in 1964 to 4.6 million in 1981. This is an annual average increase of 0.5 per cent., against the annual average increase of 0.3 per cent. between 1951 and 1964. The rates of increase in the East and West Ridings of Yorkshire are similar to those in Wales, and only Scotland has lower rates of increase.

The East and West Ridings are losing population as a result of migration. On a static basis the population would increase by 572 thousand between 1964 and 1981 instead of by the expected 365 thousand. A slight net inflow resulting from international migration to the area is more than offset by a substantial net outflow to the remainder of England and Wales.

The distribution of population changes is shown below:

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	- 49	+137
45 and over	- 18	- 87
Total	- 67	+ 50
Dependent age groups		
Young	+124	+103
Older	+ 88	+ 66
Total	+212	+169
All age groups	+145	+220

The East and West Ridings of Yorkshire form the only region where a net reduction in the number of persons in the working age groups is expected for the period 1964-1981; nevertheless a slight increase in the working population in that region is forecast. This reflects the fact that the net loss of 17 thousand persons in the working age groups consists of a net gain of 24 thousand men more than offset in terms of population—

but not of the labour force—by a net loss of 41 thousand women. The differing position for men and women is largely due to the pattern of migration from the East and West Ridings of Yorkshire to the rest of England and Wales: 60 per cent. of the net emigration between 1964 and 1981 is expected to be of women.

The number of persons in the working age groups corresponding to each hundred persons in the dependent age groups in the East and West Ridings of Yorkshire is expected to change as follows:

1951	1961	1964	1971	1981
177	162	164	141	132

In the period of 1951-1964, the distribution of the population in the East and West Ridings of Yorkshire by broad age groups followed the United Kingdom pattern; but after 1964 the proportion of older persons is expected to rise relatively rapidly. Conversely the percentage of the population of this region in the working age groups is expected to decline markedly over the next seventeen years.

North West England

The North West of England contains about one eighth of the population of the United Kingdom, but its share is declining slowly. In 1951 it had 12.8 per cent. of the total, but in 1964 only 12.3 per cent. By 1981 its share is expected to have fallen to 12.1 per cent. During the 1950's, the population of the North West was increasing by only 0.2 per cent. per annum on average, but this rate rose to 0.6 per cent. per annum in the early 1960's. In the period 1964-81 a slightly greater growth (averaging 0.7 per cent. per annum) is expected, corresponding to an increase of 800 thousand persons (from 6.7 millions in 1964 to 7.5 million in 1981).

The North West had slightly more than the average percentage of its population in the working age groups in 1951 (64.0 per cent. against 63.8 per cent. for the United Kingdom), but this percentage fell to 61.3 per cent. in 1961 and 1964 (61.9 per cent. in 1961 to 62.0 per cent. in 1964 for the United Kingdom). It is expected to continue falling—to 57.8 per cent. in 1971 and to 56.3 per cent. in 1981, against 59.2 per cent. and 57.8 per cent. for the United Kingdom in those two years respectively. By 1981 the North West will be the region with the second smallest percentage of persons in the working age groups—and also have the third largest percentage of young people: 27.2 per cent., against 26.2 per cent. for the United Kingdom.

The pattern of population change for the various age groups in the North West of England is as follows:

	1964-71	Thousands 1971-81
Working age groups		
15 to 44	- 10	+277
45 and over	- 45	-110
Total	- 55	+167
Dependent age groups		
Young	+228	+222
Older	+130	+103
Total	+358	+325
All age groups	+304	+493

From the above table it can be seen there is a fall in the number of persons in the working age group between 1964 and 1971, and that the rise thereafter is the result of a substantial increase in the younger working age groups partially offset by a fall in the older working age groups. Almost half the increase in the younger working ages is in the 15-19 group. Almost the whole of the net increase of 113,000 consists of males.

The ratio of the number of persons in the working age groups to those in the dependent age groups in the North West is shown below:

Persons in working age groups per 100 persons in dependent age groups:

1951	1961	1964	1971	1981
177	158	158	137	129

Only Northern Ireland has a ratio lower than North West England in 1981.

The North West is expected to have only 4.3 per cent. of the increase in the United Kingdom working population between 1964 and 1981, partly as the result of a decline in the late 1960's corresponding to the reduction in the population in the working age groups in the region.

North West England has by far the highest average density of any region in the United Kingdom, and it also has the highest density if conurbations are excluded. The density of the region as a whole will reach 3.8 persons per acre by 1981, compared with the United Kingdom average of only 1.0 persons. The next highest density is that of the South East, which will reach 2.2 persons per acre by 1981.

The North West has relatively high proportions both of older and of young persons, and this is reflected in the comparatively low ratios quoted above.

North Midlands

The North Midlands contain some 7 per cent. of the population of the United Kingdom, and its share is slowly rising. In 1951 it was 6.7 per cent., and in 1964 it was 7.0 per cent. By 1971 the share is expected to rise to 7.1 per cent., and by 1981 to 7.2 per cent. In the period between 1964 and 1981 this would correspond to a 19 per cent. increase in the population of the region (corresponding to an average annual increase of 1.1 per

cent. per annum). This is a higher percentage rise than that for any other region except the West Midlands. The population of the North Midlands in 1964 was 3.8 million and in 1981 it was expected to reach 4.5 million. In that latter year the two Midland regions will have a population of 10.4 million—nearly half that of South East England.

Of the increase of 0.70 million in the population of the North Midlands between 1964 and 1981, 0.56 million represents the natural increase of those persons present in the region in 1964. The remainder is, of course, due to migration. Population movements are expected to add 0.11 million to the population of the region directly, and they will lead to a consequent further addition of 0.03 million to the natural increase (that is, the difference between births and deaths) in the region.

The distribution of population changes is as follows:

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	+ 24	+189
45 and over	+ 42	+ 8
Total	+ 66	+197
Dependent age groups		
Young	+151	+161
Older	+ 65	+ 63
Total	+216	+224
All age groups	+282	+421

Like the West Midlands and the South East, though to a lesser extent, the North Midlands will be gaining persons in the younger working age group throughout the period, and the North Midlands has the third largest ratio of the number of persons in the working age groups to those in the dependent age groups in 1951 and subsequently.

Persons in working age groups per 100 persons in dependent age groups:

1951	1961	1964	1971	1981
176	164	165	147	140

A comparatively high proportion of those in the working age groups are men; and the North Midlands is thus expected to have a relatively large increase in its working population, gaining 10 per cent. of the United Kingdom increase between 1964 and 1981.

