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# COUNTRY DEMOGRAPHIC PROFILES

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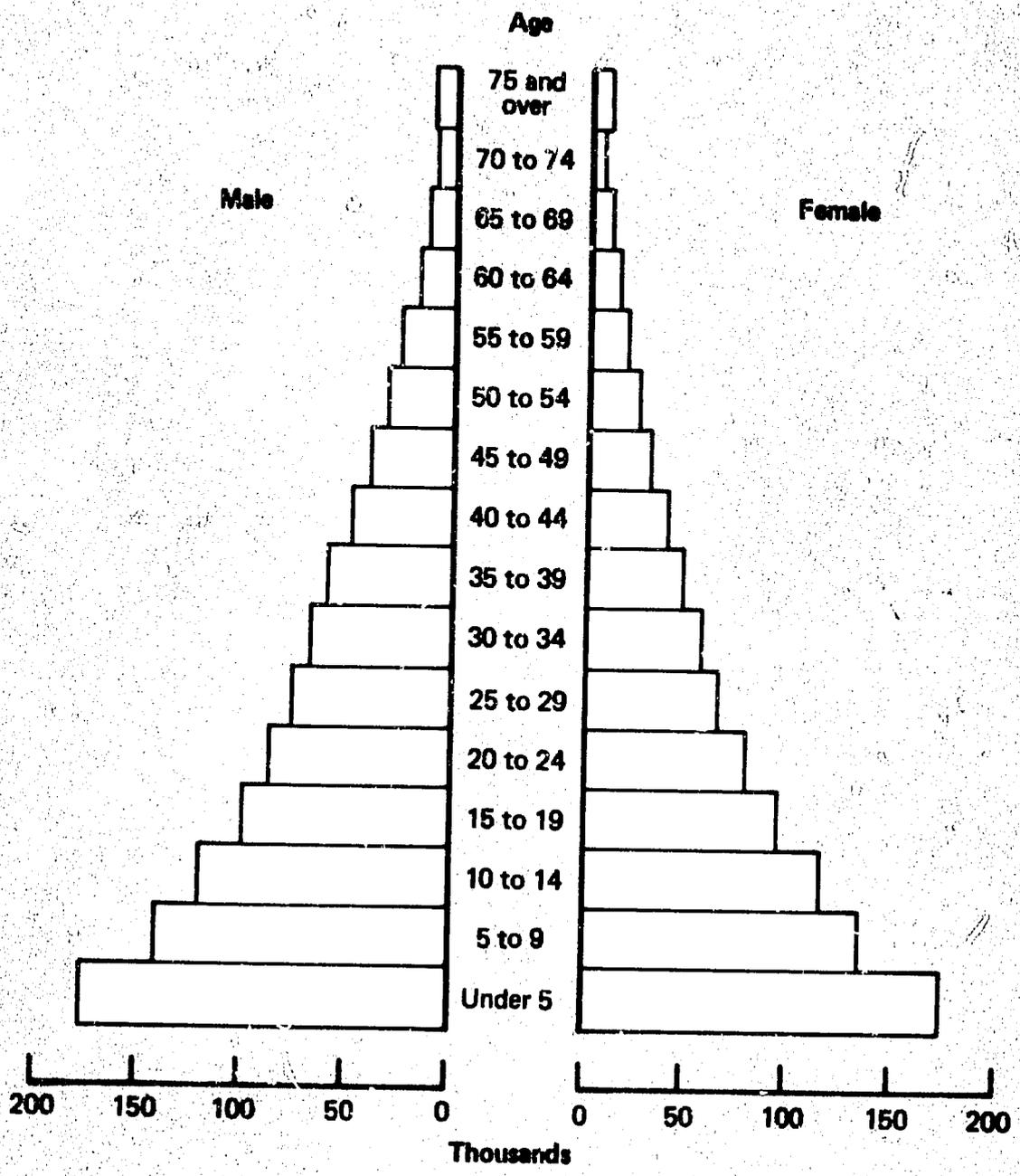
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ISP-DP-28  
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**Figure 1. Projected Population, by Age and Sex: July 1, 1981**



Projection based on Liberia's 1974 census of population, as adjusted by the U.S. Bureau of the Census. See appendix table A-1, this report.

