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DEMOGRAPHIC FACTORS RELATED TO SOCIAL AND ECONOMIC DEVELOPMENT
IN AFRICA

(A note prepared by the Secretariat)

A. Introduction

1. The relationship between population numbers and characteristics and social and economic development is a dual one. On the one hand, population numbers represent one of the major factors of economic production and its quality, size, and characteristics contribute directly, along with other socio-economic variables, to the pace of development. At the same time, since one of the principal aims of development planning is so to achieve higher levels of production and consumption as to improve the standard of living of the population at an accelerated pace, the relationship between the size and characteristics of the population served and social and economic development is very close at every stage. Viewed from these two angles of inter-dependence, the analytical relationships between population characteristics and socio-economic factors take on significance for the development process. Since population numbers and characteristics represent one important set of variables which have to be taken into account in drawing up plans and policies related to planning, it would be meaningful to examine to what extent the present structural characteristics of the population and their anticipated changes in the near future can affect the bases of development.
2. This paper seeks to examine this problem of relationships of demographic factors in economic and social development in the African region. First, an attempt will be made to study the distribution of population characteristics of African countries in order to ascertain in how far the existing situation can help or hinder the development of the region. Secondly, it is proposed, on the basis of various assumptions regarding likely changes in demographic factors, to analyse their implications for the future. Finally, the major demographic aspects which need to be taken into account for policy formulation in economic and social development will be outlined.
3. The availability and quality of African population statistics have necessarily restricted the scope of this paper. Demographic statistics have been sketchy and irregular for most of the African region. The qualitative nature of data till the mid-fifties was very poor indeed and until the 1960 World Census programme got under way over a third of the population of the region had never been strictly enumerated, although administrative counts or estimates were available.

Even in areas where some sort of census data were available, information covering a period of decades was to be found for only about half the estimated population. The situation is even worse with regard to data on population changes, usually derived from vital statistics. Reasonably adequate statistics are available for about 15 per cent of the population of the region, the bulk residing in an urban areas while 40 per cent of the population live in areas where no organizational arrangement for registration of births and deaths has ever existed. In addition the data for the countries of the region are often not only not mutually comparable but also show wide divergences when compared with reference to different dates, because of the recent improvements introduced in the methods of collecting and processing data.

4. In order to overcome some of the qualitative and quantitative defects of African demographic data, no rigid attempt has been made to confine this study to a group of countries of the region. Rather, the approach adopted has been to examine the question of demographic relationships in the context of the sub-regions within the African continent and to use such data as are available for countries or, in certain cases, for segments of countries where demographic surveys of reasonable size have been undertaken, with a view to deriving some overall patterns of the demographic situation in Africa. Though useful in the present context, this approach has severe limitations when applied to future prognostications.

5. The three sub-regions into which the African region is, somewhat arbitrarily, divided for the purpose of the study are North Africa, West Africa and South and East Africa. The first two of these possess certain cultural and social similarities as well as future potentialities which seem to justify their treatment as collective entities. In the case of South and East Africa, which covers all the countries south of Sudan and former French Equatorial Africa, the economic conditions are by no means comparable and their grouping together for regional analysis has been done more as a matter of convenience than as a result of demographic compatibility.

6. Despite these limitations of the demographic data and the known fact that different sets of assumptions regarding social and economic growth and demographic change can produce completely contrary conclusions this paper is presented as a contribution to the development of analytical studies on demographic questions in the context of the economic and social development of Africa.

B. The structure of African populations

7. The demographic structure of the population shown by its size, its relationship to natural resources such as land and other factors of production, its distribution vis-a-vis the urban or modernized sector of the economy, its composition with reference to economic participation etc., has a direct bearing on the process of development. These factors provide a base of reference against which the economic and social elements of any growth models can be assessed and are themselves component factors of the models. It is therefore proposed to examine below some of the major demographic characteristics with a view not only to providing information on present population distribution in Africa but also to studying their prospects in coming years. A brief description of the demographic structure and composition is therefore given below in relation to spatial and age distribution, rural-urban distribution, and manpower characteristics. ^{1/}

1. Spatial distribution.

8. The latest figures for the total population of the African region indicate that 246 million persons reside on the continent within a land area of roughly 30 million square kilometres. ^{2/}

^{1/} A comparison is made, wherever possible, of African data with those for countries in the other major world regions where demographic data are somewhat better in quality. It must be pointed out that these comparisons are intended only to convey the position of these areas relative to Africa, and direct inference may not be valid due to difference in general conditions.

^{2/} United Nations, Demographic Year Book, 1960. The base figures used in this estimate for over 80 per cent of the countries relate to censuses and administrative counts carried out at distant dates prior to 1959. Even so, they suffice to indicate the order of size of the population of Africa.

This gives a population density of about 8 persons per square kilometre for the region as a whole, which is only about a third of that of Europe and less than a tenth of that prevailing in South and East Asia at the present time, and is one of the lowest observed among the major regions of the world. Even if allowance were made for the fact that about 43 per cent of the land area in the region is presently estimated as waste or built up land, the per kilometre density would rise only to about 14, which would still be low in comparison to most of the other regions. ^{1/} If agricultural area (i.e. arable land, land under tree crops and permanent meadows and pasture) were considered in relation to population, the density account has to be taken, however, of the fact that only about 28 per cent of the cultivable area is now under cultivation in Africa and that there are reasonable possibilities for extension of cultivation and improvement of agricultural techniques within the region. It can generally be assumed that for the region as a whole the problem of human pressure on land resources may not be a serious one now or in the near future. The African situation in this respect seems to be somewhat similar to that in Latin America, in the sense that that land resources seem abundant and conditions for significantly increased production through improved and extended cultivation exist, if found necessary.

9. The three sub regions show some difference when compared in relation to agricultural area available. Whereas the population density per square kilometre of land area is around 8 for each of these three regions, the density per square kilometre of agricultural land is as high as 56 in the North African region, which is almost twice the average density for the region as a whole. Comparative figures for West Africa and South and East Africa are 26 and 21 respectively. The high proportion of desert land to be found in the desert belt from the Atlantic to Suez and the restriction of the population to a narrow agricultural strip in the countries on the Mediterranean coast accounts

^{1/} FAO Production Year Book, 1959. In this respect the Latin-American region alone is in a more favourable position with regard to usable land resources.

for this high density in North Africa. In the case of West Africa and South and East Africa, the densities now observed may not be excessive, even when considered in terms of future possibilities, since there are large forest areas which could perhaps be brought into cultivation without material ill-effects to the economy in the form of soil erosion, deforestation etc..

10. A clearer picture of the impact of population on land resources can be obtained by examining the densities at the country and smaller administrative unit levels. Table 1 shows for most of countries densities by land area and agricultural area and the range of distribution of densities when determined in terms of the smallest administrative units for which population and land area data are both available. It is clearly evident from Table 1 that agricultural densities for certain of countries in all the three sub-regions are high and quite comparable to the densities found in some of the Central American republics and countries of South and East Asia. In the North African sub-region the agricultural densities of Morocco, Tunisia and UAR (Egypt) - an area populated by about 65 per cent of the total number in the sub-region - are over twice the average for the African region.

TABLE 1

Population and Population Density by Land Area and Agricultural Land for African Countries, and Range of Densities for Administrative Divisions within Countries.

Country	Population 1959 ('000s)	Density per Km ² of Land Area of Agricul- tural Land		Range of Density of Land Area within Adminis- trative Divisions ^{a/}
AFRICA	246,043	8	30	
<u>North Africa</u>				
Total	64,178	8	56	
Algeria	10,530	5	23	0-139
Libya	1,172	1	11	1-3
Morocco ^{b/}	11,382	26	63	10-73
Sudan	11,459	5	37	2-24
Tunisia	3,935	31	79	4-116
UAR, Egypt	25,300	592 ^{e/}	973	269-833
<u>West Africa</u>				
Total	75,395	8	27	
Cameroun	3,225	7	22	1-94
Former French West Africa				
Dahomey	2,000	17	...	4-55
Guinea	2,727	11	...	5-24
Ivory Coast	3,103	10	...	2-14
Mali	4,300	4	...	0-16
Mauritania	730	1	...	-06
Niger	2,555	2	...	0-11
Senegal	2,550	13	...	2-47
Upper Volta	3,537	13	...	4-37

TABLE 1 (cont'd)

Country	Population 1959 ('000s)	Density per Km ² of Land Area of Agricul- tural Land	Range of Density of Land Area within Adminis- trative Divisions ^{a/}
Former French			
Equatorial Africa	5,000	2	6 ...
Central African Republic	1,185	2	... ...
Chad	2,600	2	... ...
Congo (Brazzaville)	795	2	... ...
Gabon	420	2	... ...
Gambia	301	29	151 ^{f/} ...
Ghana ^{c/}	6,612	28	125 2-84
Liberia	1,250	11	60 ...
Nigeria ^{d/}	33,663	38	151 7-157
Sierra Leone	2,400	33	41 ...
Togo	1,442	25	63 7-71
South and East Africa			
Total	106,470	8	21 ...
Angola	4,550	4	15 ...
Basutoland	674	22	169 ^{g/} ...
Bechuanaland	337	1	1 ...
Congo (Leopoldville)	13,821	6	27 3-9
Ethiopia	21,800	18	31 ...
French Somaliland	70	3	35 ...
Kenya	6,450	11	248 1-49
Malagasy Republic	5,239	9	14 ...
Mauritius	621	333	621 47-680
Mozambique	6,310	8	14 2-19
Reunion	324	129	324 ...

TABLE 1 (cont'd)

Country	Population 1959 ('000s)	Density per Km ² of Land Area of Agricul- tural Land	Range of Density of Land Area within Adminis- trative Divisions ^{a/}
Rhodesia and Nyasaland	8,130	7	20 ...
Ruanda-Urundi	4,780	88	120 32-177
Somalia	1,990	3	9 1-9
South West Africa ^{h/}	554	1	1 ...
Swaziland	250	14	16 ...
Tanganyika	9,076	10	... 4-17
Uganda	6,517	27	225 15-41
Union of S. Africa ^{i/}	14,673	12	15 ...
Zanzibar and Pemba	304	115	152 15

Note: 1959 population estimates for Morocco, Ghana and Egypt are derived from preliminary result of recent census held in 1960.

Data on population (total area) are for mid-year 1959, except for Liberia (1956).

a/ For each country the smaller administrative division for which census or survey data exists has been considered. Thus in some cases the districts are given by large tracts such as regions and governorates. In the figures presented for range of densities within countries, urban densities have been excluded wherever possible.

b/ Former French Zone plus northern part of former Spanish Zone.

c/ Includes Togoland under British Administration.

d/ Excludes Cameroons under British Administration.

e/ This density has been calculated on the basis of non-barren land (and not in relation to total superficial area) in order to provide land areas used for range of density of administrative divisions and also since land density on the basis of superficial area has no meaning for a country in which over 96 per cent of the land area is desert.

f/ Density of estimated area of shifting cultivation and of bush fallow

g/ When calculating density data for area of permanent meadows and pasture are not considered.

h/ Includes Walvis Bay.

i/ Excludes Walvis Bay.