Generally, the North Midlands has a rather lower than average proportion of old people and an above average number of young persons and persons in the working age groups, though not to the same extent as the West Midlands.

West Midlands

By 1971 the West Midlands is expected to overtake Scotland and to become the third largest part of the United Kingdom, with almost 10 per cent. of its population. This proportion has been growing, from 8.8 per

cent. in 1951 to 9.1 per cent. in 1964. It is expected to reach 9.4 per cent. in 1971, and 9.7 per cent. in 1981. Relative to its size, this is the most rapidly growing region. Its annual average increase of population is expected to reach 1.1 per cent. per annum between 1964 and 1981. This would mean that the population in 1981 would be 21 per cent. higher than the population in 1964: an increase of over a million people. The population was 4.9 million in 1964 and it is expected to be almost 6.0 million in 1981.

The age distribution of the growth in the population is as follows:

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	+ 21	+275
45 and over	+ 82	- 4
Total	+103	+271
Dependent age groups		
Young	+213	+214
Older	+103	+140
Total	+316	+354
All age groups	+419	+624

Of the estimated increase of 374 thousand in the working age groups, 62 per cent. will be male.

Although the West Midlands has less than 10 per cent. of the United Kingdom population, it is expected to have 13.8 per cent. of the increase in population between 1964 and 1971 and 13.4 per cent. between 1971 and 1981. This is an appreciably larger share than the North West, which has over 12 per cent. of the United Kingdom population.

The annual net gain by migration to the West Midlands averaged 19 thousand persons between 1959 and 1964. Almost all of this resulted from immigration from abroad. A substantial fall in this population movement has been assumed; and by 1980 the West Midlands are expected to be gaining an average of 8 thousand persons a year from outside England and Wales, out of a total net gain of 9 thousand a year from all forms of migration. This total is about half of the corresponding level for 1959 to 1964.

The population growth in the West Midlands is reinforced by this migration, which is expected to add 240 thousand to its population—nearly a quarter of this region's gain between 1964 and 1981—when the effects on natural increase are taken into account. The static population increase (i.e. excluding all the effects of migration) is expected to be 803 thousand. The net movement of persons into the regions is expected to add another 175 thousand, and the births and deaths resulting from this movement of persons to account for the remaining 65 thousand.

In addition, the West Midlands is one of the two regions—the other being the South East—where the

ratio of the number in the working age groups to those in the dependent age groups is the highest.

Persons in working age groups per 100 persons in dependent age groups:

1951	1961	1964	1971	1981
180	174	175	154	143

A particularly high proportion of those in the working age groups in the West Midlands are men. It is expected that, during the period from 1964 to 1981, the West Midlands will have the highest regional percentage of males in the working age groups—rising from 52.8 per cent. in 1964 to 53.8 per cent. in 1981. This gives it a relatively large increase in its working population. The increase between 1964 and 1981 is expected to be about 300 thousand. This would mean that the West Midlands would have 20 per cent. of the increase in the United Kingdom's working population between 1964 and 1981, even though it is still expected to have less than 10 per cent. of the country's population as a whole. Three-quarters of the expected increase in the working population in the United Kingdom is in the West Midlands and South Eastern regions, and almost all of the increase before 1971 will be in these two regions.

The West Midlands and the South East are the regions with the highest proportion of the populations in the working age groups, and the West Midlands also has a very low proportion of older persons. The proportion of old people is expected to increase markedly over the period 1964-1981 (12.9 per cent. to 14.7 per cent.), but nevertheless to remain the lowest outside Northern Ireland.

South East England

The South East contains just over a third of the population of the United Kingdom. As has been said earlier, the findings of the South East review on migration and population growth will need to be assimilated with these earlier projections; but, on the basis of the earlier figures, the South East's share of the United Kingdom's population was expected to increase, though not at the rate of the 1950's. Between 1951 and 1961 it rose from 32.9 per cent. to 33.6 per cent. In 1964 the South East had 33.8 per cent. of the United Kingdom's population, and in 1971 and 1981 this proportion was expected to rise to 34.2 per cent. and 34.6 per cent. respectively. In absolute terms, this would correspond to an increase from 18.3 million in 1964 to 21.3 million in 1981, representing an annual average increase of 0.9 per cent.

The South East gains a relatively large increase as a result of migration, and this was expected to enable it to retain the highest proportion of persons of working ages in any region other than the West Midlands—and to overtake that region by 1981. Nevertheless, even in the South East, this proportion is expected to fall: from 62.8 per cent. in 1964 to 59.1 per cent. in 1981 (United Kingdom: 61.9 per cent. to 57.8 per cent.). Of this fall of 3.7 per cent. in the South East, 2.4 per cent. is in the first seven years, during which time the proportion of the population under 15 is expected to increase from 21.6 per cent. to 23.6 per cent. The projected increases in the South East follow this pattern:

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	+ 289	+ 881
45 and over	+ 46	- 78
Total	+ 335	+ 803
Dependent age groups		
Young	+ 668	+ 677
Older	+ 269	+ 309
Total	+ 937	+ 986
All age groups	+1,272	+1,790

Almost half of the above net 803 thousand increase in workers between 1971 and 1981 will be in the 15-19 age group, following a marked decline between 1964 and 1971. This results in an increase of 223 thousand in the 17 years between 1964 and 1981. The number in this age group is therefore expected to be back at its 1961 level by 1971, after a marked increase in the early 1960's reflecting the post-war peak birth rate. Of the 1,137 thousand increase in the working age groups, 64 per cent. will be men; and the South East will have 54 per cent. of the increase in the United Kingdom's working population between 1964 and 1981.

The proportion of old people in the South East is not increasing as rapidly as that of young people. After rising from 14.4 per cent. in 1951 to 15.6 per cent. in 1964, it is expected to increase to 16.0 per cent. by 1971 and rise only slightly thereafter—to 16.1 per cent. in 1981. Two-thirds of the increase of persons in the dependent age groups is in the under 15's.

The number of persons in the working age groups corresponding to each hundred people in the dependent age groups in the South East is expected to remain well above the United Kingdom average throughout the period:

1951	1961	1964	1971	1981
181	169	169	152	144

Only slightly more than the national average percentage of persons in the working age groups are men, but the South East must be expected to have much the largest share of the increase in the United Kingdom's working population. Its gain is expected to be about a third of a million between 1964 and 1971, and a half of a million between 1971 and 1981—76 per cent. and 46 per cent. of the net United Kingdom totals respectively, giving the average of 54 per cent. mentioned above.

