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REPUBLIC OF KENYA

# COMPENDIUM TO VOLUME 1 1979 POPULATION CENSUS

Central Bureau of Statistics  
Ministry of Economic Planning and Development

## F O R E W O R D

The fourth Kenya National Census of Population was carried out in August, 1979. Previous censuses were conducted in 1948, 1962 and 1969.

The first volume of the results of the 1979 population census contains the following highlights:

1. The Administrative Report;
2. Population by sex and sub-location with area and population density.
3. Population by sex, tribe or national group and district;
4. Population by sex and single years of age;
5. Population by sex, five year age group and school attendance;
6. Population by sex, five year age group and education.

This compendium was compiled to meet two basic objectives:

1. To propound Kenya's population growth rate, 1979;
2. To attempt an assessment of the degree of coverage of the 1979 population census.

Thus the compendium is a pertinent document that is a must for a fuller understanding of the first publication of the 1979 population census.

Finally, it is appropriate to acknowledge with gratitude the considerable burden of enumeration that was undertaken by the Provincial Administration.

  
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## 1. Introduction:

The 1979 Population Census of Kenya was the fourth such census of the country to be held. The population totals shown by the 1962, 1969 and 1979 censuses, and the current rates of growth obtained from the differences between the consecutive censuses, are shown in Table 1. It will be seen that the 1979 population total constituted an increase of 40% on that of 1969.

Table 1: Population Census Totals and Rates of Growth in Kenya, in Thousands;

<u>Census Year</u>	<u>Population</u>	<u>Rate of Growth (% per annum)</u>
1962	8,636	3.44
1969	10,943	3.43
1979	15,327	

Large though this increase was, it was nevertheless somewhat smaller than had been anticipated. Estimates of the rate of natural increase derived from the first round of the National Demographic Survey held in 1977 had given a rate of growth of 3.9% per annum, not 3.4% as shown by the difference between the census totals. This estimated rate of growth of 3.9% per annum would have given a population total for August, 1979 of just over 16 millions, so that the enumerated total fell short of the estimate by approximately 5%. This discrepancy is relatively small when compared with those found in other African censuses; the 1960 census of Ghana, for example, revealed a population figure which was 34% larger than had been estimated immediately before the census; and the 1962 census of Kenya was also 15% above the estimate. However, with the improvements in the methods of census taking, in the quality of the fertility and mortality data available, and in the analytical

techniques which have developed during the last two decades, discrepancies of this magnitude are no longer to be expected, and even one of 5% requires to be explained. The purpose of this article is therefore to examine the possible causes of the discrepancy.

There are in fact only three such possible causes:

- (1) Over-estimation of fertility, and/or under-estimation of mortality;
- (2) Relative under-enumeration in 1979, and/or relative over-enumeration in 1969;
- (3) Emigration.

Before examining these possible elements, however, it may be helpful to localise the problem, and to distinguish those areas or peoples where the rate of population growth between 1969 and 1979 was conspicuously below expectation. Thus Table 2 shows comparable figures for the eight provinces and all districts of Kenya.\*

Table 2: Population Changes by Province and District, 1969-79:

Province & District	1969	1979	% Increase	Rate of Growth
Nairobi	509,286	827,775	62.5	4.98
Kiambu	475,576	686,290	44.3	3.74
Kirinyaga	216,988	291,431	34.3	2.99
Murang'a	445,310	648,333	45.6	3.83
Nyandarua	176,928	233,302	31.9	2.80
Nyeri	360,845	486,477	34.8	3.03
Central Province	1,675,647	2,345,833	40.0	3.42