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by Paul R. Campbell



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Country Demographic Profiles is a series of reports which brings together a variety of demographic data for selected countries of the world, and usually includes data for both a recent census year and the current period. The reports are prepared in the Data Evaluation Branch, International Demographic Data Center, Bureau of the Census.

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Users of this report are invited to send their comments to the Chief, International Demographic Data Center, Bureau of the Census, Washington, D.C. 20233.

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## Contents

	Page
Map .....	V
Introduction .....	1
Sources and quality of data .....	1
Demographic dimensions .....	2

### DETAILED TABLES

Table

1. Estimates and projections of midyear population and period growth rates: 1950 to 1981 .....	4
2. Reported and adjusted census population, by age and sex: February 1974 .....	5
3. Estimated vital rates: 1974 .....	6
4. Estimated infant mortality rate and life expectancy at birth, by sex: 1970-71 .....	6
5. Estimated life table values, by sex: 1970-71 .....	7
6. Estimated and projected number of women of childbearing age: 1974 to 1990 .....	8
7. Estimated age-specific fertility rates and selected derived measures: 1970-71 .....	9
8. Women ages 15 to 49 years, by number of children ever born, average number of children ever born, and average number of children surviving: 1970-71 and 1974 .....	10
9. Distribution of births, by order of birth: 1970-71 .....	11
10. Population ages 10 years and over, by marital status, age, and sex: 1962 and 1974 .....	12
11. Legal age at marriage and ages at which specified percents of the population are ever married, by sex: 1962 and 1974 .....	13
12. Population ages 10 years and over, by literacy, age, and sex: 1962 and 1974 .....	14
13. Population ages 5 to 19 years enrolled in school, by age and sex: 1962 and 1974 .....	14
14. Population ages 15 years and over, who have completed school, by level, age, and sex: 1962 and 1974 .....	15
15. Economically active population, by age and sex: 1974 .....	16
16. Distribution of labor force, by sex and industry: 1974 .....	17
17. Distribution of labor force, by sex and occupation: 1974 .....	17
18. Agricultural and nonagricultural workers, by status and sex: 1974 .....	18
19. Distribution of households and of population, by size of household: 1962 and 1974 .....	19
20. Urban and rural population, by age and sex: 1974 .....	20
21. Population, by urban and rural residence and size of urban locality: 1974 .....	21
22. Population of urban centers with 5,000 or more inhabitants in 1974, by sex: 1962 and 1974 .....	22
23. County and territory population, and growth rates: selected year or period, 1962 to 1974 .....	23
24. Foreign-born population, by country of birth: 1962 and 1974 .....	24
25. Estimated net international migration, by age and sex: 1970-71 .....	24