11. The agricultural density in the UAR (Egypt) is as high as 973. In West Africa, agricultural density is not high in most of the French-speaking countries. However, the densities of Ghana, Gambia, Liberia, Nigeria and Togo are significantly high and the relatively populous character of these countries when compared with the French speaking areas makes the imbalance of this sub-region particularly striking. Finally, in South and East Africa, high agricultural densities are to be found in Basutoland, Kenya, Mauritius, Ruanda-Urundi, Uganda and Zanzibar and Pemba.
12. An attempt has been made to see how far the densities vary within countries. The method has been to find the variation in densities per square kilometre between the smallest administrative units for which population and area data are available. The existing data are sufficient to show that most countries in Africa contain smaller segments where the population densities are quite high^{4/}. The range of densities given in Col. (6) of Table 1 shows that even on the basis of the superficial land area most countries have tracts where the density of population is between 2 to 4 times that for the country as a whole. Even in the case of countries with low density, such as Senegal, Upper Volta and Guinea, this phenomenon is observable.
13. A close link is noticed between high density areas within many of the African countries and the areas producing the primary crops for the national economy^{5/}. For example, the high density areas in Senegal are the districts which produce nearly 80 per cent of the groundnut crop in Senegal. Similarly, the high density areas in Ghana lie around the cocoa-growing area. While there is no exact correspondence, there is a

^{4/} It was not possible to obtain agricultural densities at the level of these administrative units. This comparison suffers however from the disadvantages that most administrative tracts are not of similar size - in some cases are even large regions - and are not sufficiently homogeneous from the point of view of agricultural practice etc.. Even so the comparison has meaning in demonstrating the intra-country variation in population pressure.

^{5/} In the figures presented for range of densities within countries, urban densities have been excluded wherever possible.

close relationship between agricultural production and population density. Since these two factors are interdependent, the problem presented is one which has an important bearing for the future economic development of the region. The pattern observed in the fluctuation of population densities both within sub-regions and within the countries themselves seems to call for social and economic action to reduce density or check its increase in the relatively over-populated tracts of various countries of the region. It also brings into focus the need to examine demographic conditions in areas where sparse population may be a serious handicap to economic growth.

2. Urbanization

14. The growth of urban centres with higher concentrations of population than those found in most agricultural sectors is another demographic aspect of spatial distribution which has an important bearing on economic and social development. In any area undergoing economic development or even shifting from the subsistence (auto-consumption) to the monetary economy pattern, the growth of urban centres is inevitable. The phenomenon of urbanization was originally activated by economies of scale derived from the favourable location of certain centres with respect to economic activities and their diversification and to social and other facilities. At the early stages of development the urban areas were essentially commercial or trade centres for commodities produced in the hinterland. As a result of the increasing diversification of activities and the need for division of labour in productive activity these centres began to fulfil a greater role in non-agricultural production. It is somewhat on these lines that the economic transformation of the essentially agricultural and rural population to high urban ones has occurred in the industrialized countries of the world. From the demographic point of view, urbanization is essentially a population movement arising from the "push" and "pull" factors introduced in urban and rural communities because of the superior levels of living and economic and social organization prevailing in the former.

15. Most of the less developed areas including Africa are still only at a very early stage of this transformation from the essentially rural to largely urban societies. During the period between the two World Wars, there was only restricted growth in the urban centres in Tropical Africa. But with the increasingly large-scale exploitation of mineral resources and primary agricultural products which took place during the war and in the post-war period, an increasing growth of urban centres has been noticed in West and South and East Africa.^{6/} In contrast to Tropical Africa, the increasing growth of the urban centres of North Africa has not been a recent phenomenon; but even in that sub-region the rapidity of their growth has been more marked in the post war period. African urban growth, though striking in comparison with past growth of cities in the region, has by no means brought about a level of urbanization comparable with that in other regions of the world. Whereas over 34 per cent of the world's population in the fifties resided in urban localities of 20,000 persons or more, it is estimated that only about 6 per cent of the African population south of the Sahara were living in urban centres of similar size. The level of urbanization in North Africa (excluding the Sudan) is between 20 and 30 per cent if measured in terms of populations of 20,000 and over. On the basis of similar classification for urban centres, the level of urbanization in Africa (especially the countries south of the Sahara) is considerably lower than that of Latin America and of South-East Asia. (The percentage of urban centres in Latin America averages around 24 and it varies between 10 and 35 the countries of South-East Asia).^{7/}

^{6/}United Nations, Report on the World Social Situation, New York 1957.

^{7/}United Nations, Population of South-East Asia (including Ceylon and China: Taiwan), New York, 1958

16. Table 2 gives for a number of countries in Africa where data are available the percentages of total population considered as living in urban areas. The definitions of urban areas, which are generally composite ones based both on population size and on relative diversification of economic activity, vary so much from country to country on the African continent that the percentages can provide only a broad basis for comparison. It may therefore be preferable, at least for the sake of providing greater comparability on the basis of population size, to consider the figures given in Col. (6) of Table 2 as better indicators of the level of urbanization. On this basis, it will be noticed that, except for Nigeria, Senegal, Mozambique, Zanzibar and Pemba, the percentage of population resident in urban areas with populations of 20,000 and more in the majority of countries of Tropical Africa does not exceed 10. There is only one area where the level of urbanization is high. It is estimated that over 30 per cent of the population of the Western Region of Nigeria reside in urban areas of 20,000 or more, even though the percentage for the whole of Nigeria is only 11.4.^{8/}

17. Two important features are to be noticed in the pattern of urban growth in most countries of Africa. First the bulk of the urban population seems to be concentrated in one or two cities in each of these countries. For example the cities of Tripoli (Libya), Porto Novo (Dahomey), Abidjan (Ivory Coast), Lome (Togo) and the largest cities of the majority of countries of South and East Africa have residing within their city limits over 50 per cent of the countries' urban population.

^{8/} United Nations, Report on the World Social Situation, New York 1957. It must be pointed out that quite a number of the urban centres of Western Nigeria are extended rural centres (or large tribal settlements) and do not possess either the commercial or manufacturing establishments justifying their consideration as truly urban centres.

TABLE 2

Percentages of Population in Selected Countries of Africa Classified as Residing in Urban Areas in Largest City and in Cities of Population 100,000 and Over and of 20,000 and Over.

Country	Date	Per cent of Population Living in:			
		Urban Areas	Largest City	Urban area 100,000 and over	Urban area 20,000 and over
(1)	(2)	(3)	(4)	(5)	(6)
<u>North Africa</u>					
Algeria	1948	23.6	3.1	6.6	14.1
Libya	1954	22.7	11.9	11.9	18.3
Morocco	1960	29.3	8.3	18.9	24.0
Sudan	1955-56	8.3	2.4 ^{a/}	2.4 ^{a/}	4.5
Tunisia	1946	29.9	11.3	11.3	19.2
UAR (Egypt)	1947	30.1	11.0	19.3	20.1
<u>West Africa</u>					
Camroun					
Former French West Africa					
Dahomey	1955	7.1	3.5	-	5.5
Guinea	1955	6.5	1.1	-	5.1
Ivory Coast	1956	11.1	5.1	5.1	6.8
Mali	1956	5.1	1.8	-	1.8
Mauritania	1956	4.5	1.4	-	-
Niger	1956	2.7	0.8	-	-
Senegal	1956	22.9	9.9	9.9	19.0
Upper Volta	1956	4.0	1.3	-	2.3
Ghana	1948	14.3	3.3	3.3	5.0
Nigeria	1952-53	17.5	1.5	4.1	11.4
Togo	1958	9.6	4.5	-	4.5
Gambia	1951	71.8	71.8	-	-
<u>South and East Africa</u>					
Angola	1955	7.4	4.4	4.4	6.0
Congo (Leopoldville)	1957	9.8	2.2 ^{a/}	3.5 ^{a/}	7.1
Kenya	1948	15.0	2.2 ^{a/}	2.2 ^{a/}	3.2
Mozambique	1954	13.9	2.5	6.6	13.9
Mauritius	1952	34.9	13.5	-	-
Rhodesia and Nyasaland	1950	13.6	1.7	1.7	-
Tanganyika	1957	3.3	1.5	1.5	1.9
Uganda	1948	0.8	0.4	-	-
Union of South Africa	1951	42.6	5.0	24.0	30.7
Zanzibar and Pemba	1948	20.0	17.1	-	17.1

a/ The three municipalities of Khartoum, Khartoum North and Omdurman are taken together since they are contiguous and for all practical purposes form one economic unit.

b/ For Northern Rhodesia only.

c/ Represents the population of Nairobi. The results of the 1957 sample survey of the city show that the city has 4.2 per cent of the 1957 estimated population of the country.

A comparison of cols (5) and (6) of Table 2 shows that, in most of the countries for which comparable data are available, the percentages of population resident in the smaller towns are so small that their present population strength in most countries is not one which permits effective contribution to the main role of the urbanization process - viz., to provide a basis for economic diversification. The failure of the smaller towns to play this role increases the physical and social problems created in the main cities, since they alone exert the "pull" factor in rural-urban migration within these countries.

18. Any study of urban growth must of course take into account the relationship between existing population and the employment facilities open to it. The types of activities pursued by the population and the extent of participation in manufacturing activities more clearly indicates how far the urbanization process has succeeded. An answer to this question in the African situation is made difficult by the fact that statistical breakdowns in most censuses and surveys have usually not been obtained at the level of the cities. Statistics are however available for the cities of Abidjan, Dakar, Lagos, Khartoum and Cairo, most of which by their size and historical importance as capitals of their countries, do reflect an industrial pattern. In Abidjan, for example, 84 per cent of the male population are reported as active and nearly 80 per cent of that number are reported to be engaged directly or indirectly in non-agricultural employment. In Dakar, over 70 per cent of the male population are reported as economically active, and about 60 per cent are reported to be in non-agricultural occupations. A similar situation prevails in the other cities mentioned. While these cities present the encouraging aspects of the shift to modernization, the manufacturing industries provide only a small part of the employment available. Petty trading and other unskilled occupations, including domestic service, provide the bulk of urban employment. Further development efforts involving considerable investment would be required to achieve a better distribution of human resources. This is the pattern of urban growth in many of the less developed countries, and it calls for greater understanding of the questions of size and characteristics of employment in relation to economic and demographic growth within the urban sector.

3. Age Structure

19. The age composition of the population, besides giving, at any point of time, a static view of the relationships of various groups within it in terms of such areas as economic participation, consumption needs, social and other requirements, plays an important part in the actual growth of the population. This is so because, while on the one hand it is a product of past fertility, mortality and migration levels and trends, it also has an impact on the rate of natural increase^{2/}. The size of various groups within the age distribution, such as children, adults in the working age, women of childbearing age, the older age group, necessarily affects the demographic components of growth. Relying essentially on the behaviour of various types of age distributions and their relationship to population growth, it has been possible to obtain certain empirical relationships between age structure and population growth. These relationships give some indication on the fertility and mortality influences that have affected population in the past and provide a basis for determining the frame of reference upon which the possible trends of demographic components are likely to apply. It would be worth while examining the age structure of the countries of the African region in terms of these empirical relationships among the major age groups and to see to what extent the present structure is likely to affect the basic conditions for economic and social development and how they affect the factors involved in population change.

20. The age composition of most African countries for which age data are available indicates the typical pattern to be found in

^{2/} United Nations, The Determinants and Consequences of Population Trends, New York, p.134.

most countries experiencing a high birthrate and high rate of natural growth.^{10/} It will be observed from Table 3 that the percentage of children under 15 years of age varies from 38 to 46 in North Africa, from 35 to 42 in South and East Africa and from 36 to 45 for most countries of West Africa. The child populations in all the three sub zones of Africa are of the same order of magnitude as is to be found in the countries of South East Asia and most countries in Latin America.^{11/} It has been difficult to evaluate the reasons for the comparatively low percentages of population to be found in the child age groups in some of the countries of West Africa. No special fertility or mortality conditions in Ghana, Cameroun and Gambia seem to explain this low percentage.^{12/} It is likely to be the by-product of under-estimation of very young children common in census data. The differences observable in Mali, as compared with the average of most West African countries, can be explained in terms of sampling fluctuations.