Province & District	1969	1979	% Increase	Rate of Growth
Kilifi	307,568	430,986	40.1	3.43
Kwale	205,602	288,363	40.2	3.44
Lamu	22,401	42,299	88.8	6.56
Mombasa	247,073	341,148	38.1	3.28
Taita	110,742	147,597	33.3	2.91
Tana River	50,696	92,401	82.3	6.19
Coast Province	944,082	1,342,794	42.2	3.59
Embu	178,912	263,173	47.1	3.93
Isiolo	30,135	43,478	44.3	3.73
Kitui	342,953	464,283	35.4	3.08
Machakos	707,214	1,022,522	44.6	3.76
Marsabit	51,581	96,216	86.5	6.43
Meru	596,506	830,179	39.2	3.36
Eastern Province	1,907,301	3,719,851	42.6	3.61
Garissa	64,521	128,867	99.7	7.16
Mandera	95,006	105,609	11.1	1.06
Wajir	86,230	139,319	61.6	4.91
North Eastern Province	245,757	373,787	52.1	4.28
Kisii	675,041	869,512	28.8	2.56
Kisumu	400,643	482,327	20.4	1.87
Siaya	383,188	474,516	23.8	2.16
South Nyanza	663,173	817,601	23.3	2.12
Nyanza Province	2,122,045	2,643,956	24.6	2.22
Baringo	161,741	203,792	26.0	2.34
Elegeyo Marakwet	159,265	148,868	-6.5	-0.63

Province & District	1969	1979	% Increase	Rate of Growth
Kajiado	85,903	149,005	73.5	5.66
Kericho	479,135	633,348	32.2	2.83
Laikipia	66,506	134,524	102.3	7.30
Nakuru	290,853	522,709	79.7	6.04
Nandi	209,068	299,319	43.2	3.65
Narok	125,219	210,306	68.0	5.32
Samburu	69,519	76,908	10.6	1.02
Trans-Nzoia	124,361	259,503	108.7	7.63
Turkana	165,225	142,702	-13.6	-1.29
Uasin Gishu	191,036	300,766	57.4	4.64
West Pokot	96,254	158,652	64.7	5.11
Rift Valley	2,224,085	3,240,402	45.7	3.84
Bungoma	345,226	503,935	46.0	3.85
Busia	200,486	297,841	48.6	4.04
Kakamega	782,586	1,030,887	31.7	2.79
Western Province	1,328,298	1,832,663	38.0	3.27
Total Kenya	10,956,501	15,327,061	39.9	3.41

\* The total population figure shown in Table 2 for 1969 differs slightly from that shown in Table 1, due to the inclusion in Table 2 of the population of the Karapokot, which at the time of the 1969 census was administered by Uganda and was enumerated in the 1969 census of that country.

Of the eight provinces, Nairobi shows the highest rate of growth, as was to be expected given the high level of in-migration into the capital. North Eastern Province also shows unusually high rate of growth, which may be explained largely in terms of improved enumeration in 1979 in comparison with 1969. Of the three districts which constitute the above province, Garissa district has also experienced some significant in-migration from the other districts - Wajir and Mandera. In-migration from Somalia and Ethiopia appears insignificant since less than 4% of the enumerated population reported themselves as having been born outside the province. In view of the relatively small population in North Eastern Province, the large apparent increase in population has a relatively minor influence on the national rate of population growth. The other provinces (Coast, Eastern, Central, Rift Valley and Western) except Nyanza province recorded acceptable rates of population growth. As shown in the table, Lamu district in Coast province; and Laikipia, Nakuru, Narok, Trans-Nzoia and Uasin-Gishu in Rift Valley province show significant in-migration mainly due to settlement schemes which have attracted people from other areas of the republic. Samburu, Elegeyo Marakwet, & Turkana districts in Rift Valley province show relatively low rates of growth which cannot be explained by out-migration. Further analysis scheduled to be carried out will endeavour to generate some explanation. Nyanza Province on the other hand shows much the lowest rate of growth, far below the national average. This apparent low rate of growth was common to all the districts in Nyanza province except Kisii district which had a slightly higher rate of growth.

