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IV.—Preliminary Results of the Second Demographic Survey OF THE AFRICAN POPULATION OF SOUTHERN RHODESIA

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The second sample survey of the African population was designed to cover the whole territory in two years. For various reasons arising from movements of population, changes in district boundaries, illness of field officers, etc., a few districts remained to be surveyed in 1955. The preliminary results of the districts surveyed in 1953 have been published, but those of the 1954 survey are still being analysed. Information is not sufficiently complete to enable comparisons of the 1948 and 1953 surveys to be made by provinces, and in the report on the preliminary results comparisons are therefore made over the total area for which results have been secured. The comparable area embraces 14 out of the 36 native districts in existence in 1948. In addition the sample covered three new districts, of which two have been formed since 1948, the third being one which was omitted from the 1948 results. The districts concerned are given below:—

Comparable Districts.		*New Districts.*
Bikita	Buhera	Belingwe
Bulawayo	Gwelo	Goromonzi
Hartley	Makoni	Nkai
Marandellas	Mazoe	
Melsetter	Mrewa	
Mtoko	Selukwe	
Umtali	Victoria	

GROWTH OF AFRICAN POPULATION

The changes in the total African population of comparable districts between the dates of the two surveys are given by sex in Table I at foot.

The relative distribution of sexes at the two dates is practically constant. Over the five years the total population of the districts has increased by 25 per cent. For these districts the 1948 survey gave a natural increase of 2.6 per cent. per year, a rate confirmed by the 1953 preliminary results. This rate would give a 13.7 per cent. increase of population over five years, whereas the actual increase of 25 per cent. is higher than could be expected even after correction for the sample error of the two surveys. The rate is also inconsistent with the growth in the number of Africans on the tax registers. It is therefore clear that for the districts concerned the 1948 survey under-stated the total African population, the 1948 estimates for the area being between 9 and 12 per cent. below the figure justified by the percentage increase in the numbers of taxpayers and by the total natural increase of the area over the period.

AGE DISTRIBUTION OF THE AFRICAN POPULATION

The survey devoted special attention to securing improved age groupings of the population. The field officers' training emphasised the importance of ascertaining whether the African was over or under puberty and of refusing to accept registration for taxation as an indication of age. The actual date of birth was obtained from a number of the younger Africans and showed that the age at which the African considered he was "grown up" (or his synonym for puberty) was 16.6 years for males and 15.3 for girls. A further division of the age group at 35 years of age was fixed by asking whether the African was born before or after the 1918 influenza epidemic, and in the case of women

Table I.—Comparison of the De Jure African Population by Sex in 1948 and 1953.

	1948.		1953.	
Sex.	*Number.*	*Per 1,000 Africans.*	*Number.*	*Per 1,000 Africans.*
Males	311,000	497	389,000	498
Females	314,200	503	391,400	502
Total Population	625,200	1,000	780,400	1.000
Percentage Sample Error	2.5		.7	

an attempt was made to make the division of those above and below menopause.

The following table shows the numbers under and over puberty for comparable districts in 1948 and 1953:—

ment in the 1948 estimate largely occurred in this part of the population.

The age groupings 0-1, 1-16.6 or 15.3, 16.6 or 15.3 to 35, and in the case of females 35-menopause (i.e., 45), and over menopause, and

Table II.—Numbers of Africans Under and Over Puberty: 1948 *and* 1953.

	1948.		1953.	
	Number.	*Per 1,000 Africans.*	*Number.*	*Per 1,000 Africans.*
Males—				
Under puberty (16.6 years)	162,100	259	191,300	245
Over puberty	148,900	238	197,700	253
Total	311,000	497	389,000	498
Females—				
Under puberty (15.3 years)	159,500	255	182,400	234
Over puberty	154,700	248	209,000	268
Total	314,200	503	391,400	502
Total Population	625,200	1.000	780,400	1.000

Whereas the 1948 results were shown to have a lower proportion of adult Africans than in the case of populations of similar birth and death rates, such as those of Mexico, Venezuela and the Maori population, the 1953 results more closely follow the age structure of these countries. Thus the proportion of African males above 16 in 1953 was 51 per cent. and the corresponding proportions for Mexico, Venezuela and the Maori were 53, 54 and 49 per cent. respectively. The proportion of African women above 15 was 53 per cent. in 1953, and corresponding figures for Mexico and Venezuela were 57 per cent. and for the Maori 51 per cent. These results afford further reasons for believing that the 1953 sample results provided a truer picture of the age structure and particularly of the adult population than the 1948 survey. The figures reveal a surprising relative increase in the numbers over and a relative decrease in those under puberty. Whereas the growth of the total population in the period was 25 per cent. that of the males over puberty was 33 and that of the females 35 per cent. of the corresponding figure in 1948. It is for this reason that earlier articles stated there were reasons for believing that the 1948 survey failed to obtain a full coverage of the adult population and it would also appear that the under-state-

for males over 35, were employed to obtain a rough picture of the age structure by quinquennial age groups. A parabolic function was fitted to the cumulated figures for each division (e.g., numbers below 1, numbers below 16.6, numbers below 35, etc.) and the proportions of the total population in quinquennial age groups were obtained by interpolation. The resulting relative age distribution of the districts covered by the 1953 survey is given below:—

Table III.—Estimated Relative Age Distribution of the African Population Included in the 1953 *Survey.*

Age Group.	*Per Cent. of Total Population.* *Males.*	*Females.*
0— 4 years	17.0	17.3
5— 9 ,,	15.2	15.3
10—14 ,,	13.3	13.3
15—19 ,,	11.5	11.2
20—24 ,,	9.8	9.5
25—28 ,,	7.7	7.6
30—34 ,,	6.1	6.0
35—39 ,,	4.2	4.1
40—44 ,,	2.4	2.5
45 and over	12.8	13.2
Total	100.0	100.0

To assess the value of these results, comparable age distributions of populations with birth and death rates of approximately the same order of magnitude are given in the table below.