^{10/} The data used in this connexion suffer from the deficiencies of age reporting which exist in the census data of most under-developed countries. While no attempt has been made to graduate the data, it is felt that they are sufficient to give indications of differences at the regional, sub-regional and country levels.

^{11/} Some comparable figures are India 37.4; Chile 41.7 and Mexico 41.7.

^{12/} The fertility and mortality rates available for Ghanaian towns and Bathurst, Gambia, even if they are considered high for the countries as a whole seem to justify an age structure with a proportion of children more or less similar to other West African countries. It seems unlikely that the fertility level in the immediate past for these areas could have been lower than present levels urban in urban areas for which data are available, since the impact of fertility is particularly significant for the age distribution prevailing.

TABLE 3.

Age Composition of the Population for Selected African
Countries (Estimated percentage of total population).

Country	Census date	Percent of total population aged		
		Under 15	15-59	60 and over
<u>North Africa</u>				
Algeria	1954	41.0	53.0	5.9
Libya	1954	38.0	52.4	9.5
Morocco	1951-52	40.6	52.5	3.5
Sudan ^{a/}	1956	46.6	49.8	3.5
Tunisia	1956	41.8	52.6	5.6
UAR (Egypt)	1947	38.0	55.7	6.0
<u>West Africa</u>				
Cameroun ^{c/}	1958	28.6	68.2	2.5
Guinea ^{c/}	1955	42.1	52.9	4.9
Ivory Coast ^{c/}	1958	44.9	51.1	4.0
Mali ^{c/}	1958	36.4	55.7	7.9
Senegal ^{c/}	1958	40.1	53.4	6.5
Central African Republic ^{c/}	1958	34.7	62.9	2.4
Congo (Brazzaville) ^{c/}	1959	41.6	56.4	2.0
Chad ^{c/}	1959	42.5	53.9	3.6
Ghana ^{b/}	1948	33.7	61.4	4.9
Gambia	1959	31.2	59.9	8.9
Nigeria ^{b/}	1952-53	40.2	53.9	4.9
<u>South and East Africa</u>				
Angola	1950	39.1	56.0	4.7
Basutoland	1946	37.6	53.5	8.9
Bechuanaland	1946	36.5	55.7	7.8
Congo (Leopoldville)	1953	35.2	58.4	6.4
Mauritius	1959	44.1	41.0	5.0
Mozambique	1956	40.4	54.5	5.0

^{a/} From an adjusted age distribution obtained by use of United Nations model population methods for a joint study by the United Nations and the Government of Sudan on population growth and manpower in Sudan (report under publication)

^{b/} Census age categories revised to five-year age groups by mathematical methods.

^{c/} Based on the results of a demographic sample survey covering only parts of the national area.

21. The proportion of persons aged 60 and over found in all the three sub-regions is low and quite compatible with the type of mortality and fertility conditions which could have produced the high proportion of children under 15 years of age.^{13/} The proportion of advanced age, though consistent with a high birth-rate pattern, seems to be on the whole slightly higher than those prevailing in countries with similar fertility conditions in the regions of Latin America and South East Asia. Allowing for the fact that these data are not directly comparable, the slight variations in the size of the advanced age groups may to some extent be the result of a lower fertility level which prevailed a generation earlier. If this increase in fertility is genuine, it has theoretical implications which are important for demographic research.^{14/}

22. The proportion of persons in the working age groups (except in Cameroun) is, as in other areas with high birth-rates, lower than that in the West-European and North-American countries. The African situation is more or less on the level of the Latin-American and Asian regions, except for an influence arising from the possible increase in fertility during the past decades.

^{13/} It has been customary to treat the working-age population as those in the age group 15-64 and the aged population as those of 65 years of age and over. The use here of the groupings 15-59 and 60-and-over, designed to provide comparative figures for a maximum number of countries and territories, is not likely to affect the line of argument.

^{14/} This point needs to be investigated, and its solution is hampered to some extent by the lack of reliable data for the pre-war period.

23. The impact of the relative size of the major age categories on economic growth can be gauged in two ways. First, a measure of the burden of dependency on the population of working age can be determined by examining the proportion of children and of the aged to those of persons of working age. In so far as economic participation is to a considerable extent affected by sex differentials, presence of adults and children in the labour force and attitudes and possibilities for employment, this measure can only be considered as an approximate and, perhaps, a minimal value of the actual dependency per worker.^{15/} Secondly, the proportion of adults in the younger groups of working age gives a potential measure of the ability of this group to meet the changing requirements of the economy. To the extent that a population reflects a major percentage of the younger age groups within its working age population, the age structure can be considered as sufficiently flexible and adaptable to meet the needs imposed by economic growth.^{16/}

24. Table 4 presents the proportion of children under 15 years of age, of the advanced-age group (60 and over) and of the age group 15 to 39 among the working age population for several countries of the African region. There are only slight variations between the three sub-regions when the percentage of those aged less than 15 years and those 60 years and over are considered. The highest percentages are to be found in North and West Africa where they uniformly reach as high as 90. There is much greater variation in the percentages of countries of West Africa, arising partly, as explained earlier,

^{15/} The assumption that this value may be the minimum may be valid to the extent that in most less-developed countries the non-participation of women more than offsets the marginal participation of the child age and advanced age groups.

^{16/} Such flexibility can be achieved only if certain socio-economic prerequisites, such as training in skills, occupational mobility (horizontal and vertical), are achieved.

from under-enumeration of the lower-age group. The dependency level in South and East Africa, on the basis of the limited age data available for this sub-region, shows an increasing contribution to dependency by the aged which may again be due to the lower levels of fertility in the past or to graver inaccuracies in age reporting. If the economic and social conditions prevailing in this sub-region are considered, the overall dependency figure for Congo, Angola and Mozambique (around 80) may be more typical of the area, and it is likely that the burden is slightly lower than that of the other two sub-regions except in Mauritius or Ruanda-Urundi, which have special demographic pattern. The age group 15-39 represents over two-thirds of the population in the working-age groups in all three zones. Both these indices demonstrate quite clearly that the impact of fertility has been high in the immediate past and that most African countries show a youthful population structure which provides a basis for a high rate of growth in the immediate future.

TABLE 4

Number of Persons in the Age Groups under 15, 60 and
over and 15 to 39 per 100 Persons aged 15-59 for
selected African Countries

Country	Census date	Number per 100 persons aged 15-59 in age groups:			
		Under 15 years	60 years and over	Total of (3) & (4)	15-39 years
(1)	(2)	(3)	(4)	(5)	(6)
<u>North Africa</u>					
Algeria	1954	77	11	88	70
Libya	1954	73	18	91	71
Morocco	1951-52	77	13	90	70
Sudan ^{a/}	1956	93	7	101	76
Tunisia	1956	80	11	91	72
UAR(Egypt)	1947	68	11	79	70
<u>West Africa</u>					
Cameroun ^{c/}	1958	42	4	46	79
Guinea	1955	80	9	89	72
Ivory Coast ^{c/}	1958	88	8	96	77
Mali ^{c/}	1958	66	14	80	69
Senegal ^{c/}	1958	75	12	87	70
Central African Republic ^{c/}	1958	55	4	59	67
Congo (Brazzaville) ^{c/}	1959	74	4	78	82
Chad ^{c/}	1959	79	7	86	74
Ghana ^{b/}	1948	55	8	63	71
Gambia	1959	52	15	67	71
Nigeria ^{b/}	1952-53	75	9	84	66
<u>South and East Africa</u>					
Angola		70	8	78	74
Basutoland		70	17	89	70
Bechuanaland		66	14	80	75
Congo (Leopoldville)		60	11	71	67
Mauritius		86	10	96	62
Mozambique		74	9	83	72

^{a/} From an adjusted age distribution obtained by the use of United Nations model population methods for a joint study by the Government of Sudan and the United Nations on population growth and manpower in Sudan (report under publication).

^{b/} Census age categories revised to five-year age groups by mathematical methods.

^{c/} Based on the results of a demographic sample survey covering only parts of the national area.

4. Distribution of manpower resources

25. The "economically active population" is generally understood to include all those persons who contribute the labour supply for the production of economic goods and services. This group, which represents the manpower supply available, is affected by population trends, changes in social and economic conditions, and even changes in cultural practice which may result from economic development. Manpower statistics can be used to indicate the capacity for development of the economy and to evaluate reserves of unused or unproductively employed labour and identify those types of labour supply which need to be expanded in relation to the economic expansion planned. Thus, in planning economic and social development, it is essential to know the effects of population growth and structure upon the quantity and composition of manpower, the extent of its employment or unemployment and the structural characteristics of the labour force in terms of its distribution by occupation and industry.

26. Manpower analysis for the countries of Africa is considerably hampered by the scarcity of data on the subject and also by the difference in scope and in application of concepts used where such data are available.^{17/} In view of the relative importance of this population group for the economic and social development of the

^{17/} While participation in productive effort may seem a simple concept, it has been found extremely difficult to differentiate between economic and non-economic activities, especially in highly agrarian economies where considerable activity goes on outside the monetary economy and goods and services are produced largely for auto-consumption. The variety of methods and techniques used in national censuses to identify economic activity are given in United Nations document Application of International Standards to Census Data on Economically Active Population, Population Studies No.9, ST/SOA/Ser.A/9 New York, 1951.

region, it is unfortunate that manpower data of sufficient scope are available only for about a dozen countries of the region, with an estimated population of 74 million.^{18/} For a few other areas, labour force information of a minimal nature exists; but the classification systems are not uniform, and even some of the major aspects of economic participation in terms of such characteristics as sex, occupation, industry etc., are not derivable from existing data. In these circumstances it is difficult to construct general, regional or sub-regional patterns on the characteristics of the economically active. The intention in presenting the data is essentially to indicate, wherever possible, the main features of the manpower situation and its likely consequences for economic and social development.

27. The proportion of the population that is economically active varies considerably from country to country in the region (Table 5). The variation in the level of participation in economic activity given by the percentages of total population reported to be engaged in remunerative occupations in the countries of the North African sub-region ranges from 30 to 40. The activity rates observed in West Africa, though showing much greater variation between countries, are on the whole higher than those observed for the North-African

^{18/} This situation is, however, expected to improve when the results of the most recent censuses African countries are published. Even though a variety of definitions have been used in classifying the economically active population, manpower information has been included in a majority of the questionnaires used.

region and also to some extent in South and East Africa. Apart from conceptual and operational difficulties,^{19/} Table 5 seems to indicate that the primary reason for variations in activity rates lies in the differing rates of participation of women in economic activity. In most countries of West Africa for which data on economic activity are available by sex, between a third and a half of the female population is reported as active. In South and East Africa, the situation is similar, except for Mauritius and Mozambique. There is a definite indication in the data that differences in participation of women stem from the differences in social and cultural attitudes to such participation.

28. Female activity rates are lowest in countries influenced by Moslem culture, as shown by the rates for Egypt, Sudan and Mozambique (among the lowest in the world). At the same time rates in the neighbourhood of 25 per cent are given by other Moslem countries, viz., Algeria, Morocco and Tunisia. This illustrates the difficulty of obtaining a proper index for the measurement of the contribution of women to the economic life of the community. The low estimates for Egypt, Sudan and Mozambique, as well as the present estimates for the other Moslem countries mentioned above, may have probably been influenced by the cultural bias against the employment of women, which in its turn has led to incorrect or partial reporting of their activity status.

^{19/} Inter-country and inter-sub-regional difference in activity rates may to some extent be explained in terms of the varying definitions of what constitutes economic activity and the application of such definitions to special groups such as unpaid family workers, marginal workers etc..