How far, it may be asked, is the relatively low rate of growth in Nyanza province attributed to heavier out-migration? In this respect the data on place of birth and on place of residence 12 months before the 1979 Census provide relevant information, although neither gives precisely the data required to answer this question categorically. The birth place data are summarised in table 3. The data shows that while Nairobi, Coast and Rift Valley provinces were experiencing a net gain in migrants, Central, Nyanza and Western provinces were losing migrants on balance.

Table 3. Life-Time Migration by Province from Data on Place of Birth

<u>Province</u>	<u>Enumerated in Province</u>	<u>Born in Province</u>	<u>Born Outside Province</u>	<u>Out- Migrants</u>
	(1)	(2)	(3)	(2) - $\sqrt{(1) - (3)}$
Nairobi	827,775	303,403	615,942	91,570
Central	2,345,833	2,619,984	191,102	465,253
Coast	1,342,794	1,168,548	222,229	47,983
Eastern	2,719,851	2,893,842	89,966	263,957
North-Eastern	373,787	389,136	14,998	30,347
Nyanza	2,643,956	2,910,422	109,130	375,596
Rift Valley	3,240,402	2,761,193	625,594	146,385
Western	1,832,663	2,120,290	82,304	369,931
Outside Kenya +N.S.		160,243		
Total	15,327,061	15,327,061	1,951,265	1,791,022

But when the out-migrants are expressed as a proportion of the total born in the province, the proportionate emigration from Nyanza is somewhat less than that from both Central and Western provinces,

being of the order of 12% in the case of the former against 17 or 18% in the case of the latter. These figures do not tell us how many of the "lifetime migrants" had left their province of birth during the intercensal decade. Unfortunately the census does not provide us with this information, \*but some indication as to current rates of migration may be obtained from the data on place of residence 12 months before the census.

These data are again summarised in table 4, and this time they do show Nyanza to be experiencing a rate of out-migration which is greater than that of Central Province, but it is still less than that shown by the figures for Western Province.

Table 4. Annual Migration by Province from Data on Place of Residence in August, 1978

<u>Province</u>	Enumerated** in Province	Resident in Province Last Year	In Migrants	Out Migrants
Nairobi	799,397	714,989	180,265	95,857
Central	2,258,636	2,263,709	83,301	88,374
Coast	1,295,499	1,273,599	62,325	40,425
Eastern	2,620,937	2,644,352	56,254	79,669
North-Eastern	365,319	369,435	8,251	12,367
Nyanza	2,549,178	2,595,000	65,557	111,379
Rift Valley	3,115,630	3,055,473	138,203	78,046
Western	1,759,315	1,792,271	58,359	91,315
Elsewhere or N.S.	-	55,083		
Total	14,763,911	14,763,911	652,515	597,432

\*\* Excluding children under 1 year of age.

\* Theoretically, given the birthplace data obtained from the 1969 census, it should be possible to obtain the intercensal migration rates by differencing the figures from the two censuses. Unfortunately in practice this exercise gives non-sensical results, for reasons which are not immediately apparent. A possible explanation may lie in the fact that in the 1969 census the data on birthplace were obtained by sampling which is not always an efficient method of collecting data on highly clustered

Unfortunately the annual migration rates implied by these figures clearly cannot always be accepted at their face value. Thus those for Nairobi give an apparent annual net gain of migrants which amounts to nearly 12%, which is more than twice the intercensal rate of growth.

Another way of eliminating the effect of internal migration is to make comparisons not by geographical areas, but by tribe, since persons will normally retain their tribal affiliation wherever they may be enumerated. The comparative figures for the principal tribes or tribal groups are shown in table 5.