The proportion of the South East's population under 15 is about 1½ per cent. below the United Kingdom level, and it is expected to remain so throughout the period between 1951 and 1981. Conversely, the South East has had a relatively high proportion both of persons in the working age groups and of older persons. (In this respect it may be contrasted with the West Midlands

which also has a relatively high share of its population in the working age groups but which has a markedly low proportion in the older age groups and a slightly higher than average proportion of young people.) The number of old people is not increasing as rapidly in the South East as in the United Kingdom as a whole; and by 1981 the South East will be expected to have a proportion of older persons only slightly higher than average. Its proportion of persons in the working age groups—which fell below the West Midlands level in the 1960's—would then again be higher than that in any other region—59.1 per cent. against the United Kingdom average of 57.8 per cent.

The increase of 3.06 million in the population of the South East between 1964 and 1981 can be analysed into three elements. The static natural increase (the difference between births to and deaths of those persons present in 1964) is expected to add 1.89 million to the population. On the basis of the assumptions before the Government had the findings of the South East review, 0.84 million more persons were expected to enter the region than to leave it as the result of international migration from abroad and population movements within the United Kingdom; and this migration would have the effect of increasing the difference between births and deaths by a further 0.33 million. Thus, 38 per cent. of the expected increase over the period would have been due, directly or indirectly, to migration. Were it not for this, the gain in persons of working ages would have been 312 thousand, instead of 1,137 thousand. Migration was thus expected to make the increase in persons in this age group three and a half times what it would be on a static basis. Indeed, had all the population movements in South East England stopped in mid-1964, we could anticipate a fall in the number of persons in working ages for the remainder of the 1960's instead of the projected increase of over a third of a million by 1971.

Between 1959 and 1964 the annual net gain by the South East from migration averaged 89 thousand persons. Almost all of this resulted from immigration from abroad. A substantial fall in net immigration to England and Wales has been assumed; and by 1980 the South East's annual share was expected to be reduced to 32 thousand persons—a little more than a third of the 1959-1964 figure. The figures shown assume a continued net gain to the South East of 10 thousand persons a year as a result of inter-regional migration, giving a net gain of 42 thousand persons a year from all sources in 1980. This is about half the 1959-1964 gain and represents a similar overall reduction to that assumed for the West Midlands, the other region where migration from outside England and Wales has been particularly significant.

These figures will need a fresh look in the light of developing policies. Thus, the level of net international migration into the South East assumed in this article is much the same as that taken in the review of the South East Study. In the South East review, however, because the future drift from the rest of England and Wales was regarded as negligible, the total increase of the population of the South East was estimated at a somewhat lower level than that given here—2.9 million between 1964-1981 instead of 3.06 million. The latter figure, as mentioned above, includes a gain of 10,000 persons

per annum through net internal migration from the rest of England and Wales, and does not make full allowance for the measures the Government are taking to strengthen the economies of the less prosperous regions and to prevent this internal drift to the South East re-arising.

South West England

South Western England has about 6½ per cent. of the population of the United Kingdom. The share is in fact increasing very slightly (from 6.5 per cent. in 1951 to 6.6 per cent. in 1964 and 1981). This corresponds in the period between 1964 and 1981 to an increase of 14 per cent. in the population of the region (an average annual increase of 0.8 per cent.)—from 3.5 million in 1964 to 4.1 million in 1981. In the period between 1951 and 1964 the average annual increase was 0.7 per cent.

The South West is one of the two regions most heavily influenced by migration. Were it not for migration, the population present in the South West in 1964 could be expected to increase by 0.31 million by 1981; but a further 0.20 million are expected to be added to this by migration. The South West is expected to lose population as a result of international migration, but to gain a quarter of a million persons as a result of movements from the remainder of England and Wales. Almost half of this is expected to consist of persons aged 45 and over whose subsequent deaths will offset the births to younger female immigrants to the South West, and migration is therefore not expected to make any significant net difference to the natural increase (that is, the difference between births and deaths) in this region. There is expected to be a predominance of women, accounting for 57 per cent. of the population movement from the remainder of England and Wales to South West England.

The age distribution of the changes in the population in South West England is as follows:

			1964-71	Thousands
				1971-81
Working age groups				
15 to 44	..	..	+ 4	+191
45 and over	..	..	+ 13	- 44
Total	..	..	+ 17	+147
Dependent age groups				
Young	..	..	+112	+128
Older	..	..	+ 63	+ 40
Total	..	..	+175	+168
All age groups	..	..	+191	+315

The increase of 164 thousand persons in the working age groups is more than half women (55 per cent.). South West and Northern England are the only two regions where women account for the larger part of the increase in the working age groups. The South West is expected to have 4.7 per cent. of the increase in the working population of the United Kingdom during the period between 1964 and 1981

This will reflect the declining number of persons in the working age groups in relation to those in the dependent age groups.

Persons in working age groups per 100 persons in dependent age groups:

1951	1961	1964	1971	1981
172	155	155	139	134

The South West has the highest proportion of older people of any region, though it is expected that Wales will overtake it by 1981. It has a below average proportion of young people, and the proportion of its population in the working age groups is also below the average level, though not to a very marked extent.

Wales

Wales contains about 5 per cent. of the population of the United Kingdom—twice as much as Northern Ireland, but less than the populations of Scotland and the regions of England. Its share of the United Kingdom population is declining slowly. It was 5.1 per cent. in 1951, and 5.0 per cent. in 1964. In 1971 and 1981 it is expected that these proportions will have fallen to 4.9 per cent. and 4.7 per cent. respectively. The population of Wales in 1964 was 2.7 million, and it is expected to increase to just over 2.9 million by 1981. The rate of increase averages 0.3 per cent. per annum between 1951 and 1964 and it is expected to rise to 0.5 per cent. per annum between 1964 and 1981, compared with 0.6 per cent. and 0.8 per cent. respectively in the United Kingdom as a whole.

Wales is losing population as a result of international migration; and though, taking all age groups together, it is assumed to lose no more people to England than it gains from that country, within that overall balance a loss of young women (aged 15-24) is expected to reduce the number of births appreciably below what it would otherwise have been. The net consequence of migration between 1964 and 1981 is that the increase in the population of Wales is some 80 thousand persons less than it would be had all population movement stopped in the middle of 1964.