TABLE 5
Economically active Population by Sex and by Age Groups for Males in
Selected African Countries

Country	Date	Percentage economically active among										
		Population		Age Group (males)								
		Total	Males	Females	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65 & over
<u>North Africa</u>												
Algeria	1954	38.4	52.5	24.1	11.0 ^f	59.2	91.0	97.7	97.4	96.9	93.4	75.1
Libya	1954	35.9	56.8	13.4	87.1 ^f	87.1 ^h		99.0	99.6	99.6	99.6	99.4
Morocco	1952	39.0	53.6	24.5	38.0 ^h	70.0	84.7	91.8	93.8	92.1	97.6	73.7
Sudan	1953	36.0	62.7	9.8	..	..	..	..	..	..	..	..
Tunisia	1951	35.1	48.1	21.2	9.2 ^f	62.6	69.5	87.7	94.2	88.1	81.6	70.6
UAR (Egypt) ^{b/}	1957-58	29.7	53.5	6.1	33.0	68.7	86.4	96.4	98.4	98.0	94.1	47.5
<u>West Africa^{c/}</u>												
Former French West Africa	1955-56	55.2	58.3	51.8	..	..	..	..	..	..	..	..
Former French Equatorial Africa	1956	65.0	76.7	53.3	..	..	..	..	..	..	..	..
Nigeria	1952-53	47.9	57.0	43.6	..	..	..	..	..	..	..	..
<u>South & East Africa</u>												
Congo (Leo.)	1957	49.4	47.2	51.7	..	..	..	..	..	..	..	..
Malagasy Republic	1957	42.2	47.8	36.7	..	..	..	..	..	..	..	..
Mauritius	1952	32.9	52.4	13.2	11.5 ^f	59.2	89.1	95.0	96.6	94.6	83.3	37.9
Mozambique ^{d/}	1950	28.9	55.1	5.1	4.5	99.3	99.5	99.3	98.8	97.9	96.5	77.2
Union of S. Africa ^{e/}	1946	45.1	63.4	26.3	64.0 ^h	73.8	95.5	98.7	98.9	98.2	94.9	74.0
Zanzibar & Pemba	1948	58.1	74.7	39.8	..	..	..	..	..	..	..	..

See footnotes on the next page.

Footnotes of Table 5

- a/ Data apply to former French zone only and refer to the Moroccan population (i.e. excluding Non-Moroccan and Jewish populations).
- b/ Data based on the results of the 1957-58 rounds of the labour force survey.
- c/ Activity rates are available for the total population of certain countries in West Africa, and the details of data do not permit their calculation by sex and age. The total activity rates for these countries are given below:

West Africa

Cameroun (1957) - 58.0; Dahomey (1957) - 52.7; Ivory Coast (1957) - 67.6; Mauritania (1957) - 68.0; Niger (1957) - 35.9; Senegal (1957) - 56.3; Upper Volta (1957) - 70.0; Central African Republic (1957) - 34.5; Chad (1957) - 54.3; Gabon (1957) - 62.5 and Togo (1957) - 50.0.

- d/ Indigenous population only.
 - e/ Obtained by weighting the activity rate of each of four population groups (Bantu, European, Coloureds and Asians).
 - f/ Economically active persons under 15 years of age related to population in age group 10-14.
 - g/ Activity rate for age group 5-14.
 - h/ Activity rate for age group 15-24.
 - i/ Active persons of 14 years of age related to population group aged 10-14.
 - j/ Information on activity under 15 years of age for Bantu population only.
- .. Rates by age not available.

29. The degree of participation of women in the labour force will be an important factor in the development of the region. Though data on the type of participation of women is limited, it would not be incorrect to assume that it essentially consists of agricultural work and largely falls under the category of unpaid family work or marginal employment, needing little or no technical skill on the part of the worker. Future participation of women in "developing economy" conditions may take the following forms. If data on present rural-urban participation are any way indicative, the ratio of participation of women will probably decline with increased industrialization and urbanization. At the same time, the present activity rates in many parts of Tropical Africa show almost equally high participation by men and women in economic activity, with perhaps a high concentration of female participation in certain areas of activity.^{20/} In view of present variations in types of participation and their possible continuation in the immediate future, the participation rates of females will quite probably remain high in Tropical Africa.^{21/} If economic development results in withdrawals from the labour force, it may not materially affect the production of goods and services

^{20/} It is not uncommon for women in Tropical Africa to undertake most work of an agricultural nature and thereby permit their men to engage in such activities as hunting, fishing etc. or in unskilled employment in urban centres. Congo (Leopoldville) and Nigeria provide numerous illustrations of this type of differentiation of activity between males and females.

^{21/} The withdrawals from the labour force in the child-bearing ages which have been observed as a common feature in most industrialized countries may not influence participation, especially if it is largely confined to the agricultural sector.

in areas where the contribution of females is marginal. If, however, it lead to differentiation in types of activity, it poses the overall problem (common to males and females) of how to develop technical skills in such a manner as to improve the quality of economic participation.

30. The economic activity rates for the African region should in principle provide a better indication of the average burden per economically active person in the community. Earlier with reference to age distribution, it was shown that in most countries of Africa that for every person in the working age the number of persons of non-working age (i.e. children and the aged) represented 70. That estimate seems to be an optimistic evaluation of the dependency situation. The actual dependency rate per 100 workers would in most cases be nearer 100, and even more in the case of the North-African countries.^{22/} When we take into consideration factors such as the under-employment prevalent in the rural area, the per capita productivity of labour etc., and slow rate of economic absorption in non-subsistence areas, these aspects of the manpower situation weigh heavily on the prospects for future development in most African countries.

31. The male activity rates by age groups for African countries indicate the typical pattern of employment to be found in the less developed countries of the world. First, essentially because of the lack of training facilities the activity rates among the younger age groups are relatively high and, whereas in most West-European and

^{22/} For example, the "economically active" percentage in Morocco is 39.0. Thus, for every 39 persons economically active there are 61 persons who are dependent, thereby giving a dependency rate of 131 for the Moroccan population in contrast to that of 70 given by age analysis.

North-American countries the percentage active in the age group 10-14 would be below 10, the activity rates in the countries for which age data are available in the African region vary between 30 and 60 per cent. Again in the age group 15-19 the African rates vary from 60 to 90 per cent, in comparison with rates of around 50-60 per cent in the more advanced countries. In the case of the adult age groups, the pattern of economic participation is more or less similar in most parts of the world, and almost the entire population in the middle age groups are generally economically active. The African situation takes on a difference, however, in the higher age groups, participation remaining high even at the age levels where advanced economies lose considerable manpower owing to retirement and other types of stoppage of work. In the age group 60 and over, most of the African countries shown given in Table 5 report over 75 per cent of their population as working. The postponement of retirement indicated for the higher age group is partially due to the high agrarian nature of employment in those countries and to the intrinsic difficulty of relating the concept of economic activity to productivity in such conditions.

32. Yet another significant feature of a developing economy is the change in the occupational and industrial basis of the country. A country undergoing economic change would necessarily absorb larger number in the secondary and tertiary industries, and this absorption would be at the expense of the agricultural sector. The relative importance of these three main branches of industry can indicate the stage of development and the distance still to be covered in attaining a proper balance in the economic structure.

33. Table 6 seeks to examine this question with respect to the African countries for which detailed information exists on employment characteristics. It presents the percentages of the economically active employed in manufacturing, agriculture, commerce and service industries. Table 7 indicates the percentages of the economically

active population representing the wage-earning group in African countries and, where such data exist, the share within it of the manufacturing industries, agriculture and commerce. If data existed on these characteristics both in the total economically active population and in the wage-earning population, it would be possible to gauge indirectly the impact of the monetary economy on the various industrial groups or industries and form some useful judgement on the relative importance of such industries. But data on the economically active population are very limited, and an overall impression of the relationship between organized labour and the labour force is in the present state of information not possible. However, two significant facts emerge from the data presented in Tables 6 and 7. First, the dominant position of the agricultural group in the economically active population is clearly indicated. Secondly, the wage-earning group represents a significantly small proportion of the total population at the present time.

34. The classification of the economically active population and the wage earning population indicates that the percentage of workers employed in manufacturing represent only less than 10 per cent in most countries. In quite a number of countries over 25 percent of wage-earners are engaged in agriculture or related industries at the present time. Next in order of importance are those connected with service industries, the bulk of whom are domestic servants. Though the data which exist for various dates on the size of the wage earning population of some African countries may present difficulties of comparison, there are indications that there has on the whole been a consistent growth in this sectoral population and that recent increases have been largely due to the expansion of the industries commonly recognized as promoting economic growth viz., manufacturing, building, construction, and transport.^{23/} In the service industries, the growth has been largely in the Government services.

^{23/} ILO, African Labour Survey, Geneva, 1958, Appendix 3, pp. 667.

TABLE 6
Economically active Population classified by Main Industries of

Country	Year	Total economically active	Per cent economically active population:					Not elsewhere classified
			Agri- culture a/	Manufact- uring b/	Construction Commerce c/	Services		
<u>North Africa</u>								
Algeria								
(non-European)d/	1954	3,157	82.1	3.3	1.7	4.2	2.2	6.5
Morocco e/	1952	2,899	71.2	7.5	3.0	12.5	4.9	0.9
Tunisia	1956	1,328	68.1	7.3	2.1	6.9	6.4	9.2
UAR								
(Egypt) f/	1957-58	7,030	57.4	8.6	1.9	13.3	18.8	-
<u>South and East Africa</u>								
Congo(Leo.) g/	1955	6,199	85.2	4.2	2.1	3.0	0.6	5.0
Mauritius	1952	165	44.3	13.8	8.8	15.0	17.2	0.9 k/
Mozambique h/	1950	1,634	77.0	4.6	1.0	1.3	2.8	13.4 k/
South West								
Africa i/	1946	93	59.0	6.9	3.5	7.9	7.3	5.4
Union of South								
Africa j/	1951	3,609	37.8	21.5	4.8	7.1	24.1	4.8 k/

See Source on the next page.

Source: For North Africa: ILO, Year Book of Labour Statistics, 1959; for other countries, United Nations Demographic Year-Book, 1956.

X Data on characteristics of industries refer to a period when development was at its initial stage. This table should therefore be considered only as giving orders of magnitude for various branches of industry and for that purpose may reflect present-day conditions.

a/ Includes forestry, hunting and fishing.

b/ Includes mining and quarrying.

c/ Includes electricity, gas, water and sanitary services, transport, storage and communications, except in Morocco.

d/ Excludes certain regions not enumerated at census.

e/ Former French zone only. Persons employed in electricity and gas industries are presumably included under manufacturing and those in water and sanitary services presumably included in services.

f/ Based on Labour Force Sample Survey 1957-58 results.

g/ Indigenous population only.

h/ "Non civilized" population. Those in electricity and gas industries are included in manufacturing.

i/ Excluding coloured and native population outside police zone (numbering 183,333 persons).

j/ Non white population - Asiatic, "coloured" person and native of 15 years age and over.

k/ Included unemployed.