Table 5      Inter-Censal Increases by Tribe, 1969-1979

<u>Tribe</u>	<u>Population 1969</u>	<u>Population 1979</u>	<u>Rate of Growth</u>
Kikuyu	2,201,632	3,202,821	3.82 <sup>T</sup>
Other Central Bantu	1,971,067	2,817,880	3.64
Luhya	1,453,302	2,119,708	3.85
Luo	1,521,595	2,015,513	2.85
Kalenjin	1,203,999	1,652,243	3.22
Kisii	701,679	944,087	3.01
Coastal Bantu	708,849	980,153	3.29
Non-Africans	207,516	157,637	-2.71
Others	986,862	1,437,019	3.83 <sup>*</sup>

The conspicuously lower rate of growth of the Luo, and, to a lesser extent, that of the Kisii are clearly apparent. We may also observe from this table that the non-African population of Kenya (Europeans, Asians and Arabs) experienced a net decline between the censuses, and if these figures are subtracted from the totals,

the discrepancy between the predicted and the enumerated African population is reduced to about 3.75%.

2. Errors in the estimated Fertility and Mortality Rates:

The estimated rate of growth of 3.9% per annum was based on an analysis of the 1977 National Demographic Survey (NDS). Since then new information on fertility and mortality has become available, both from the 1977-78 Kenya Fertility Survey (KFS) and from the 1979 Census itself. Furthermore, new techniques of analysis have been developed which have also caused the earlier estimates to be revised.

The data on infant and child mortality obtained from the 1979 census indicated rather higher rates than had previously been shown by the 1977 NDS. Questions asked of all adult women as to the numbers of children they had borne, how many were still living and how many had died, yielded proportion of children dying which were slightly higher than those derived from the NDS, though they agreed well with the KFS data for younger mothers.

From these and other data, model life tables for males and females have been constructed, which are shown in table 6. The techniques of analysis and the method of construction will be described in the Analytical Report on the Census at present in preparation. The mortality rates implied by these life tables may be taken as roughly representative of those prevalent during the decade between the 1969 and 1979 Censuses.

Table 6      Model Life Tables for Kenya Males and Females, 1969-1979

AGE	M A L E S			F E M A L E S		
	Life Table Survivors	Expectation of Life	Age Specific Mortality Rate	Life Table Survivors	Expectation of Life	Age Specific Mortality Rate
	1x	ex	(per 1000)	1x	ex	(per 1000)
0	1000	52.6		1000	55.4	
1	894	57.9	115	898	60.7	110
5	838	57.6	16	849	60.2	14
10	825	53.5	3	837	55.9	3
15	815	49.1	2	829	51.5	2
20	799	45.0	4	815	47.3	3
25	777	41.2	5	796	43.4	5
30	756	37.3	6	778	39.3	5
35	734	33.3	6	760	35.2	5
40	710	29.4	7	740	31.1	5
45	682	25.5	8	717	27.0	6
50	649	21.7	10	689	23.0	8
55	606	18.0	14	653	19.1	11
60	550	14.6	19	604	15.5	15
65	475	11.5	29	536	12.1	24
70	378	8.8	46	440	9.2	39
75	261	6.7	73	315	6.9	66
80	144	5.0	116	179	5.2	110
			198			190

The questions on fertility asked in the 1979 Census gave estimates of age specific and total fertility for the inter-censal decade shown in table 7. Once again the methods of estimation will be described in the Analytical Report. ✓

Table 7 Model Age Specific Fertility Rates for Kenya Women  
(Annual Births per 1000 women in each Age Group)

Age Group	Age Specific Fertility Rate
10-14	3
15-19	179
20-24	368
25-29	372
30-34	311
35-39	226
40-44	105
45-49	14
Total (x5)	7890

The total fertility rate (i.e. the average numbers of children borne alive by a woman who lives to the age of 50) of just under 8 births per woman may, for various reasons, be regarded as conservative. In the first place, the census tabulations showed appreciable numbers of women who had "not stated" as to the numbers of children they had borne; these women have been assumed to be childless, although in fact many of them may have borne children. Secondly, the average number of children actually borne by women aged 50 shown

by the 1977-78 KFS was 8.01, and the age - specific fertility rates derived from births occurring during the 12 months before the survey was 8.07. The 1977 NDS, when analysed in a similar way to that used for the 1979 census, gave a total fertility rate of 8.1.