The pattern of population changes for Wales is as follows:

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	- 52	+ 77
45 and over	+ 29	- 45
Total	- 23	+ 32
Dependent age groups		
Young	+ 68	+ 61
Older	+ 58	+ 49
Total	+126	+110
All age groups	+103	+142

The net increase of 9 thousand persons in the working age groups consists of plus 16 thousand males and minus 7 thousand females. The working population of Wales is forecast to increase by 22 thousand persons during the period 1964-81. The ratio between the number of persons in the working age groups and those in the dependent age groups varies as shown below.

Persons in working age groups per 100 persons in dependent age groups:

1951	1961	1964	1971	1981
172	155	155	139	134

By 1981, Wales is expected to have a higher proportion of old people than any other part of the United Kingdom; whereas in 1951 this proportion was very slightly below the average. The proportion both of young people and of persons in the working age groups will correspondingly decline.

Scotland

In 1951, the population of Scotland was exceeded by that of only two English regions, and Scotland accounted for 10.1 per cent. of the United Kingdom's population. By 1964 this percentage had fallen to 9.6 per cent. This relative decline is expected to continue, though less rapidly than in the past. The projections show Scotland having 9.3 per cent. of the United Kingdom's population in 1971 and 9.2 per cent. in 1981. On that basis, the population of Scotland will be overtaken by that of the West Midlands between 1964 and 1971. In spite of this relative decline, the population of Scotland is expected to increase from 5.2 million in 1964 to 5.7 million in 1981.

The pattern of population increases in Scotland is as follows:

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	- 65	+230
45 and over	- 21	- 89
Total	- 86	+141
Dependent age groups		
Young	+126	+129
Older	+ 73	+ 61
Total	+199	+190
All age groups	+114	+331

Scotland's loss of persons in the working age groups between 1964 and 1971 is higher than that of any region of England or of Wales or Northern Ireland.

The number of persons in the working age groups in relation to each 100 in the dependent age groups varies as follows:

1951	1961	1964	1971	1981
169	154	154	136	131

Within the working age groups Scotland has the lowest proportion of males throughout the period under review—51.6 per cent. in 1981 compared with the United Kingdom average of 52.8 per cent. even though the whole of 56 thousand net increase in the population in the working age groups between 1964 and 1981 consists of men.

Scotland's population increased at a rate of 0.2 per cent. per annum in the period between 1951 and 1964, compared with 0.6 per cent. per annum for the United Kingdom as a whole. This largely reflected net emigration from Scotland—both to England and Wales and to other Commonwealth and foreign countries. This net loss due to migration is assumed to decline from an average of 33 thousand persons per annum in 1959-64 to 10 thousand persons per annum in 1980, mainly because the growth of the economy in Scotland is expected to reduce the relative attraction of England and Wales. Net emigration from Scotland to England and Wales is assumed to fall from over 20 thousand persons a year in 1965 to less than 5 thousand a year by 1980. In the 1950's some 40 per cent of the net movement from Scotland to England and Wales was to the South East, which may therefore be expected to be the region of England and Wales most affected by this decline.

This decline in migration will contribute to a population growth in Scotland averaging 0.6 per cent. per annum between 1964 and 1981. Were migration to cease altogether, however, the rate of increase in the population of Scotland in that period would be 1.0 per cent. per annum, and the population would increase in all by 17 per cent. between 1964 and 1981 instead of by the 9 per cent. which is forecast. Migration will thus have halved the increase which might otherwise have been expected in the population present in Scotland in mid-1964, in spite of a substantial decline in the level at which that migration is assumed to take place. Furthermore, in the absence of all population movements the net increase in persons in the working age groups would be 340 thousand, instead of only 55 thousand.

Scotland is distinguished by a relatively high proportion of young people—a higher proportion than that of any region of England or of Wales, though less than that of Northern Ireland, (28.1 per cent. in 1981, against a United Kingdom average of 26.2 per cent.). Corresponding to this, Scotland has relatively fewer persons both in the working and older age groups, being about 1 per cent. lower in each case in 1981 than the United Kingdom average (56.8 per cent. against 57.8 per cent. for working age groups; and 15.1 per cent. against 16.0 per cent. for the older ages). Although Scotland is expected to have, in the period to 1971, a lower proportion of its population in the working age groups than any of the regions of England and Wales, the reduction postulated in migration from Scotland would mean that by 1981 the proportion of its population in the working age groups would be no lower than that for Wales and the North West and North of England.

Of the forecast increase of 1.54 million in the working population of the United Kingdom between 1964 and 1981, Scotland is expected to have 4.6 per cent.

Northern Ireland

Northern Ireland has a smaller population than Scotland, Wales, or any English region. Throughout

the period between 1964 and 1981 it had and is expected to have 2.7 per cent. of the United Kingdom's population. No significant change is expected in this percentage which, indeed, is virtually the same as in 1951 and 1961. During the period between 1951 and 1964, Northern Ireland was gaining population at a slightly less rapid rate than the United Kingdom as a whole (with an average increase of 0.5 per cent. per annum against 0.6 per cent. per annum), but in the next 17 years the increase is expected to be 0.9 per cent.—slightly above the average United Kingdom rate of 0.8 per cent. per annum.

The population of Northern Ireland was 1.46 million persons in 1964, and it is expected to reach 1.54 million in 1971 and 1.67 million in 1981. This is an increase of 213 thousand persons, of which 33 per cent. are in the working age groups, compared with 51 per cent. young persons and 16 per cent. older persons.

Compared with the United Kingdom as a whole, Northern Ireland has a particularly large share of the increase in the population in the working age groups, 3.2 per cent. of the United Kingdom increase being in Northern Ireland, compared with only 2.6 per cent. of the increase in the dependent age groups. As in the United Kingdom as a whole, the increase is in the 15-44 age group, where a 92 thousand increase is partially offset by a reduction of 22 thousand in the number of older persons in the working age groups. Of the 92 thousand increase in the 15-44 age group, 61 per cent. will be men. All but 9 thousand of that increase is in the 1970's however.