The age distribution of the African population covered by the 1953 survey provided by the estimates shows remarkable similarity to that of the countries concerned. The relative proportions in the ages 35-44 is lower than that of the other countries, but the figures are too rough to determine whether this is due to the ravages of the influenza epidemic 35 years ago. If so, the proportion over 45 years of age should have been also affected, even after allowing for a higher incidence of the disease on child mortality. The estimates suggest that the proportion of African women of child-bearing ages (i.e., 15-44) is 42 per cent. of the total number of women, corresponding figures for the other populations being Mexico 44 per cent., Venezuela 45 per cent. and the Maori 42 per cent. These proportions are similar to those of a number of countries with considerably lower birth rates, the corresponding figures being 41 per cent. for England and Wales, 42 per cent. for Northern Ireland, 42 per cent. for Scotland, 45 per cent. for the Union of South Africa, 43 per cent. for the United States and 39 per cent. for France. The high birth rates of the African population in Southern Rhodesia and of the countries concerned are therefore due to high fertility rather than a high proportion of potential mothers.

AFRICAN BIRTH RATE

The change in the birth rates of Africans resident in the area surveyed between 1948 and 1953 is compared below:—

Table V.—African Birth Rates in 1948 *and* 1953.

	Birth Rate per 1,000 *Africans.*	*Sample Error per* 1,000 *Africans.*
1948	44.8	3.0
1953	41.8	2.7

After allowing for the sample errors, the change in the birth rate over the period is not statistically significant. In order to determine whether a change of 3 per 1,000 is significant, it is necessary to have very low sample errors at each date. The design of sample surveys intended to test relatively small significant changes in vital statistics between any two dates should therefore provide for very small sample errors, and it is probable that it is only in large areas such as the total population of a country that small significant changes in birth rates will be revealed in vital statistics obtained by sample surveys. Where vital statistics covering a number of years have been determined, a definite upward or downward trend is more easily established. Thus the importance of holding periodical sample surveys of the vital statistics of the African in order to determine significant measures of the progress of public health services is still further emphasised.

Table IV.—Estimated Age Distribution of African Population of Southern Rhodesia Compared with that of Certain Countries.

Age, Group, Years.	*Per Cent. of all Males.*				*Per Cent. of all Females.*			
	Southern Rhodesia, 1953.	*Mexico,* 1950.	*Venezuela,* 1950.	*Maori,* 1953.	*Southern Rhodesia,* 1953.	*Mexico,* 1950.	*Venezuela,* 1950.	*Maori,* 1953.
0—4	17	16	17	19	17	15	17	19
5—9	15	15	14	15	15	14	13	15
10—14	13	13	11	13	13	12	11	13
15—19	12	10	10	10	11	11	10	11
20—24	10	8	9	8	10	9	10	9
25—29	8	8	8	7	8	8	8	7
30—34	6	6	7	6	6	5	6	6
35—39	4	6	6	5	4	6	6	5
40—44	2	5	5	5	3	5	5	4
45 and over	13	13	13	12	13	15	14	11

Source: United Nations Demographic Year Book, 1954.

AFRICAN INFANT MORTALITY RATE

Between 1948 and 1953 there was no significant change in the infant mortality rates of the comparable areas surveyed. The infant mortality rate of the Africans concerned was 123 ± 31 per 1,000 live births in 1948 and the corresponding figure in 1953 was 120 ± 21 per 1,000 live births.

AFRICAN DEATH RATES

The death rate of the African population in 1953 appeared to be extraordinarily low, particularly since there was no significant change in the infant mortality rate. Whereas the death rate over the comparable areas in 1948 was 19.0 ± 1.5 per 1,000, that of 1953 was only 12.6 ± 1.7 per 1,000 persons. After allowing for the sample errors the difference between the rates at the two dates was sufficiently large to be significant. The figures may be interpreted as showing that either (1) a number of adult deaths was missed in the 1953 survey; or (2) there was a significant reduction in mortality in 1953 as compared with 1948.

The death rates of the areas covered by the 1953 survey when partitioned between deaths below one year and over one year of age were 5.0 and 7.1 per 1,000 respectively. The most recent rates for one year and over, obtained from the United Nations Demographic Year Book, 1954, are 7.2 per 1,000 for the Netherlands, 7.6 for Canada, 7.8 for Japan, 8.0 for the European population of the Union of South Africa and 11.0 for the United Kingdom. In view of the high death rate for persons under one year, the relatively low rate of the Africans over one year of age provides further reasons for concluding that either 1953 was a particularly healthy year for the African above one year of age or that for some unknown reason the survey missed a considerable number of deaths of Africans in this age group.

The results again bring out the importance of holding repeated surveys if the course of mortality is to be accurately known. The report on the 1953 survey pointed out that the interpretation of these results was still under investigation and that the results of the 1954 and 1955 surveys would be important in confirming or otherwise the significance of the reduction in the mortality rates.

REFERENCE

Preliminary Report on the Second Demographic Survey of the Indigenous African Population of Southern Rhodesia, 1954. Central African Statistical Office, Salisbury, S. Rhodesia.