When the age-specific rates shown in tables 6 and 7 above are applied to the age and sex distribution obtained from the 1979 Census\*, crude birth and death rates of 52 and 14 per thousand, respectively are obtained. Thus the rate of natural increase, which is the difference between the two, works out at 38 per thousand, or 3.8 per cent per annum. This figure is therefore only 0.1 per cent less than that previously derived from 1977 NDS.

### 3. Relative Coverage of 1969 and 1979 Censuses:

Most censuses in developing countries are more likely to err on the side of an undercount rather than overcount: omissions, either of whole households or of persons within households, can occur all too easily, whereas double counting, although not unknown, is relatively rare: large scale over-counting generally has only occurred where there have been political motives for inflating the population figures. Since no census is 100% accurate, it is probable that both the 1969 and the 1979 censuses may have missed appreciable numbers of persons. The 1969 census was followed by a sample post-enumeration survey which in fact did reveal clear evidence of undercounting in some areas, particularly Nairobi and Mombasa.

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\* The results vary according to whether the age distribution used for the calculations was that actually recorded by the census, or a smoothed and corrected distribution. The figures quoted are those based on the corrected distribution; the reported figures give a rather higher birth rate and a lower death rate.

In addition, appreciable numbers of records were known to have been lost, in one way or another, during the data processing. An attempt was therefore made to correct these errors by replicating a systematic sample of cards equivalent to the estimated undercount.

No similar post-enumeration check was carried out after the 1979 census\*. Thus no attempt has been made to correct the 1979 figures for under-enumeration in the way the 1969 figures were adjusted. The only other external check on the validity of the 1979 figures is the comparison of the numbers of persons in the census reported as currently attending school with the statistics provided by the school enrolment records. This comparison is shown in table 8.

Table 8 Comparison of Census Figures of Persons Attending Primary School with School Enrolment Records for 1979

<u>Province</u>	<u>Census</u>	<u>Enrolment</u>	<u>Percentage Discrepancy</u>
Nairobi	113,032	94,202	20.0
Central	656,331	663,015	-1.0
Coast	203,856	210,328	-3.1
Eastern	687,455	706,654	-2.7
North-Eastern	10,215	10,590	-3.5
Nyanza	771,449	767,249	+0.5
Rift Valley	703,700	706,262	-0.4
Western	513,754	539,946	-4.9
Total	3,659,782	3,698,246	-1.0

\* After the census the national sample frame was reconstructed and an enumeration carried out of the population in a probability sample of areas. An attempt has been made to compare the populations enumerated in these areas by this exercise with the figures obtained from the census, but the re-enumeration exercise was in many cases conducted too late after the census to enable the figures to be readily compared, and in many cases the boundaries of the areas could not be reconciled with those used in the census.

Except in the case of Nairobi\*, the agreement is encouragingly close. However, such a comparison raises the question of the accuracy not only of the census but also of the enrolment records. Furthermore, even if the latter are accepted as being correct, the agreement suggests only that the census was accurate for a very limited age group of the population, and only for persons with education. One might normally expect that the census would be less accurate in the less developed parts of the country where a smaller proportion would be attending school.

4. Emigration:

Apart from the decline in the non-African population noted above, the possibility that the shortfall in the census total may have been attributable, in part at least, to emigration can only be dismissed briefly for lack of statistical evidence. On a priori grounds however, such an explanation appears extremely unlikely. As has been shown in the opening section of this paper, we are looking primarily for an explanation for the low rate of growth of the Luo people of Nyanza Province. The only countries where these people could have gone are Uganda and Tanzania. No detailed results have yet been published from either the 1978 census of Tanzania or the 1980 census of Uganda, and until they are, we can do no more than speculate. Given the political and economic conditions prevailing in Uganda for most of the intercensal decade, it seems improbable, to say the least, that there can have been any large-scale movement of people from Kenya into Uganda during that time. Where Tanzania is

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\* It may be observed that the census was conducted during the school holidays; the discrepancy in the case of Nairobi may be attributed to a movement of school-children into Nairobi during this period.

concerned, the provisional figures from the 1978 census, when compared with those from the previous census of 1967, show an increase in the Mara region, which adjoins Nyanza, which is rather below the national average; furthermore the sex ratio (which is normally correlated with migration) for that region is one of the lowest in the country.