The distribution of population changes is as follows :

	Thousands	
	1964-71	1971-81
Working age groups		
15 to 44	+ 9	+ 83
45 and over	+ 4	- 26
Total	+ 13	+ 57
Dependent age groups		
Young	+ 53	+ 56
Older	+ 14	+ 20
Total	+ 67	+ 76
All age groups	+ 80	+133

The most striking feature of the population of Northern Ireland is the exceptionally high percentage under 15. By 1981, 31.8 per cent. of the population of Northern Ireland will be under 15, compared with 26.2 per cent. for the United Kingdom as a whole and 28.1 per cent. for Scotland, with the second highest proportion. The difference of 5.6 per cent. between the share of young persons in Northern Ireland and in the United Kingdom as a whole is associated with the smallest proportions both of the persons in the working age groups (55.1 per cent. against 57.8 per cent. for the United Kingdom and 56.3 per cent. for the North West) and of older persons (13.1 per cent., against 16.0 per cent. for the United Kingdom and 14.7 per cent. for the West Midlands). The under 20's will account for 41.1 per cent. of the population of Northern Ireland in 1981, compared with 34.0 per cent. for the population of the United Kingdom

as a whole. The number of persons in the working age groups in Northern Ireland per 100 persons in the dependent age groups is expected to change as follows:

1951	1961	1964	1971	1981
152	141	140	128	123

In addition to having the lowest ratio of persons in the working age groups to those in the dependent age groups, Northern Ireland has one of the smallest male/female ratios within the working age groups. Even in 1981, with the accumulative effect of higher births of males tending always to increase this ratio, it is only 51.8 per cent. compared with 52.8 per cent. for the United Kingdom as a whole. Only Scotland has a smaller ratio (51.6 per cent.). Of this increase between 1964 and 1981 in Northern Ireland, 64.9 per cent. will

be of men. Northern Ireland is expected to have 2.3 per cent. of the increase in the working population of the United Kingdom between 1964 and 1981.

The increase of 213 thousand in the population of Northern Ireland between 1964 and 1981 would be 396 thousand—86 per cent. higher—were it not for the net loss of the population due to migration. Within the working age groups, the gain would be 192 thousand instead of 69 thousand—178 per cent. higher—reflecting the higher proportion of migrants in those age groups. Migration will thus reduce the total increase in the population by almost one half, a comparable situation to that in Scotland. Northern Ireland will maintain its share of the United Kingdom population, however, while that of Scotland falls, largely because of the relatively high birth rate in Northern Ireland.

General Register Office

APPENDIX

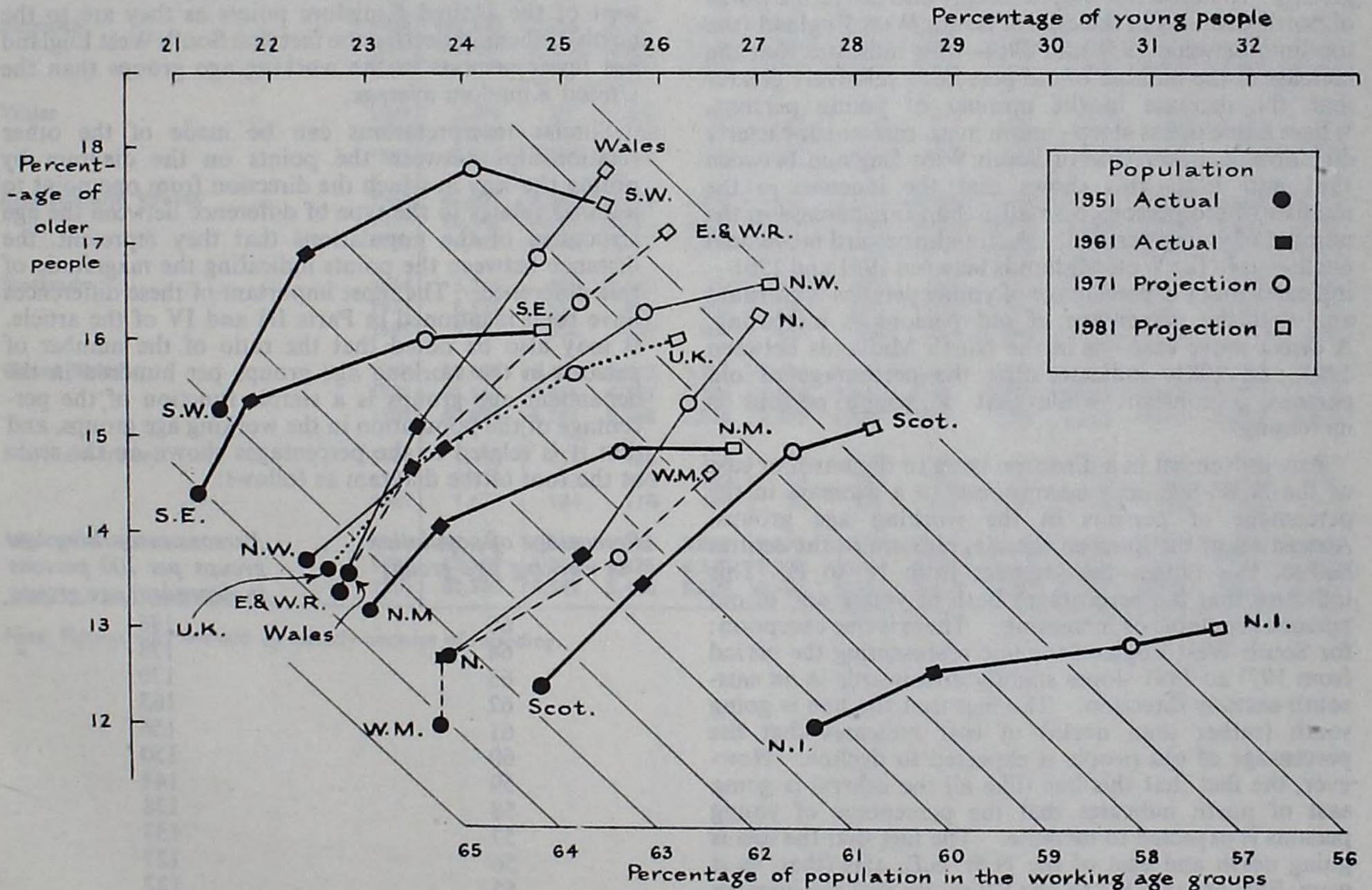
Diagrammatic representation of the differing age structures of regional and national populations

The age structures of the populations discussed in the article have been described in terms of three numbers: the percentage of young persons (0-14), the percentage of persons in the working age groups (males 15-64 plus females 15-59), and the percentage of older persons (males 65 and over plus females 60 and over). Now, because they are percentages, these numbers must add up to 100; and this means that, given any two of them, the third is determined. Taking Scotland as an example, the fact that 24.7 per cent. of its population in 1951 consisted of young people and 12.4 per cent. of old people means that there must have been 62.9 per cent., that is, the remainder of 100 per cent., of its population in the working age groups.