TABLE 7

Wage Earners classified by Main Industries

Country	Year	Percentage of Wage-earner in		Wage-Earners in various industries (Percent)						
		Total -popu- lation	Total Economi- cally active popula- tion	Agri- culture	Manufact- uring <u>a/</u>	Const- ruction	Commerce <u>b/</u>	Services	Other <u>l/</u>	
North Africa										
Algeria <u>o/</u>	1954	12.7	32.8	56.9	7.8	4.7	5.1	5.7	19.2	
Libya <u>d/</u>	1954	4.8	... <u>f/</u>	0.1	21.8	5.0	16.9	56.1	0.1	
Morocco <u>e/</u>	1952	12.5	32.0	38.0	12.6	8.2	27.6	11.8	1.8	
Tunisia	1956	13.3	37.8	35.9	11.0	4.4	10.1	14.9	23.7	
UAR (Egypt)	1947	14.5	42.5	51.8	14.0	3.3	10.4	20.5	-	
West Africa										
Cameroun	1955	4.6	18.2	27.8	9.0	12.6	17.0 <u>h/</u>	7.6 <u>i/</u>	26.0	
Former French Equatorial Africa	1955	3.3	13.2	25.8	22.3	14.3	18.6 <u>h/</u>	9.8 <u>i/</u>	9.2	
Former French West Africa	1955	2.0	7.9	19.8	11.4	11.5	22.9 <u>h/</u>	5.5 <u>i/</u>	28.9	
Ghana	1954	5.1	18.3	13.9	21.1	19.1	18.9	12.4	14.6	
Nigeria <u>g/</u>	1953	1.1	4.0	16.6	20.4	16.8	22.4	7.6	16.2	
Togo	1955	2.3	9.5	10.6	2.0	1.9	51.8 <u>h/</u>	5.0 <u>i/</u>	28.7	
South and East Africa										
Congo(Leo.)	1956	9.2	21.8	25.1	19.8	10.4	14.5	30.3 <u>j/</u>	-	
Kenya	1956	9.7	39.4	39.4	11.2	4.9	14.4	7.7	22.4	
Malagasy	1955	5.2	39.1	39.1	11.9	7.9	13.1 <u>h/</u>	10.9 <u>i/</u>	17.1	
Rhodesia & Nyasaland	1956	3.5	... <u>f/</u>	34.5	20.9	14.2	7.7	17.8	4.9	
Ruanda-Urundi	1956	2.8	21.3	20.7	21.1	11.7	21.5	24.5	0.5	
Tanganyika	1955	2.4	18.9	48.7	8.1	2.9	4.2	11.9 <u>k/</u>	24.2	
Uganda	1956	11.6	17.0	27.5	13.4	16.4	6.3	14.3	22.1	

Source: ILO, Year Book of Labour Statistics, 1959 and ILO, Africa Labour Survey, 1958.a/ Includes mining and quarrying.b/ Includes electricity, gas water and sanitary services, as well as transport, storage and communications.c/ For non-Europeans only; excludes certain regions which were not enumerated.d/ Derived from census establishments carried out in urban areas only (population census districts with population of 18000 or more in 1954).e/ Former French zone only.f/ Economically active population not known in Rhodesia and Nyasaland and not reliable in Libya.g/ Excluding undertakings with less than 10 workers.h/ Including employees in banking and professions.i/ Excluding government employees.j/ Includes 139,699 office workers.k/ 1956 figures, excluding 297,676 migrants working in territory.l/ Consisting essentially of activities not adequately described.

35. Though available African manpower data are insufficient at the present time to show the relationships between the wage earning and economically active groups, it should be emphasized that this is an area for study which has great potentialities for planning. Indicating as it does the shift to more organized methods of production, it will also provide an indirect measure of the intensification of collective patterns of production within the economy. It is also possible by comparison of manpower figure with the detailed data for wage earners to follow the pattern of change from a subsistence to a monetary economy, which is characteristic of the intentions of most developing countries of the world to-day.

36. This review of some of the major structural characteristics of African populations is by no means exhaustive as regards the features likely to influence the basis of future development. Other structural factors such as the size and composition of the female population, especially those in the reproductive age groups, the size and composition of the school age population, ethnic characteristics reflecting the differences in the size and composition of indigenous and non-indigenous populations all play an important part in determining the level of relationships that exist in present day African countries and the extent to which interaction between the effects of changes in these characteristics and of changes in economic and social conditions will influence future development. The point of view from which the question has so far been examined has been essentially a static one, taking no account of those components of growth to which human populations are subject and which in the final analysis will affect growth in the related economic and social fields. It is proposed in the next section to see whether the demographic data as it exists in Africa today can provide a basis for assessing the levels of fertility, mortality and migration and for drawing inferences as to the prospects for population growth in the immediate future.

C. Demographic Components of Population Change - their present levels and future trends

37. The population elements directly connected with social and economic change and their fluctuations in the course of the process of development in a large measure determine the direction which the economy will take in the future. An understanding of past trends and of possible future changes in these elements is a prerequisite for social and economic planning. Consideration has so far been given only to those aspects of the African population structures which need to be taken into account in both providing a frame of reference and assessing of the relationships between these structural factors and other socio-economic characteristics, at different points of time, for social and economic planning. Even more important for the development process, from the demographic point of view, is an understanding of the changes that would occur in the future in those demographic components directly affecting population growth (either by themselves or in combination with other socio-economic factors). Knowledge of how they would react would provide the bases for developing population projections of the size of the population and its important sectoral groups at future dates. It is generally agreed that projections of total population, rural-urban population, school age groups and the economically active - to mention a few sectoral groups - are essential for the provision of demographic elements which enter into planning models of future growth.

38. Projections of future population size and characteristics depend essentially on the accuracy and reliability of information on past trends and present levels of fertility, mortality and migration - the main components of population growth - and their relationship to changing economic and social conditions. This apart, as with all predictions, it would be necessary here to formulate a set of assumptions regarding the future trends in these factors expected as a result of economic development.

39. It was pointed out above, data on levels of fertility, mortality and migration are far from satisfactory for the African region even less reliable than data available on structural characteristics of the population. Registration of vital statistics has for long been an administrative function in many African countries; its effectiveness has so far been limited because both of the lack of incentives to registration for the people and of the inadequacy of the administrative apparatus available for its enforcement.^{24/} Except for a few African countries (or territories) which have vital statistics which are considered fairly reliable, the data on fertility and mortality have in most cases been obtained from one-time censuses or demographic sample surveys, and for these areas information on past trends of vital rates is not available.^{25/} With regard to migration, that data are even more unsatisfactory. While information is available on the pattern of international and internal migration, very little is known on the numbers and characteristics of the persons involved. This considerably complicates the study of population growth in Africa in that examination of present and future trends in the growth of African countries cannot take into account increases and decreases due to such movements. Most migrations arise basically from social and economic causes and take place beyond existing political frontiers. It has been estimated that such migration, especially those occurring in Tropical Africa, are of a sizeable nature. Though

^{24/} The registration system in Sierra Leone was started over a century and a half ago and the recording of births and deaths was in theory extended to the entire population of former French Africa in 1916. Even where legislative measures (or traditional systems) have resulted in the maintenance of records of vital statistics, very little has been done to systematically compile and put together available data. A striking example is the case of the Northern region of Nigeria where a system of recording vital statistics under religious auspices has been in existence for centuries.

^{25/} According to the most recent estimates, the population of the areas considered as having fairly good vital statistics totalled 1.7 million persons. (Vital statistics of incomplete or unknown reliability are available for countries with a total population of another 74 million).

the existing data cover a number of countries and areas experiencing a variety of socio-economic conditions and are subject to the limitations mentioned above, it is proposed in this section to examine past trends and the existing levels of growth factors to see whether over-all determination of regional and sub-regional levels of these factors is possible and, if so, their bearing on the future development of the region and its sub-regions^{26/}.

1. Rate of growth.

40. Various estimates have been made of the rate of population growth in Africa over the past fifty years; all show the rate to have been low during the first half of the century.^{27/} If the population estimates available are correct there is only one possible explanation for the present estimated population of the region, viz., that the rate of population growth has taken a substantial upturn in the past decade. While the rate probably accelerated in the fifties, there are quite a few considerations which make analytical treatment of growth rates in individual African countries difficult to use in studying either present population levels or trends. First the population counts carried out in the early decades of the century are known to have been heavily biased towards under enumeration. Secondly, it is doubtful whether the areas of coverage used for comparative dates within these countries were identical. Finally, the procedures adopted were completely different and very often unscientific. That these considerations affect the growth rate is clearly shown by comparison of recent census or survey estimates of total population with those obtained in earlier population counts. Typical examples of divergencies between recent censuses and the previous population counts are shown by the statistics of Ghana, the Ivory Coast,

^{26/} A regional or sub-regional analysis of demographic factors connected with future change has the advantage that it would minimize the effects internal migration.

^{27/} The United Nations estimates for various region given in Future Growth of World Population, New York, 1957 show that the average rate of growth in Africa during the first quarter of the century was under 1 per cent and that it might perhaps have risen to about 1.4 in the period 1925-50.

TABLE 8

Birth Rates, Death Rates and Natural Increase Rates; 1950-59 and Rates of Population Growth
1941-60 for Selected African Countries

Country	Official or country data ^{a/}		Estimated rate ^{b/}		Rates of natural increase (per 1000)		Rate of population increase during decade (per cent) ^{c/}		
	date of reference	birth rate (per 1000)	death rate (per 1000)	Birth rate (per 1000)	Death rate (per 1000)	official ^{a/}	estimated ^{b/}	1941-50	1951-60
1	2	3	4	5	6	7	8	9	10
North Africa									
Algeria ^{e/}	1950-58	39	13	47	27	26	20	1.3	2.5
Sudan ^{f/}	1956	52	19	51	23	33	28	...	...
Tunisia	1957-59	45	10	40	20	35	20	1.8 ^{p/}	1.3
UAR (Egypt) ^{g/}	1957-58	42	19	43	20	23	23	1.9	2.6
West Africa									
Cameroun	1954-55;1957	25	8	35	27	17	8	2.3 ^{p/}	0.5
Guinea ^{h/}	1954	62	40	60	40	22	20	...	2.9
Ivory Coast ^{i/}	1956-58	59	28	58	26	31	32	...	4.0
Senegal ^{j/}	1955	54	21	50	25	33	25	...	1.2 ^{q/}
Central African									
Republic ^{l/}	1959	39	26	40	30	13	10	1.6	4.7
Congo (Brazz.)	...	...	...	45	24	...	21	...	1.9 ^{q/}
Chad	...	...	...	45	23	...	22	...	1.9 ^{q/}
Ghana ^{k/}	1957-58	52	21	51	29	31	22	1.6	4.6
Nigeria ^{l/}	1955-59	50	13	54	35	37	19	...	3.5
Togo	1955	35	13	35	23	22	12	1.9	3.7
South & East Africa									
Angola	1956-58	22	7	45	35	15	10	1.5	1.2
Cong. (Leoc.)	1956-57	48	20	44	22	28	22	0.7	2.3
Malagasy	1953-59	34	13	45	24	21	21	1.0	2.5
Mauritius ^{m/}	1954-59	42	13	42	13	27	27	1.3	3.0
Ruanda-Urundi ^{n/}	1956-57	45 ^{o/}	14	42	13	31	29	0.0	2.2
Union of South Africa ^{n/}	1954-56	17	11	...	...	6	...	...	...

See footnotes on the next page

(footnotes to Table 8)

- a/ Estimates based on official vital statistics, sample survey or census information.
- b/ Estimates obtained by using stable population model with reference to the values for rates of population increase and size of population groups aged under 15 from census or survey data.
- c/ Average of rates of increase, where available, within each decade.
- d/ Average of rates for period signified; in case of wide fluctuation, average for recent period only given.
- e/ Muslim population only.
- f/ Estimates given by 1955-56 sample census of population.
- g/ Estimates relate to Health Bureau areas covering 44.6 per cent of the population; birth registration estimated 80 per cent complete.
- h/ Results obtained from a demographic sample survey covering the whole national area.
- i/ Results obtained from a demographic sample survey of only part of the national area.
- j/ Birth and death rates refer to Dakar only.
- k/ Birth and death rates refer only to compulsory registration area of 36 towns comprising 12 per cent of the total population.
- l/ Birth and death rates refer to Lagos only.
- m/ Registration system considered complete; a recent fall in fertility has been noted.
- n/ For Bantu population.
- o/ Data on births available for 1955-57 indicate birth rate in the range of 50 per 1000.
- p/ Applies to increase over period 1946-50.
- q/ Applies to increase over period 1951-58.