## APPENDIX

	Page
Technical notes . . . . .	25

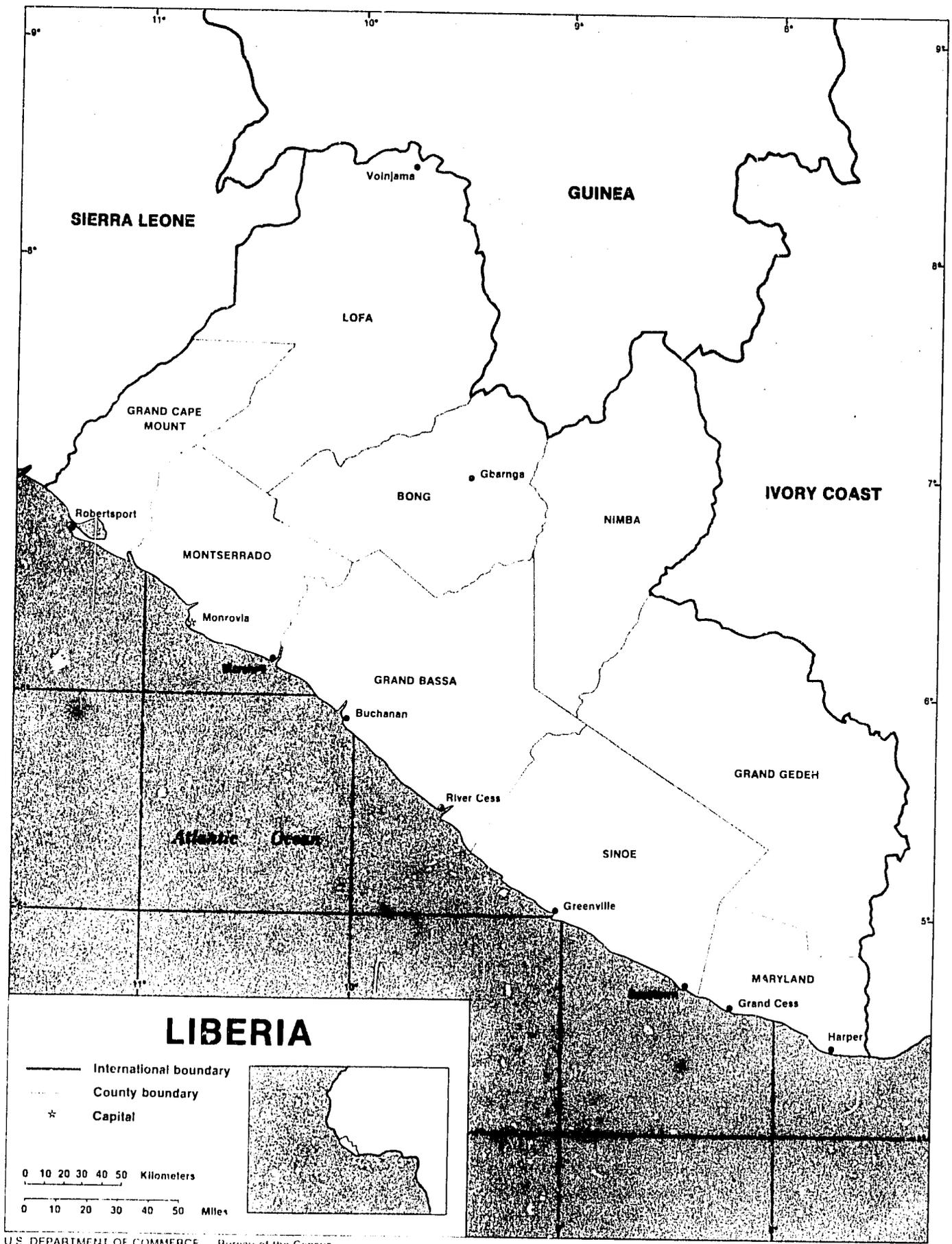
### APPENDIX TABLES

Table

A-1. Projected midyear population, by age and sex: 1981 . . . . .	30
A-2. Official estimates of the percentage completeness of enumerated census population based on Post Enumeration Survey, by age and sex: February 1974 . . . . .	31
A-3. Enumerated census population, by age and sex: April 1962 . . . . .	32
A-4. Projected measures of population change: 1981 . . . . .	33
A-5. Alternate estimates of vital rates: 1970, 1971, and 1978 . . . . .	34
A-6. Alternate estimates of total and age-specific fertility rates: selected periods, 1970 to 1978 . . . . .	35
A-7. Survey estimates of infant mortality rate and life expectancy at birth, by sex: 1970, 1971, and 1978 . . . . .	36
A-8. Estimates of infant mortality rates derived by indirect mortality techniques using 1970-71 Population Growth Survey and 1974 census data: selected periods, 1952 to 1974 . . . . .	37
A-9. Alternate estimate of life table values for both sexes: 1978 . . . . .	38
A-10. Population age 10 years and over, by marital status, age and sex: 1971 . . . . .	39
A-11. Economically active population, by age and sex: 1962 . . . . .	40
A-12. Distribution of labor force, by sex and industry: 1962 . . . . .	40
A-13. Distribution of labor force, by sex and occupation: 1962 . . . . .	41
A-14. Agricultural and nonagricultural workers, by status and sex: 1962 . . . . .	42
A-15. Population, by size of locality: 1962 and 1974 . . . . .	43
A-16. County, province, and territory population and population born outside area: 1962 . . . . .	44
A-17. Estimated net international migration, by age and sex: 1974 . . . . .	44
Glossary . . . . .	45
Major sources . . . . .	48

#### Symbols used in tables

- Represents zero.
- Hyphen vs. "to" dates.  
 "—" in dates (e.g., 1962-74) indicates data shown refer to an average for the period.  
 "to" in dates (e.g., 1950 to 1980) indicates data are shown for intermediate years or periods.
- NA Data not available.
- X Not applicable.
- Z Value is less than one-half of the smallest unit shown in a given category.