The fact that only two of the numbers are independent makes it possible to show all three of them on a two dimensional diagram such as that below. The vertical scale on the left represents the percentage of old persons and the point for Scotland in 1951 will be found to the right of 12.4 per cent. on this scale. The horizontal scale at the top represents the percentage of young persons and the point for Scotland in 1951 will be found below 24.7 per cent. on that scale. The percentage of

persons in the working age groups can be read diagonally from the scale at the foot of the diagram. It should be noted that low numbers are on the right on this scale and high numbers on the left, so the fact that the solid circle for Scotland in 1951 is just to the right of the diagonal line corresponding to 63 per cent. means that the reading is just below 63 per cent. (in fact it is 62.9 per cent.). The point for 1951 is represented by a solid circle, and that for 1961 by a solid square. As, in the case of Scotland, the square is higher than (or, in mapping terms, 'lies to the north of') the circle, the percentage of old persons in that country can be seen to have increased between 1951 and 1961 (left hand scale). As the square is to the right of the circle (or, 'is to the east' of it) the percentage of young persons is also seen to have increased (top scale). The north-easterly direction of the move from the solid circle to the solid square corresponds to the decreasing percentage of the population in the working age groups (lower scale) between 1951 and 1961.

On the diagram, points have been shown corresponding to the actual populations in 1951 and 1961 (solid circle and square) and to the projected populations in 1971 and 1981 (open circle and square). It should be noted,



however, that the transition from one point to the next is not necessarily smooth—nor even in a uniform direction. In particular the percentage of young people in Great Britain was lower in 1964 than in 1961, with related increases in the percentage of old persons and also, in Wales and the North Eastern regions of England, in the percentage of persons in the working age groups.

Bearing the reservations of the last paragraph in mind, the diagram can be used to give an idea of the way in which the populations of the regions and countries of the United Kingdom differ first over time (the points having been plotted at uniform intervals of 10 years) and secondly one from another.

The first major feature which the diagram shows is a general movement to the right or, in geographical terms, an eastward drift over time. This indicates the increasing percentage of young people in all regions and countries—particularly in the middle period, 1961-71, in which the furthest move east occurs in most regions and countries. Secondly, there is also a general tendency for an upward (or northerly) move. This latter represents a general increase in the percentage of older people; but this, whilst universal between 1951 and 1971, has its exceptions (notably South West England) in the decade from 1971 to 1981.

Combining the movements mentioned in the last paragraph gives a resultant movement in a north-easterly direction. This corresponds to the universal reduction in the proportion of the population in the working age groups. Where a line slopes steeply and lies to the north of north-east—as in the case of South West England (the top line) between 1951 and 1961—this indicates that the increase in the number of old persons is relatively greater than the increase in the number of young persons. Where a line is less steep—more in an east-north-easterly direction, as in the case of South West England between 1961 and 1971—this shows that the increase in the number of old persons is smaller than the increase in the number of young persons. A straightforward movement north—as in the West Midlands between 1951 and 1961—indicates that the percentage of young persons is constant and that the percentage of old persons is increasing. A direct move east—as in the North Midlands between 1971 and 1981—indicates that the percentage of old persons is constant while that of young persons is increasing.

Any movement in a direction lying to the north or east of the N.W.-S.E. axis corresponds to a decrease in the percentage of persons in the working age groups. Almost all of the lines on the diagram are in the central half of this range—the segment from N. to E. This indicates that the percentages both of young and of old persons are stable or increasing. There is one exception: for South West England the line representing the period from 1971 to 1981 slopes slightly downwards in an east-south-easterly direction. The fact that the line is going south (rather than north) of east indicates that the percentage of old people is expected to decline. However, the fact that this line (like all the others) is going east of north indicates that the percentage of young persons is expected to increase. The fact that the line is going north and east of the N.W.-S.E. axis (that, as it were, ESE has two E's to one S!) shows that the increase

in the percentage of young persons will outweigh the decrease in the percentage of old persons, so that there will be a decrease in the percentage of the population in the working age groups in this region as in all others.

The second major feature of the diagram is that it highlights differences between regions and countries. The most obvious case is the difference between Northern Ireland and the remainder of the United Kingdom. The fact that the line for Northern Ireland appears at the bottom right of the diagram shows that Northern Ireland has both a lower proportion of old persons (a lower, more southerly, line) and a higher proportion of young persons (a line further to the right or east) than any other country or region. Furthermore the fact that the line for Northern Ireland lies east-south-east of the other lines indicates the fact that it has an exceptionally low percentage of persons in the working age groups—that is, that the high percentage of young persons (represented by the eastward location of the line) outweighs the low percentage of old persons (represented by the southerly location of the line).

At the other end of the diagram, as it were, lies the line for South West England. Except for Wales in 1981, the South West line connects the most northerly points on the diagram—i.e. those representing the highest percentage of old persons. The points for South West England are also to the west of all the others (apart from those for South East England), indicating that South West England has a low percentage of young persons. The South West England points are not as far to the west of the United Kingdom points as they are to the north of them, reflecting the fact that South West England has fewer persons in the working age groups than the United Kingdom average.

Similar interpretations can be made of the other relationships between the points on the diagram by noting the way in which the direction from one point to another relates to the type of difference between the age structures of the populations that they represent, the distance between the points indicating the magnitude of this difference. The most important of these differences have been mentioned in Parts III and IV of the article. It may also be noted that the ratio of the number of persons in the working age groups per hundred in the dependent age groups is a simple function of the percentage of the population in the working age groups, and that it is related to the percentages shown on the scale at the foot of the diagram as follows:

<i>Percentage of population in working age groups</i>	<i>Persons in working age groups per 100 persons in dependent age groups</i>
65	186
64	178
63	170
62	163
61	156
60	150
59	144
58	138
57	133
56	127
55	122

**Estimated home population of regions of England and Wales and countries of the United Kingdom
in mid-1964, with projections for 1971 and 1981**