Central African Republic and Togo where respective rates of population increase of 4.6, 4.0, 4.7 and 3.7 have been reported for the decade 1951-60 (Table 8). These rates are not consistent with the fertility, mortality and migration patterns of these countries. While Ivory Coast and Ghana do attract sizeable migration from neighbouring countries, the effects of migration are practically negligible in Togo and the Central African Republic.

41. The average rates of increase reported for various countries for the two previous decades are given in columns (9) and (10) have been presented. They show considerable variation in rates of growth for the West-African and South and East-African countries for the period 1941-50 and to a lesser extent, for the period 1951-60. Only in the case of the North-African countries do the rates show a consistent pattern. From the rates for Morocco, UAR and Algeria, (the three most populous countries of the sub-region) it might possibly be concluded that the rate of increase has accelerated there from about 1.5 per cent in the forties to between 2 and 2.5 in the fifties.^{28/} With regard to the other two sub-regions, while the figures do point to acceleration of growth in the fifties, very little can be inferred regarding the pattern of growth for the sub-region as a whole.

42. While reliance on existing data on growth rates may lead to pitfalls, their importance for economic and social planning's cannot be denied. They provide a more adequate basis than rates of natural increase for assessing the effects of growth on levels of living. Furthermore, in view of the difficulties involved in obtaining migration information, especially within the sub-regions where they seem sizeable, it is fairly probably that rates of growth may for quite some time provide the sole basis for estimating the size of migration for most countries of the region. In the final analysis better data on the rates of growth can

^{28/} Most of the countries in North Africa have a long record of census taking (i.e. complete enumeration of the population).

only be had if periodic scientific population counts can be made, and, the censuses and sample surveys carried out in connexion with the 1960 World Census Programme in Africa with the improved procedures and techniques used, may represent a beginning in that direction.

2. Fertility

43. There is strong evidence to show that the age structure of the population is, under conditions of fairly high fertility, essentially influenced by this factor. It follows, therefore, that the inter-relationships of the size of various component age groups within the age distribution of African population in the future will be largely determined by the present fertility levels and future fertility trends in the region.

(a) Trend and levels of birth rates

44. Data obtained from existing vital statistics and from censuses or sample surveys are presented in column (3) of Table 8. Though fertility rates are liable to vary from year to year, the data are presented as an average of rates for the specified periods given in column (1). This has been done because, while some rates may be near the true situation, the rates now available are believed to suffer from serious under-estimation due to present methods of collection. Even so, they do provide the orders of magnitude for comparison of current fertility rates. In addition, a separate estimation of birth rates based on the theoretical stable population models developed by the United Nations is presented in column (5).^{29/} The procedure that has been used in this case has been to choose a stable population model which fits with the values of the two demographic indices, viz. rate of growth and the percentage of children under 15 observed in the given population and to apply the fertility and mortality levels of this population consistent with the

^{29/} United Nations, Manual on Methods of Estimating Populations, Manual III, Methods for Population Projections by Sex and Age, New York 1956. By this method, a population which has not been subjected to major changes in vital rates or to large migration changes gives a system consisting of the age structure, fertility and mortality in which a measure of two factors determines the third.

rate of increase observed or assumed to denote country rates.^{30/} To the extent that the population structure and, in particular, past trends in rates of growth are rather difficult to evaluate from existing data, the fertility rates derived by this method can only provide approximations to actual levels existing in African countries.

45. Table 8 shows that the official birth rates given in column (3) and the deduced theoretical rates given in column (5) are, with a few exceptions, of a similar order of magnitude. In addition except in the case of Cameroun, Togo, Angola and the Bantu population of the Union of South Africa, the general birth rate level lies between 40 and 60 per thousand.^{31/} In the case of Cameroun, it is not unlikely that the actual fertility level may be lower; but the actual rate is likely to be difficult to infer because the age distribution and recorded vital statistics are of poor quality. In spite of individual variations, there is enough of a pattern within sub-regions to draw inferences on the range of these rates within them.

46. Except for a few countries that do not fit into a pattern, it can definitely be inferred that the birth rate level in West Africa is at present the highest among the three regions. It is not unlikely that it may be somewhere between 50 and 55 per thousand. In the case of North Africa, if allowance is made for possible under-registration in the case of official rates and possible under-enumeration of children in the case of age distribution data used for stable population estimates, it is quite likely that the birth-rate level in this North African region would be between 45 and 50 per thousand. It is far more difficult to make an assessment of the likely level of fertility in South and East

^{30/} While it may not be possible to minimize the importance of migration for some countries of the region, the determination of fertility and mortality levels for this paper was based on assumed rates of growth allowing - though arbitrarily - for migration.

^{31/} There is definite evidence that the official rate for the Bantu population is too low. It is incompatible with the 3 per cent yearly increase noticed during the inter-censal period 1951-60.

Africa. Except for vital statistics information from Mauritius which is considered complete and reliable, the estimates for most countries are either not available or of unknown reliability. The stable population estimates however indicate a fairly consistent picture of a birth rate level lying between 40 and 45 per thousand.

(b) Other indices to measure fertility level

47. Various indices can be used for measuring the fertility levels of a population. The gross reproduction rates, average number of children born to women during their reproductive life and child-women ratios are commonly used as indicators of fertility levels. The data provided by these indices are quite compatible with the indications given earlier in the analysis of crude birth rates for those countries for which such data can be obtained.

48. In Tropical Africa the gross-reproduction rates, mainly derived from sample surveys carried out in the former French territories and in Rhodesia, are found to vary from 2 to 4.^{32/} While the reproduction rate is a good indicator of fertility and the replacement of population through fertility, the data on this index are very limited because it requires vital statistics data on age of the mother as well as on births.

49. The child-woman ratio (i.e. the number of children 0-4 years of age per 1000 women in the reproductive age group - generally the age group 15-49) is not such an efficient index for comparing fertility levels. These data, which are generally obtained from censuses or survey distributions, are considerably affected by the efficiency of age reporting. In the African situation, where age data considerably underestimate the younger age groups, it does not seem to be a satisfactory indicator. The child-woman ratio shows wide variation in Tropical Africa, ranging

^{32/} Gross reproduction rates for the Central African Republic, Senegal, Mali, Ivory Coast and Southern Rhodesia are 2, 3.1, 3.3, 3.7 and 3.7 respectively.

from 564 in Zanzibar and Pemba to 1,118 in Nigeria.^{33/} Similar considerations regarding reliability of data apply also to the indicator of number of children born to women who have completed reproduction. Apart from this it reflects the net result of a generation of fertility and mortality experience and, therefore, does not truly convey differences in current fertility levels. Available data on average number of children per woman indicate variations ranging from as low a figure as 3.2 in Angola to 6.6 in Uganda and the Ivory Coast.

50. The variations in the different indices used for measuring or comparing fertility levels and the relative difficulties encountered in obtaining these data seem to suggest that the crude birth rate, where it is available, may for most purposes be a good indicator of differences in fertility in the African situation.

(c) Some relationships between fertility and developmental factors

51. In view of its importance as a factor in population growth it would be useful to ascertain the effect on fertility of social and economic factors introduced by development. It would be interesting to see the degree of fertility change brought about by such factors as urban development, educational change, employment characteristics etc., which all tend to improve with economic and social development. Some idea of such relationships can be obtained by studying the differential fertility of various groups classified by economic and social factors. Data on differentials in current fertility rates are limited to the field of urbanization. Little is known, for example, on fertility rates according to the educational or literacy status of the parent or to occupational characteristics.

52. Even in the case of urban-rural differentials data are limited to information obtained in a number of sample surveys, and cannot be

^{33/} A detailed discussion of these three indices and their current levels for various countries is to be found in a paper entitled Population and Population Trends by Prof. J.J. Spengler presented to the Regional Conference on Economic Development in Africa South of the Sahara 17-29 July, 1961, International Economic Association, Addis Ababa.

expected to give a pattern of likely effect of urbanization for the region or for the sub-regions as a whole. Table 9 gives the urban and rural fertility rates for a number of countries where such information is available. No distinct pattern of relationship shows itself. The birth rates for the Central African Republic, Congo (Leopoldville) and Senegal indicate that urban fertility rates tend to be higher than those of rural areas. On the other hand, the results of surveys held in Mali and Guinea show significant difference in fertility between urban and rural areas and also much lower levels in the former. The effect of urbanization on fertility in the industrialized countries of Western Europe led to a significant decrease in the birth rates and to an overall change in the total growth pattern of these countries. In the African situation a plausible thesis has been propounded that urbanization would result in relaxing the traditional mores which tended to keep the fertility level down (i.e. specification regarding length of lactation, period of abstinence etc.) and thereby increase the fertility level in the early stages of urbanization. On the other hand, it has been pointed out that the present indications regarding higher

TABLE 9

Birth and Death Rates for Urban and Rural Areas Obtained from African Sample Surveys

Country	Year	U r b a n			R u r a l		
		Birth rates (per 1000)	Death rates (per 1000)	Infant mortality rate (per 1000 births)	Birth rates (per 1000)	Death rates (per 1000)	Infant mortality rate (per 1000 live births)
Central African Republic ^{a/}	1959	38	27	197	40	26	188
Congo (Leo.) ^{b/ c/}	1957	52	11	...	41	9	...
Guinea ^{b/}	1955	52	29	189	63	41	218
Mali ^{a/}	1957	44	31	246	52	47	320
Senegal ^{a/}	1957	53	27	152	52	25	172

^{a/} Demographic sample survey covering only part of the national area.

^{b/} National demographic sample survey.

^{c/} The population shown living in mixed areas (i.e. sub-urban areas with 12% of the national population) has been excluded in these estimates. Data given in A. Romanuik, *Evolution et Perspectives démographiques de la population française*, given in Zaire, XIII-6 1959.

fertility rates in urban areas may in reality be due to the use of hospital and other facilities by persons in the countryside.^{34/} Certain aspects of urban population structure as compared with that of the rural are conducive to a lower fertility. The sex-ratio in particular is higher in urban areas and in general the number of women in the reproductive age groups is likely to be smaller. Again, the marital status distribution also tends to be weighted in favour of a lower fertility in urban areas. It is difficult to predict which point of view will be proved correct in African development conditions. Since the urbanization process is definitely gaining momentum in Africa, the rapidity of population change will be largely governed by the fertility behaviour of the urban population.

53. Similarly it has been noticed in many other regions that fertility changes with improvements in education and with diversification of non-agricultural employment, particularly if it involves sizeable participation by women. It is not impossible, therefore, to expect that such diversification in non-agricultural activity may occur more quickly in certain parts of Africa where a high participation by women has been noted. It is hoped that, with improvements in vital statistics, ~~data some of these inter-relationships will be kept in mind in the over-~~ all development of the African countries.

3. Mortality

54. The situation with regard to death registration is even less satisfactory than that as regards birth registration. While the countries with a birth registration (whether complete or poor) are the same as those having a similar death registration system and as such represent a similar small proportion of the total African population, existing data definitely show death registration to be the less efficient in most of these countries. Except for Mauritius, the city of Bathurst

^{34/} H.W. Singer, Demographic Factors in Economic Development in Tropical Africa. (The Social Science Research Council Conference on Indigenous or Induced Elements of Growth in Africa, Chicago, November 1961).

and the registration area of Ghana, where death registration is considered complete, under-registration can be as high as 50 per cent or more. While death rates for these areas may not provide true mortality levels for individual countries, they give useful indications as to sub-regional mortality pattern and of trends in the past decade. For a few countries estimates of the crude death rate are also available on the basis of demographic sample enquiries.^{35/} These values are of relatively higher accuracy when compared with the average registration data for measuring present levels; but, since not more than one survey has been taken in each of the countries, no information is available on the mortality trends over a period in these countries.