5. Comparisons by Inter-Censal Projection:

The simplest method to isolate the discrepancies between the population enumerated in 1979 and those implied by the fertility and mortality estimates, is to project the population enumerated in 1969 to 1979 by sex and age. On the basis of our estimated mortality rates we can calculate how many of the 1969 population should still be alive, aged 10 and over in 1979; given the fertility rates we can also calculate how many babies should have been born between the censuses and how many would still be alive in 1979.

The projected population aged 10 and over will thus be determined entirely by the assumed mortality rates; the projected population under 10 on the other hand, will be determined primarily by the assumed levels of fertility and, to a lesser extent by the estimates of infant and child mortality.

This exercise has been carried out twice, using first the enumerated and second the graduated age distribution from the 1969 census; in fact, as is seen in table 9 below, it made very little difference which age distribution was used.

Table 9: Comparison of Projected and Enumerated African Population by Sex and Age Group (Figures in Thousands)

SEX/AGE GROUP	PROJECTED FROM 1969		ENUMERATED 1979	PERCENTAGE DISCREPANCY	
	Graduated Age Distribution	Enumerated Age Distribution		Graduated	Enumerated
<b>MALES</b>					
0 - 9	3,024	2,989	2,653	-12.3	-11.2
10+	4,930	4,886	4,858	- 1.5	- 0.6
Total	7,954	7,875	7,511	- 5.6	- 4.6
<b>FEMALES</b>					
0 - 9	2,957	2,923	2,650	-10.4	- 9.3
10+	4,945	4,945	4,979	+ 0.7	+ 0.7
Total	7,902	7,868	7,629	- 3.4	- 3.0

The fertility and mortality rates were those shown in tables 6 and 7. It will be seen that for the population aged 10 and over there is close agreement between the projected and the enumerated figures for both sexes. On the other hand the projected numbers of children under 10 years of age exceed the enumerated figures by some 11 or 12 per cent. These results were to some extent unexpected, since it had been felt that the weakest element in the estimated vital rates were those of adult mortality, while the fertility and child mortality estimates had been on fairly firm ground. We are therefore forced to the conclusion that the principal source of our discrepancy must have been either a gross over-estimate of fertility or a serious under-enumeration of children in the 1979 census.

The projection exercise described above has been repeated for each province. Some summary indices of fertility and mortality for each province obtained from the 1979 census are shown in Table 10.

Table 10

Indices of Fertility and Mortality by Province

Province	Total Fertility Rate	Percentage of Children Dying in the first two years		Expectation of Life at Birth	
		Males	Females	Males	Females
Nairobi	5.48	9.5	8.3	55.6	61.6
Central	8.61	7.8	6.9	58.1	63.6
Coast	7.08	18.0	16.7	47.9	49.9
Eastern	8.37	11.3	10.4	54.6	57.0
North-Eastern	7.37	13.4	13.7	49.5	49.5
Nyanza	8.67	19.2	17.7	45.6	49.1
Rift Valley	8.42	11.9	10.7	53.9	57.3
Western	9.00	16.8	14.8	50.6	53.6

The pattern of regional differentials in fertility and mortality indicated by these figures, is one which had already become apparent from earlier censuses and surveys: fertility is lowest in Nairobi and Coast Province and highest in Nyanza and Western; mortality is lowest in Central Province and highest in Nyanza. Thus the low rate of growth in Nyanza might to some extent be attributed to the high infant and child mortality, but this tends to be offset by relatively high fertility.