TABLE 1 Thousands

		Persons of of all ages	Males and females			Males				Females			
			0-4	5-9	10-14	15-19	20-44	45-64	65 and over	15-19	20-44	45-59	60 and over
Northern England	1964	3,301	291	270	249	133	549	380	146	125	537	308	313
	1971	3,429	327	296	278	122	510	406	171	118	516	327	358
	1981	3,622	330	328	319	143	526	398	195	139	532	315	397
East and West Ridings	1964	4,241	361	313	303	168	685	517	189	162	677	424	442
	1971	4,386	400	373	328	146	692	517	227	139	666	406	492
	1981	4,606	407	405	392	183	736	476	264	175	687	360	522
North West England	1964	6,665	590	504	482	257	1,045	798	290	252	1,055	677	715
	1971	6,969	659	613	532	228	1,091	789	341	223	1,058	641	794
	1981	7,462	693	684	649	298	1,163	747	399	290	1,126	573	839
North Midlands	1964	3,760	328	283	272	154	634	448	170	147	605	354	365
	1971	4,042	381	347	306	137	663	480	200	132	632	364	402
	1981	4,463	408	400	386	175	719	491	233	173	685	361	431
West Midlands	1964	4,926	436	369	352	215	861	580	193	202	817	459	443
	1971	5,345	509	463	397	179	919	631	235	170	848	490	503
	1981	5,968	541	531	511	237	1,006	646	300	225	924	470	578
South East England	1964	18,285	1,497	1,241	1,214	712	3,042	2,192	852	689	2,996	1,845	2,005
	1971	19,557	1,697	1,597	1,327	623	3,315	2,270	988	605	3,185	1,813	2,138
	1981	21,346	1,832	1,775	1,693	833	3,554	2,282	1,181	791	3,429	1,724	2,253
South West England	1964	3,547	285	257	247	147	571	418	187	133	538	347	415
	1971	3,738	322	306	273	130	581	423	218	123	558	355	448
	1981	4,053	350	345	334	165	644	400	239	157	618	334	468
England	1964	44,725	3,788	3,237	3,119	1,786	7,387	5,333	2,027	1,710	7,225	4,414	4,698
	1971	47,466	4,295	3,995	3,441	1,565	7,771	5,516	2,380	1,510	7,463	4,396	5,135
	1981	51,520	4,561	4,468	4,284	2,034	8,348	5,440	2,811	1,950	8,001	4,137	5,488
Wales	1964	2,676	221	203	193	109	432	323	131	103	421	261	279
	1971	2,780	246	228	211	93	424	336	147	92	405	278	320
	1981	2,922	248	250	248	115	446	319	165	109	421	249	351
England and Wales	1964	47,401	4,009	3,440	3,312	1,895	7,819	5,656	2,158	1,813	7,646	4,675	4,977
	1971	50,246	4,541	4,223	3,652	1,658	8,195	5,852	2,527	1,602	7,868	4,674	5,455
	1981	54,442	4,809	4,718	4,532	2,149	8,794	5,759	2,976	2,059	8,422	4,386	5,839
Scotland	1964	5,206	484	442	407	211	813	578	216	208	847	498	503
	1971	5,321	514	492	454	200	801	573	247	198	815	482	545
	1981	5,652	552	530	507	242	886	529	283	236	880	437	570
Great Britain	1964	52,607	4,493	3,882	3,719	2,106	8,632	6,234	2,374	2,021	8,493	5,173	5,480
	1971	55,567	5,055	4,715	4,106	1,858	8,996	6,425	2,774	1,800	8,683	5,156	6,000
	1981	60,094	5,361	5,248	5,039	2,391	9,680	6,288	3,259	2,295	9,302	4,823	6,409
Northern Ireland	1964	1,458	155	138	129	67	218	147	62	64	231	125	122
	1971	1,538	173	160	142	66	228	150	67	62	232	125	132
	1981	1,671	184	178	169	80	261	136	76	76	255	113	143
United Kingdom	1964	54,066	4,648	4,020	3,848	2,172	8,850	6,381	2,436	2,084	8,725	5,298	5,602
	1971	57,105	5,228	4,875	4,248	1,924	9,224	6,575	2,841	1,862	8,915	5,281	6,132
	1981	61,765	5,545	5,426	5,208	2,471	9,941	6,424	3,335	2,371	9,557	4,936	6,552

Note: Figures may not add up exactly because of rounding.

Distribution of United Kingdom home population

TABLE 2

Percentages

	1951	1961	1964	1971	1981
Northern England	6.2	6.2	6.1	6.0	5.9
East and West Ridings	8.1	7.9	7.8	7.7	7.5
North West England	12.8	12.4	12.3	12.2	12.1
North Midlands	6.7	6.9	7.0	7.1	7.2
West Midlands	8.8	9.0	9.1	9.4	9.7
South East England	32.9	33.6	33.8	34.2	34.6
South West England	6.5	6.5	6.6	6.5	6.6
Wales	5.1	5.0	5.0	4.9	4.7
Scotland	10.1	9.8	9.6	9.3	9.2
Northern Ireland	2.7	2.7	2.7	2.7	2.7
United Kingdom	100.0	100.0	100.0	100.0	100.0

Percentage increase in home population

TABLE 3

Percentages

	Total increase			Average annual increase		
	1951-1964	1964-1981	1951-1981	1951-1964	1964-1981	1951-1981
Northern England	5.5	9.7	15.7	0.4	0.5	0.5
East and West Ridings	3.9	8.6	12.8	0.3	0.5	0.4
North West England	3.9	11.9	16.3	0.3	0.7	0.5
North Midlands	11.2	18.7	32.0	0.8	1.0	0.9
West Midlands	11.3	21.2	34.9	0.8	1.1	1.0
South East England	10.5	16.7	29.0	0.8	0.9	0.9
South West England	9.2	14.3	24.8	0.7	0.8	0.7
England	8.5	15.2	25.0	0.6	0.8	0.8
Wales	3.4	9.2	12.9	0.3	0.5	0.4
England and Wales	8.2	14.9	24.3	0.6	0.8	0.8
Scotland	2.0	8.5	10.8	0.2	0.6	0.3
Great Britain	7.6	14.2	22.9	0.5	0.8	0.7
Northern Ireland	6.2	14.6	21.7	0.5	0.8	0.7
United Kingdom	7.5	14.2	22.9	0.6	0.8	0.7

Number of persons in working age groups per 100 persons in dependent age groups

TABLE 4

	1951	1961	1964	1971	1981
Northern England	174	157	160	140	131
East and West Ridings	177	162	164	141	132
North West England	177	158	158	137	129
North Midlands	176	164	165	147	140
West Midlands	180	174	175	154	143
South East England	181	169	169	152	144
South West England	172	155	155	139	134
England	178	165	165	147	138
Wales	175	159	161	141	131
England and Wales	178	164	165	146	138
Scotland	169	154	154	136	131
Great Britain	177	163	164	145	137
Northern Ireland	152	141	140	128	123
United Kingdom	176	163	163	145	137