(a) Mortality level and trends

55. There is considerable variation in the death rate levels from country to country of the region. The crude death rate varies from as low as 7 per thousand in Angola and 8 per 1000 in Cameroun to 40 per 1000 in Guinea (column (4), Table 8). In order to obtain more reliable estimates of mortality presented in column (6) of Table 8, death rates have been calculated from assumed rates of growth and the percentage of children under 15 years of age. Even on this basis the variations are considerable; but it may be more appropriate to use these as indicators of the general mortality conditions.^{36/}

56. An examination of these rates by sub-region brings down the range of variation to some extent. In North Africa, the variation in the estimated crude rate lies between 20 and 27 per thousand in comparison with a variation of between 10 and 19 per thousand in the official rates.

^{35/} In areas where the administrative system may not permit complete registration system for some time, sample surveys to estimate fertility, mortality and migration, or alternatively a sample registration scheme may provide the short-period solution.

^{36/} It may be pointed out in this connexion that in some cases the official rate has already been corrected to some degree by the government before publication. The death rate of 20 for Tunisia which is nearly twice the average for the pre-1956 period is not due to better coverage but rather to correction. Such adjustments, of course, make comparability between countries even more difficult.

In West Africa, where the official (or country) rate varies between 8 and 40, the estimated rate is found to lie between 23 and 40. The range of death rates in South and East Africa is between 13 and 35. These are sufficient indications to show that the mortality level based on official recording (and not on sample surveys) is heavily underestimated in Tropical Africa. The number of countries for which information of any sort is available also represents a smaller percentage than that of the North African sub-region. Even so, the data are sufficient to justify the impression that the mortality level in Africa is on the whole higher than that found in other regions or large tracts of the world.^{37/}

57. Even on the basis of the relatively unreliable country information there is definite evidence to show that mortality rates have considerably declined in the past decade, especially in comparison with the period 1946-50. A few examples, which more or less convey the general pattern for areas where such long-term data are available, will illustrate the change.^{38/} As regards areas with better statistics, the death rates of Mauritius, Bathurst (Gambia) and the registration areas of Ghana have declined from the 1946-50 levels of 19, 21 and 23 respectively to around 15, 12 and 21 in 1958. This trend is noticeable even in countries with relatively incomplete or poor information on mortality. The crude death rates for Madagascar, Mozambique and Tunisia have declined from 19, 6 and 13 in the period 1946-60 to 14, 5, and 13 respectively in 1958.^{39/}

^{37/} A detailed account of African mortality levels and trends situation is given in The Situation and Recent Trend of Mortality in World which will be included in United Nations Population Bulletin No. 6 (now under publication).

^{38/} Such trend information would have no meaning if efficiency of registration had also declined in the period considered. There is no indication to this effect, and such decline is unlikely because the main factor promoting registration in these countries seems to be the awareness of the need to register.

^{39/} These figures are uncorrected recorded rates. This point needs to be taken into account in comparing 1958 values with those given in Table 8.

No considerable changes are to be noted from the official statistics. This fact and the relative unreliability of the data make it difficult to determine the rate of decline in mortality in Africa over the past decade.

58. Whereas the death rate information is defective, mortality indices such as the infant mortality rate, rates by socio-economic grouping and by causes of death are even more unreliable; for example, infant mortality rates of around 80 per 1000 live births have been reported in Ghana, of around 90 in Algeria and Dakar, and of less than 50 in such areas as Zanzibar, in comparison with a rate of 166 in 1957 for UAR (Egypt). The differences in these statistics become very evident when compared with information on infant mortality provided by the recent demographic surveys in West Africa (Table 9), which show the infant mortality level in most areas is between 150 and 250 and in most cases consistent with the values expected on the assumptions of the stable population method mentioned earlier.

(b) Relationship of mortality to social and economic change

59. The direct connexion between mortality and social improvement is too well known to need emphasis. Improved social conditions, including as they do better medical and educational facilities, and hygienic aspects of living have resulted in reducing mortality in many parts of the less-developed world. Recent technological advances in the medical sciences have also made it possible to reduce morbidity and mortality from endemic diseases - commonly classified as "fevers" and responsible, in some cases, for as much as 50 per cent of total mortality in many of the less developed countries.^{40/} As all these factors affecting mortality are direct consequences of economic and social development, it is appropriate to assume that mortality will decline also in the African region. The pattern of decline will be largely determined by the speed with which facilities become available to the population. The present levels of medical facilities

^{40/} Assuming South East Asian experience has any true application to this problem, the past decade has indicated mortality declines of the order 20 - 40 per cent.

available in the region is still not satisfactory.^{41/} Data on literacy and educational facilities also show considerable variation. The situation is also complicated by the fact that indigenous cadres need to be strengthened and expanded considerably. Finally, with the marked rural-urban differences in the availability of these facilities, their over-all impact is at present limited. There is, nevertheless, definite evidence that the social expenditure, which has considerably increased in most African countries has started to influence directly the decline in mortality.^{42/} Thus with growing economic development, accompanied by infra-structural improvements and wider distribution of facilities, the mortality rate will decline faster.

60. The economic implications of high mortality raise a number of very interesting problems. First, decline in mortality results in lower infant mortality rates and thereby increases the number of children in the dependent age groups. Secondly, it increases at least in absolute terms, the number the persons in the working age because not only of mortality decline but also of the concomitant decline in morbidity. Finally, it lengthens expectation of life, a factor which affects all age groups. It has been argued that declines in mortality will to some extent assuage the present waste of resources in education and the sustenance of children, who do not fully contribute to the economic activity of the community. This contention implies that the high rates of growth which will arise essentially from the anticipated declines in mortality would help rather than hinder economic growth.

61. On the other hand, it is maintained that the increasing costs involved in passing children through the first 15 years of their lives may more than offset increases in economic participation resulting from mortality decline.

^{41/} United Nations, Report of the World Social Situation, New York 1957. Statistics on population per physician and per hospital bed show ranges of 5000 - 32,000 for the former and 200 - 1100 for the latter in most countries of the region. The exceptions are UAR (Egypt) and the Union of South Africa, where the corresponding figures are 3,500 and 2000 respectively and per hospital bed there are 600 and 175 persons respectively.

^{42/} Percentages ranging from 15 to 30 per cent of current government expenditure have been spent on education and health in the countries of Africa. For details see United Nations, Economic Bulletin for Africa, Addis Ababa, June 1961, Vol. I No. 2, pp. 19-20.

62. While it is not possible to give very definite answers to these questions, it is possible to work out theoretically the effects of mortality by examining the relationship of mortality to working life. It would be natural to assume that the maximum period of working life in a person's career would be in the neighbourhood of 50 years, i.e. that he would enter the labour force at the age of 15 and retire around the age of 65. It is possible on the basis of a series of age-specific activity rates and different mortality assumptions (i.e. different sets of survivorship ratios indicating mortality applicable to various expectations of life) to find what would be the net and gross years of working life at age 15 for each set of mortality assumptions.^{43/} The difference between these two would give an indication of the loss in years of active life under various conditions of mortality. The survivorship values of model populations with expectations of life at birth of 30, 45 and 60.4 were applied to age-specific activity rates obtained in the 1957-58 Labour Force Survey of UAR (Egypt) and a summary of the results are given below in Table 10.

TABLE 10

Net and Gross Years of Active Life According to Various Assumptions

<u>Model Population a/</u>	<u>Net years of active life</u>		<u>Loss due to mortality^{b/}</u>
	<u>Average Number</u>	<u>as Percentage of Gross years of active life</u>	
Mortality level (Expectation of life at birth 30).....	30.5	65.6	16.0
Mortality level (Expectation of life at birth 45).....	38.8	83.4	7.7
Mortality level (Expectation of life at birth 60.4).....	46.1	99.1	0.4

a/ Using United Nations stable population models given in United Nations, Manuals on methods of estimating population, Manual III, Methods of Population Projections by Sex and Age, New York, 1956.

b/ Obtained as difference of gross and net years of working life. The "gross years of active life" was 46.5 for the selected activity rates (U.A.R.)

^{43/} Whereas the "gross years of working life" assume that each individual passing the potential working span (i.e. between 15 and 65) of about 50 years at the current level of activity rates, the "net years of working life" make allowance for the mortality at each age group and try to indicate the actual years the generation might be expected to work.

63. From these comparisons it is evident that if mortality declines the average net years of active life will increase. It is also likely that a change in expectation of life from 30 to 60 which would occur in a period of 50 to 60 years (under the average world rate of increase observed in the fifties) would affect the age distribution sufficiently to make for changes in the age structure.^{44/} In such a case it is possible that the dependency burden may be somewhat lessened. However, since any significant changes in age structure are directly dependent on fertility declines, and since the relative size of the working and non-working groups within the age structure determine their contribution and economic implications, the immediate and short-term consequences of changes in mortality may not mean any the less burden in terms of per-worker support of the inactive population.^{45/} The present African population structures and the relatively low expectation of life observed in countries of the region with such information do not warrant the supposition that the increasing number of years the average male spends in active life would offset the larger number of surviving dependents whom they would be required to support, at least till such time as structural changes occur and permit lower dependency.

64. The differentials in urban and rural crude death rates observed in some of the sample surveys carried out in the African region do not, as in the case of fertility rates, indicate any definite pattern of

^{44/} Such structural changes would involve also a reduction in fertility and in the size of the population in the younger ages, and to that extent the calculations given in Table 10 can only give a broad idea of the likely changes in working age introduced by mortality reduction.

^{45/} Except for UAR (Egypt) and Mauritius which had age structures with expectation of life at birth of around 45 in the fifties, the figures for most of the other countries, for which such information is available, tend to range between 30 and 40. These estimates are based essentially on sample survey information.

there is a complicated pattern of inter-national movements. In West Africa, the main countries which attract, labour movements are Ghana, Nigeria, Gambia and in recent years the Ivory Coast. The Ivory Coast and Nigeria have also provided migrant labour for Ghana. Most countries of former French Africa have reported sizeable movements to the neighbouring countries. The pattern of labour migration in South and East Africa has included Congo (Leopoldville), Ruanda-Urundi, Mozambique, Tanganyika, Kenya, Rhodesia and Nyasaland and South Africa. While Tanganyika and Uganda receive migratory labour from the surrounding countries, they also supply workers to the Rhodesias and the Union of South Africa. The growth of industries in these two South African countries, viz., the Union of South Africa and the Federation of Rhodesia and Nyasaland, has made the movement to these countries the most important migrational flow in the South and East-African sub-region during the past decade.

68. From the above description of the patterns of movement it is clear that the migratory element is an important factor in the present and future growth of a large number of countries in Tropical Africa. At the same time it seems clear that the bulk of this migration takes place at the sub-regional level. Thus, whereas the relationships between fertility and mortality could perhaps provide a basis for the determination of the probable size of the population of the sub-regions at a future date, similar predictions regarding the future population of individual countries may be difficult to attempt without better understanding of the impact of migration on them in the present state of demographic data.

5. Rate of natural increase.

69. The rate of natural increase provides a good indicator of net effect on population size of the vital process. In areas where migratory influences are small or negligible, it gives a close approximation to the rate of growth of the population. The earlier discussion has shown that the influence of migration between sub-regions of the African region may be minimal at the present time, but not so when considered in relation to its effect on individual countries. It is therefore proposed to see below whether a consistent pattern of natural increase can be worked out for the three African sub-regions and, if so, to determine, on the basis of the range of natural increase thus indicated, what would be the population size of the sub-regions in the next 10 years.