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# Liberia

## INTRODUCTION

This profile of the population of Liberia contains tables of selected demographic information, including size of population, and estimates of fertility and mortality. Specifically, annual estimates of total population are shown beginning in 1950. An adjusted distribution of the population, by age and sex, is given for the census year 1974, as well as for 1981.

Fertility measures shown in the profile include crude birth rates, age-specific fertility rates, and gross and net reproduction rates. Mortality is shown in terms of crude death rates, life expectancies at birth, infant mortality rates, and other life table functions, by age and sex.

Also presented is summary information on urban population, marital status, and some data from which past migration can be inferred. Other related items are included such as number and size of households; school enrollment; and labor force by industry, occupation, and status.

## SOURCES AND QUALITY OF DATA

Data for the Liberia profile were obtained primarily from the April 2, 1962, and February 1, 1974, population censuses, and the 1970 and 1971 Population Growth Surveys. Preliminary estimates from the 1978 National Demographic Survey are also reported.

The first census ever administered in Liberia, the 1962 de jure census, collected the following information: age, sex, relationship, marital status, place of birth, citizenship, level of education, usual occupation, industry, and work status. In addition to these data, the 1974 de jure census collected information on length of residence, children ever born, children surviving, and births in the last 12 months. The 1974 census also included an extended 20-percent schedule that collected information on housing units construction characteristics and ownership, as well as, household data on availability of utilities and radios, the number of deaths during the past year, and monthly income of the head of the household.

A Post Enumeration Survey (PES) was conducted in August 1962 to measure coverage errors in the census. The Liberia Office of National Planning (1965) reported that the net error in the 1962 census was "relatively insignificant (less than 5 percent)". Considering the level of adjustment in the 1974 census, estimated fertility and mortality levels, and assumed migration trends in the past, it is likely that the level of underenumeration in the 1962 census was in fact higher than the level indicated by the PES.

Within a month after the 1974 census enumeration was completed, a PES was conducted. By matching the de jure population of the 1974 census and PES, the reported census population was adjusted for 11-percent underenumeration at the Liberia Ministry of Planning and Economic Affairs (1977). Further evaluation of the 1974 census results at the U.S. Bureau of the Census implied a total net underenumeration of 14 percent for the 1974 census (see the section on census evaluation in the Technical Notes for further details and table 2 for the adjusted census population).

The first national population sample surveys, the 1970 and 1971 Population Growth Surveys (PGS), were conducted from May 1969 to April 1970 and from May 1970 to April 1971, respectively. The sample population included 70,000 persons, or about 5 percent of the total estimated population. The enumeration procedures, sampling frame, and questionnaires were quite similar in both rounds of the PGS. The sample population was enumerated through independent monthly and semi-annual interviews of the same households.

The surveys were designed to provide direct and indirect estimates of vital rates using several techniques. As such, the surveys collected data on age, sex, marital status, births and deaths for the 12-month period of the survey, children ever born, children surviving, and infant deaths to recent births. The PGS also collected data on labor force status, educational status, tribal affiliation, and prevalence of physical impairments. The dual record system of the PGS enabled the Ministry of Planning and Economic Affairs to adjust the data on births, deaths, and infant deaths by application of the Chandrasekaran-Deming (CD) technique. Only the adjusted vital events data are available from the 1970 and 1971 PGS.