Components of population changes, 1964-1981 and 1964-1971

A. 1964-1981

TABLE 5

Thousand persons

	Static population change 1964-1981 (i.e. excluding effects of migration)	Effects of migration 1964-1981			Total expected change in population 1964-1981
		Total	Net population movement ⁽¹⁾	Consequential net births minus deaths	
Northern England ..	+ 529	- 207	-155	- 52	+ 321
East and West Ridings ..	+ 572	- 207	-173	- 34	+ 365
North West England ..	+ 990	- 194	-166	- 28	+ 796
North Midlands ..	+ 560	+ 143	+109	+ 34	+ 703
West Midlands ..	+ 803	+ 240	+175	+ 65	+ 1,042
South East England ..	+ 1,892	+ 1,169	+838	+331	+ 3,061
South West England ..	+ 311	+ 195	+199	- 4	+ 506
England ..	+ 5,658	+ 1,138	+827	+311	+ 6,795
Wales ..	+ 326	- 80	- 37	- 43	+ 246
England and Wales ..	+ 5,984	+ 1,058	+790	+268	+ 7,041
Scotland ..	+ 865	- 420	-314	-106	+ 445
Great Britain ..	+ 6,849	+ 638	+476	+162	+ 7,486
Northern Ireland ..	+ 396	- 183	-136	- 47	+ 213
United Kingdom ..	+ 7,245	+ 455	+340	+115	+ 7,700

B. 1964-1971

	Static population change 1964-1971 (i.e. excluding effects of migration)	Effects of migration 1964-1971			Total expected change in population 1964-1971
		Total	Net population movement ⁽¹⁾	Consequential net births minus deaths	
Northern England ..	+ 204	- 76	- 66	-10	+ 128
East and West Ridings ..	+ 222	- 76	- 70	- 6	+ 145
North West England ..	+ 376	- 73	- 68	- 5	+ 303
North Midlands ..	+ 226	+ 55	+ 48	+ 7	+ 282
West Midlands ..	+ 319	+ 99	+ 82	+17	+ 419
South East England ..	+ 805	+467	+386	+81	+ 1,272
South West England ..	+ 114	+ 77	+ 80	- 2	+ 192
England ..	+ 2,267	+473	+392	+82	+ 2,741
Wales ..	+ 130	- 26	- 18	- 9	+ 104
England and Wales ..	+ 2,397	+447	+374	+73	+ 2,845
Scotland ..	+ 320	-205	-178	-27	+ 114
Great Britain ..	+ 2,717	+242	+196	+46	+ 2,959
Northern Ireland ..	+ 147	- 67	- 56	-11	+ 80
United Kingdom ..	+ 2,864	+175	+140	+35	+ 3,039

(¹) See Table 6 for an analysis of this movement for the regions of England and Wales.

Annual migration : Regions of England and Wales

TABLE 6

Thousand persons per year

	Net inter-regional movement within England and Wales		Net international movement (including that from Scotland and Ireland)				Net regional gain or loss from internal and external population movements			
	1959-1964	1964-1981	1959-1964	1965	1970	1980	1959-1964	1965	1970	1980
Northern England ..	- 7	- 7	0	- 3	- 3	- 2	- 7	-10	-10	- 9
East and West Ridings ..	-11	-11	+ 5	+ 2	+ 1	+ 1	- 6	- 9	-10	-10
North West England ..	-12	-10	+ 5	0	0	0	- 7	-10	-10	-10
North Midlands ..	+ 6	+ 3	+ 7	+ 5	+ 4	+ 3	+13	+ 8	+ 7	+ 6
West Midlands ..	0	+ 1	+19	+12	+10	+ 8	+19	+13	+11	+ 9
South East England ..	0	+10	+89	+50	+41	+32	+89	+60	+51	+42
South West England ..	+25	+14	+ 3	- 3	- 3	- 2	+28	+14	+11	+12
Wales ..	- 1	0	- 1	- 3	- 2	- 2	- 2	- 3	- 2	- 2
England and Wales ..	0	0	+127	+60	+48	+38	+127	+60	+48	+38

Note: Figures are shown in thousand persons per year. They represent population movements and do not incorporate the effects of these movements on subsequent births and deaths in the regions concerned.

Estimated changes in the working population⁽¹⁾

TABLE 7

Thousand employees

	1964-1971	1971-1981	1964-1981
Northern England	- 39	+ 6	- 32
East and West Ridings	- 13	+ 26	+ 13
North West England	- 18	+ 84	+ 66
North Midlands	+ 46	+ 108	+ 154
West Midlands	+101	+ 200	+ 302
South East England	+334	+ 506	+ 840
South West England	+ 19	+ 53	+ 72
England	+430	+ 983	+ 1,415
Wales	+ 2	+ 20	+ 22
England and Wales	+432	+ 1,003	+ 1,437
Scotland	- 9	+ 80	+ 71
Great Britain	+423	+ 1,083	+ 1,508
Northern Ireland	+ 15	+ 20	+ 35
United Kingdom	+439	+ 1,103	+ 1,542

Source: Appendix A of *The National Plan*.

⁽¹⁾ Civilians only. Excluding employers and self-employed, but including registered unemployed. The effects of raising the school leaving age are included in the changes between 1971 and 1981.

Population density

TABLE 8

Persons per acre

	1951	1961	1964	1971	1981
Northern England	0.65	0.68	0.69	0.72	0.76
East and West Ridings	1.61	1.64	1.67	1.73	1.82
North West England	3.25	3.32	3.38	3.53	3.78
North Midlands	0.84	0.90	0.93	1.00	1.11
West Midlands	1.34	1.48	1.53	1.66	1.86
South East England	1.68	1.81	1.86	1.99	2.17
South West England	0.56	0.59	0.61	0.64	0.69
England	1.28	1.35	1.39	1.47	1.60
Wales	0.50	0.51	0.52	0.54	0.57
England and Wales	1.17	1.24	1.27	1.35	1.46
Scotland	0.26	0.26	0.26	0.27	0.28
Great Britain	0.86	0.90	0.93	0.98	1.06
Northern Ireland	0.39	0.41	0.42	0.44	0.48
United Kingdom	0.83	0.87	0.89	0.94	1.01