70. Estimates of natural increase based on fertility and mortality levels derived from official survey data and on the stable population model are given in Table 8. With a few exceptions, they seem to indicate a fairly consistent level of natural increment, higher than 2 per cent in most of the

there is a complicated pattern of inter-national movements. In West Africa, the main countries which attract labour movements are Ghana, Nigeria, Gambia and in recent years the Ivory Coast. The Ivory Coast and Nigeria have also provided migrant labour for Ghana. Most countries of former French Africa have reported sizeable movements to the neighbouring countries. The pattern of labour migration in South and East Africa has included Congo (Leopoldville), Ruanda-Urundi, Mozambique, Tanganyika, Kenya, Rhodesia and Nyasaland and South Africa. While Tanganyika and Uganda receive migratory labour from the surrounding countries, they also supply workers to the Rhodesias and the Union of South Africa. The growth of industries in these two South African countries, viz., the Union of South Africa and the Federation of Rhodesia and Nyasaland, has made the movement to these countries the most important migrational flow in the South and East-African sub-region during the past decade.

68. From the above description of the patterns of movement it is clear that the migratory element is an important factor in the present and future growth of a large number of countries in Tropical Africa. At the same time it seems clear that the bulk of this migration takes place at the sub-regional level. Thus, whereas the relationships between fertility and mortality could perhaps provide a basis for the determination of the probable size of the population of the sub-regions at a future date, similar predictions regarding the future population of individual countries may be difficult to attempt without better understanding of the impact of migration on them in the present state of demographic data.

5. Rate of natural increase.

69. The rate of natural increase provides a good indicator of net effect on population size of the vital process. In areas where migratory influences are small or negligible, it gives a close approximation to the rate of growth of the population. The earlier discussion has shown that the influence of migration between sub-regions of the African region may be minimal at the present time, but not so when considered in relation to its effect on individual countries. It is therefore proposed to see below whether a consistent pattern of natural increase can be worked out for the three African sub-regions and, if so, to determine, on the basis of the range of natural increase thus indicated, what would be the population size of the sub-regions in the next 10 years.

70. Estimates of natural increase based on fertility and mortality levels derived from official survey data and on the stable population model are given in Table 8. With a few exceptions, they seem to indicate a fairly consistent level of natural increment, higher than 2 per cent in most of the

countries of the region. At the sub-regional level, taking into consideration the size of present populations, it may not be inappropriate to conclude from available data the ranges of growth rates for the three sub-regions. The North African sub-region is probably growing at an annual rate of 2.3 to 2.5 per cent. In West Africa, however, in spite of the higher level of fertility which present data seem to imply natural increase rates are probably somewhat lower at the present time. In line with the data presented in Table 8, and in the light of the comparative contributions which the natural increase rates of individual countries can make to the sub-regional population, the present annual rate of growth of West Africa would be in the range of 2.0 to 2.2 per cent. It is recognized that the natural increase rates in the countries of South and East Africa are difficult to estimate because of the large areas of the sub-region for which no information is available. At the same time, it is not unlikely, in the light of the data presented for some countries of the sub-region, that present regional level of growth would be about the same order as that observed in West Africa. These determinations of current levels of increase in the sub-region are highly subjective, and predictions based on them (which will be given in the next section) are merely intended to convey the importance of the technique of population projections as a tool in development planning and the magnitude of the problems involved in the possible future relationships between demographic and socio-economic factors.

D. Likely Trends in Population Growth

71. Just as economic and social planning involves the prediction of the future state of the economy under specified assumptions relating to future changes in the components of economic and social growth, it is possible under assumptions regarding the growth components of population to assess the future size and characteristics of the population. The inter-relationships between demographic

factors and socio-economic characteristics, which have been dealt with in the last two sections, can, subject to changes introduced directly or indirectly in the development process, produce fundamental changes both in the structure and characteristics of future population. Population projections taking into account the expected and foreseeable changes in economic and social conditions resulting from the planning of development represent one area in the study of African population problems which is becoming more important as the countries of the region try to plan their future economic growth.

72. . The efficiency of future predictions of population growth depends not only on an understanding of the present demographic facts and of the socio-economic conditions under which they operate but also on the diagnosis of expected and foreseeable future economic and social changes. The dynamics of population growth in the African region as indicated by the changes which occur in demographic components, can only be fully understood when more detailed demographic data become available. Hence forecasts based on existing data can only be of a tentative nature and at the most their values would only give a broad order of magnitude under varying conditional effects on demographic factors. The estimates of sub-regional populations presented here should be viewed in this light. It should be mentioned that the relative accuracy of these forecasts will largely depend on the homogeneity of the regions themselves. It will also depend on the extent to which future changes in demographic factors are reflected in the assumptions and considerations on which estimates of possible size of population in the short period

from 1960-1970 are based. 48/

73. One of the basic assumptions made in connexion with this short-term forecast is that there will be little or no migration between the three sub-regions selected for study. The earlier description of the pattern of migratory movements has shown that no major discernable migratory movement has occurred which indicates a sizeable shift of population from a country in one sub-region to another situated in another sub-region. 49/

It is not unlikely that under the new political and economic relationships which have emerged in Africa in the past decade and in the light of the economic developments expected in the next few years, the inter-sub-regional migration will be minimal during the period 1960-70. There will probably be a decline in inter-country migration within the sub-regions.

74. This assumption leads, of course, to the corollary that, as far as the sub-regions are concerned, the rate of natural increase, provided it typifies the conditions of natural increment in the three sub-regions, would approximate to the growth rate of the regions in the period 1960-70. Thus, in arriving at a hypothesis regarding future growth, the forecast presented here is conditioned by the assumption made regarding the changes in fertility and mortality rates in the three regions. With due regard to variations

48/ While the assumptions are such that it is possible to carry out an elaborate component analysis based on the stable population models of the United Nations, the procedure followed here has been to use a mathematical equation assuming a linear increase in anticipated rate of growth. The purpose of the exercise being merely to give a quantitative dimension to the order of increase of the population size of these regions, in the next ten years, such elaboration may not be necessary, apart from its inadvisability due to weakness of the data.

49/ In a large measure this applies to African migration (and in particular labour migration only). Trans-continental migrations involving Europeans and Asians have occurred in South and East Africa especially toward the Rhodesias, the Union of South Africa and the Portuguese territories of Angola and Mozambique. These migrations have recently shown a decline. In total effect, however their contribution to the national population growth rate has been minimal.

in rates from country to country within the sub-regions, procedure has been to adopt an arbitrary standard for the decline (indicated below).

75. The examination of fertility and mortality in section C indicates that the latter has shown a definite tendency to decline in all the three sub-regions since the second World War. Levels of fertility were quite high in most African countries during the fifties, as is also substantiated by the present age structures. There is, however, very little factual information on past fertility trends for most countries of the region 50/. It is not unlikely that the fertility rate has remained constant in the past decade or so. When we consider that actual changes in the fertility pattern can only be brought about by changes in cultural and social practices or by induced action in the form of action to reduce fertility, it is most unlikely that the next 10 years' period from 1960-70 will show any significant change in the reproductive behaviour of the African population. In the light of the foregoing, the following examination of the size of population in the various sub-regions will seek to emphasize the sequence of events which would follow in the wake of a decline in mortality.51/

76. The prospects for population growth in the next ten years (i.e. for the period 1960-70) were examined with reference to three assumptions regarding the rate of growth. In the first case, it was

50/ The possibility that fertility in the African region in the past may have been slightly lower has been referred to earlier.

51/ The natural increase rates (and corresponding birth and death rates) given in Section C 5 for the regions were used as base of reference in estimating the growth rates for 1960-70.

assumed that the rate of population increase, which is considered identical with the rate of natural increase for the sub-regions, would remain constant throughout the period under consideration. On the second assumption, the rate of increase was considered as a product of a slow decline in mortality during the period 1960-65 and of a higher rate of decline in mortality during the next five-year period. The final assumption was that a steady linear decline of 20 per cent in the mortality rates of the sub-regions could be expected in the 10 year period.

77. The results obtained on the basis of the three assumptions are given in Table 11.

TABLE 11.
Estimated Population of African Sub-regions Under
Various Assumptions Regarding Mortality Decline*

Sub-Region	Estimates for 1960 ^{a/}	<u>Estimates for various dates assuming</u>					
		Constant mortality		Slow decline ^{b/} in mortality		Higher decl- ine in ^{c/} mortality	
		1965	1970	1965	1970	1965	1970
<u>Population (in '000's)</u>							
North Africa	67,062	75,874	85,844	76,320	88,218	76,879	90,079
West Africa	79,818	89,429	100,198	89,780	103,372	90,483	104,589
South and East Africa	108,898	122,011	136,702	122,489	141,007	123,450	142,696
<u>Population as per cent of 1960 Population</u>							
North Africa	100	113	128	114	132	115	134
West Africa	100	112	125	113	130	113	131
South and East Africa	100	112	126	112	130	113	131

* The natural increase rates (and corresponding birth and death rates) given in Section C 5 for the region were used as the base of reference for estimating growth rates for 1960-70.

- a/ Obtained by applying rate of increase from 1958-1959 to the 1959 population estimate.
- b/ Assuming a decline in death rate of 5 per cent during 1960-65 and of 15 per cent between 1965-70.
- c/ Assuming a decline in death rate of 20 per cent in the 10 year period between 1960-70.

It will be noticed that in the short period the differences in population growth under the various assumptions are not likely to be significant. For example, if we use the minimal rate of growth arising from constant mortality and fertility the populations of North Africa, West Africa and South and East Africa would increase to 85.8, 100.1 and 136.7 million persons respectively. If on the other hand, we assume a rate of growth involving a 20 per cent mortality decline in the next ten years, the populations of North, West and South and East Africa would in 1970 be 90.0, 100.6 and 142.7 million respectively. The net increases since 1960 (for the various assumptions) used at 1965 and 1970 are also given in the Table 11. It will be noticed that where constant fertility and mortality rates are expected to operate a 28 per cent increase can be expected in the North African sub-region, as compared with a 25 per cent increase in West Africa and South and East Africa. On the assumption of a greater mortality decline, the present populations will increase by 34 per cent in North Africa and 31 per cent in West Africa and South and East Africa in the next 10-year period. Though the differences between these assumptions are small (i.e. between 4 and 8 per cent of the present population) it is useful to consider that an increase of between a fourth and a third of the population in a period of ten years is a significant factor with important economic implications. In comparison, it may be mentioned that the more scientific estimates for future population growth for South East Asian and Latin American regions indicate an increment in their regional population around 21-34 and 24-29 per cent respectively in 1960-1970: 52/

52/ Three estimates of population at future dates (i.e. according to high assumption, medium assumption and low assumption) are provided for these two regions. For details, see United Nations Future Population, Estimates by Age and Sex, Reports II and III. The Population of South America, 1950-80, New York, 1955; and Future Population of South and East Asia, New York, 1959. The assumption for which figures are quoted here relate to the one assuming medium growth.

The three assumptions which have been used in this discussion are by no means likely to exaggerate the possibilities of the growth of the African sub-regions. The mortality levels in Tropical Africa are such that, even with infra-structural improvements and the maintenance of the present levels of expenditure in health, education etc., the mortality situation in the whole region is likely to decline even beyond the declines assumed in this study. The decline in North Africa may be lower than that of South and East Africa, mainly because considerable decrease has already occurred in the past decade. Even so, the assumptions used will probably approximate to actual future trends.

78. Such examination of the order of increase could be profitably extended to assess the future size of sectoral groups such as rural and urban populations, economically active population, school age population - provided the basic factors relating to growth of these sectors is known. The most recent censuses of the African countries when analysed in the context of economic and social changes now under way, can provide meaningful answers on questions relating to the proper distribution of human resources within the economy at future dates, not only for the purpose of maximizing production but also for the distribution of the benefits derived therefrom.

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