The provisional projections differed from the national ones shown in Table 9, not only in that their fertility and mortality rates were derived from a different source, but also in that the non-African population was included in the base figures. This was done because the non-African population in 1969 was not tabulated by age at province level. No attempt has been made to graduate the 1969 provincial age distribution, and it must be emphasised that the projections are based solely on fertility and mortality, and no

allowance was made for migration. The results are shown in Table 11.

Table 11 Comparison of Projected and Enumerated Populations by Province (Thousands)

Province/Age Group	Projected From 1969	Enumerated in 1979	Percentage Discrepancy
Nairobi	0-9	215	-1
	10+	476	+29
Central	0-9	988	+14
	10+	1,545	-3
Coast	0-9	472	-7
	10+	850	+6
Eastern	0-9	1,135	-15
	10+	1,742	+1
North-Eastern	0-9	124	-5
	10+	222	+15
Nyanza	0-9	1,243	-26
	10+	1,912	-10
Rift Valley	0-9	1,335	-13
	10+	1,846	+13
Western	0-9	805	-17
	10+	1,214	-4

For every province, the projected numbers of children under 10 exceeded the enumerated, even including Nairobi, where the numbers must have been swelled appreciably by in-migration. For persons aged 10 and over, the discrepancy between the enumerated and projected figure is generally in the direction indicated by the migration figures, the only exceptions being Eastern, where the discrepancy is very small, and North-Eastern, where, as we have seen the comparison, are vitiated by differential coverage. In Nyanza the shortfall of the enumerated children under 10 on the projected is much larger than in other provinces, being of the order of 26%; also for persons aged 10 and over the proportionate discrepancy is approximately twice as large as that for Western Province, although the migration data suggested that the loss of migrants from Nyanza was no greater than that from Western. It remains therefore to be decided whether the discrepancy between the projected and enumerated numbers of children under 10 should be attributed primarily to lower fertility than has been assumed in the projection or to an under-enumeration of children in the 1979 census.

The evidence that fertility in Kenya is high is clear and unequivocal: the 1977 National Demographic Survey, the 1977-78 Kenya Fertility Survey, and now the 1979 census have all shown that the total fertility rate is of the order of eight births per woman. As has been stated above, the fertility rates used for the projections should, if anything be regarded as conservative.

Now the discrepancy between the projected and enumerated numbers of children under 10 was not evenly distributed throughout the 0-9 age group: for children aged 5-9 the discrepancy is approximately

7% while for those aged 0-4 it is up to 18%. If these figures are taken at their face value, they would imply that for the period 1974-79 fertility had fallen to such an extent that the total fertility rate would have been about 6.5. The Kenya Fertility Survey produced no evidence whatever of such a fall, either from the statistics of births, or from the data on the use of contraception.

The survey report concluded: "In spite of a national policy to promote family planning, there is at present little contraceptive practice in Kenya. The 1978 user rate estimated by the MCH/FP programme within the Ministry of Health was 7% for every-married women using these facilities. Within the KFS sample the overall current user rate for currently married women capable of having more children was 9%, and over three-quarters of the "exposed" women who stated they desired no more children are not currently using any method ..... although the current user rate would double if all the women who stated they wished to stop child-bearing were to become current users, the rate would still be too low to effect any significant change in fertility levels".

On the other hand under-enumeration of young children is a feature common to the censuses of most developing countries. It has long been recognised as a serious defect in the censuses of the countries of the Indian sub-continent, but in most African censuses it has been less obvious, perhaps because the more conspicuous effects have tended to be masked by the higher fertility and child mortality. Where Kenya is concerned, further indications on this point are again suggested by the age data obtained from the Kenya Fertility Survey, where, the quality of the field work was appreciably better than could normally be expected

in any population census. It will be seen from Table 12, that the KFS age distribution showed a lower proportion of adults and a higher proportion of children than was obtained from the 1979 census.

Table 12 Comparative Age Distributions from Kenya Fertility Survey (1977-78) and 1979 Census

AGE GROUP	Percentage			
	MALES		FEMALES	
	KFS	CENSUS	KFS	CENSUS
0-9	37.9	35.3	37.0	34.7
10+	62.1	64.7	63.0	65.3
Total	100.0	100.0	100.0	100.0
Ratio 0-9:10+	0.61:1	0.55:1	0.59:1	0.53:1

If it is assumed that the population aged 10 and over was correctly enumerated in both operations, the ratio of children to adults shown by the KFS would imply that the children in the census had been under-enumerated by approximately 11% which agrees well with the discrepancy between the projections and the enumerated population.

If then as now seems likely, there was an under-enumeration of young children in the 1979 Kenya Census, is it not likely that there was a similar under-enumeration in the 1969 and 1962 censuses? In order to investigate this possibility, we undertook the following exercise. The population in 1979 aged 10 and over was first graduated, and then projected back to 1969 on the basis of the estimated mortality rates. The population thus reconstructed for 1969 was then compared, by sex and age group, with that enumerated in that year. The results showed a good, overall agreement with a discrepancy of some 1½% only, most of which could be explained by the

changes in the non-African population. The numbers of children under 5, on the other hand, showed a much larger proportionate discrepancy, the enumerated figure being at least 15% less than reconstructed by the back projection. It is therefore tempting to suggest that the good overall agreement was secured because the under-enumeration of young children in 1969 had been compensated by the replication exercise which had inflated the population figures at all ages. It should be observed however, that the results of this operation are sensitive to the graduation of the 1979 age distribution: several different techniques of graduation might be adopted, each of which would give different results and lead to different conclusions. An attempt to extend the back projection to 1962 was less successful, and failed to secure good overall agreement. This stage of the exercise was fraught with various difficulties, not least among which was the uncertainty as to the appropriate levels of mortality to be used for this period, and the fact that the 1962 age data were obtained, not from the census proper, but from a sample post-enumeration survey conducted after the main count. Nevertheless there still remains a strong impression that the proportions of children shown by the 1962 census and post-enumeration survey were substantially smaller than would normally be expected given the level of fertility now thought to have been prevalent at that time.

6. Summary and Conclusions:

Although the total population shown by the 1979 Kenya Census constituted an increase of over 40% on that given by the 1969 census, the rate of population growth so obtained appeared to be somewhat

less than had been estimated from the 1977 National Demographic Survey. The census total thus fell short of the estimate by approximately 5%. When allowance is made for the decline in the non-African population, this discrepancy is reduced to less than 4%. Comparison by age and sex of the population enumerated in 1979 with that projected from 1969, reveals that the bulk of the discrepancy was to be found in the children under 10 years of age. It is thought that both the 1969 and the 1979 censuses constituted undercounts, and were particularly subject to the omission of young children. With the 1969 census, an attempt was made to correct these omissions by replicating a sample of cards during the processing of the data; in the 1979 census however, no such correction was made. It is also thought that the under-enumeration in 1979 was particularly serious in Nyanza Province, where the increase on the 1969 figure was appreciably less than in other parts of the country, and the differences cannot be explained in terms of differentials in fertility, mortality or migration; nor is there any evidence for an over-count in 1969, which in turn had shown an increase on the 1962 census which was generally <sup>commensurate</sup> with that of the country as a whole. Thus some rough calculations suggest that a total of some 300,000 persons may have been missed by the Census in Nyanza, of whom some two-thirds were children under 10. In the rest of the country a further 450,000 children may have been omitted. Thus the true population of Kenya in August 1979 is unlikely to have been less than 16 millions.

The alternative explanation that the deficit of children could be attributed to a sudden and dramatic decline in the birth rate during the intercensal decade is rejected as being contrary to all the other evidence derived both from the 1979 census and from the 1977-78

Fertility Survey. Although the true rate of growth between 1969 and 1979 may have been marginally less than the 3.9% per annum previously estimated, if mortality has continued to decline as it has undoubtedly done in the past, Kenya's rate of population growth will, in the absence of any compensating decline in fertility, now be of the order of 4 per cent per annum.