A National Demographic Survey (NDS) was taken in 1978 and 1979. The first round of the survey was conducted between July and August 1978 for the entire country with the exception of Greater Monrovia where the field work was completed in November 1978. The survey sample consisted of 17,000 households, or 5 to 6 percent of the total population. A "stratified unistage sampling design" was used, where the entire country was divided into three sub-universes, Greater Monrovia, rest of urban areas, and rural areas, based on the 1974 census data (Liberia Ministry of Planning and Economic Affairs, 1979). Only preliminary data are available from the first round of the NDS. Although a second round of the survey was conducted in 1979, data are not yet available.

Population data shown in tables 1, 2, appendix table A-1, and the Technical Notes are based on the 1974 census population as adjusted by the U.S. Bureau of the Census. Other

1974 population figures in the profile use data as reported in the given sources. These data were adjusted for 11-percent net underenumeration in the 1974 census at the Liberia Ministry of Planning and Economic Affairs (1977, p. 18).

The user should recognize that in many instances, although the estimates are the best that can be prepared on the basis of available information, they are only tentative and new observations may well lead to different conclusions. The user is urged to consider all data in the context of the source notes which describe how the figures were derived. Complete documentation, including worksheets and other notes on all sources considered, is maintained in the International Demographic Data Center. The user who has special interest in the data is invited to correspond with the International Demographic Data Center for further details as well as to offer comments.

## DEMOGRAPHIC DIMENSIONS

### Population Size and Structure

The population of Liberia has more than doubled during the past 30 years, from an estimated 824 thousand persons in midyear 1950 to a projected 2.0 million persons in midyear 1981. While during the first quinquennium of this period (1950-55) 104 thousand inhabitants were added to the total population, an estimated 285 thousand persons were added during 1976-81.

Due to relatively constant fertility in the past and declining mortality, the population growth rate increased during every 5-year period from 1950 to 1980. Current projections imply an average annual growth rate of 3.2 percent for 1981, which is slightly higher than the 1974 estimated rate (3.0 percent).

The population of Liberia is characterized by a young age distribution as a consequence of high fertility and declining mortality in the past. In 1974, the youth population (under 15 years of age) was estimated at 687 thousand persons or 44 percent of the total population. Although the projected youth population by 1981 still represents 44 percent of the total population, they number 861 thousand persons.

Considerable momentum for further population growth is built into Liberia's age-sex structure. Women of childbearing age are projected to increase from an estimated 353 thousand in 1974 to a projected 577 thousand in 1990 (see table 6). Such a large increase in the childbearing segment of the population will contribute to rapid population growth, even if a substantial reduction in fertility were to occur.

### Mortality

Mortality levels in Liberia are high, but are suspected to have declined during the past decades. Based on data from the 1970-71 Population Growth Survey (PGS), life expectancies at birth were estimated by the U.S. Bureau of the Census at 46 and 49 years for males and females, respectively. Infant mortality rates based on the 1970-71 PGS

were estimated at 174 and 156 per 1,000 births for males and females, respectively. Only preliminary data for both sexes are available from the 1978 National Demographic Survey (NDS) and the quality of the survey can not be evaluated. The infant mortality rate (IMR) of 144 per 1,000 births from the NDS was close to the projected estimate obtained for 1978 in this profile, however the life expectancy at birth of 44 years from the NDS seems too low when compared with the 1970-71 PGS.

### Fertility

Available fertility data from the 1970-71 and 1978 surveys and the 1974 census (particularly, data on the number of births occurring in the last 12 months) were judged to be underreported. A total fertility rate (TFR) of 6.0 children per woman from the 1970-71 PGS was estimated using data adjusted by the Chandrasekaran-Deming technique at the Liberia Ministry of Planning and Economic Affairs (see appendix table A-6). A 1970-71 TFR of 6.4 children per woman was estimated at the U.S. Bureau of the Census using the Brass fertility technique. The Liberia Ministry of Planning and Economic Affairs (1977) reported a TFR of 2.8 children per woman from the 1974 census based on births in the last 12 months. The preliminary 1978 NDS estimates result in a TFR of 3.0 children per woman. Both of the latter TFR estimates are considered to be greatly underestimated.

In the past, marriage in Liberia occurred at a very young age, however, there are indications from the 1974 census that women tended to delay marriage to a later age than was found in the 1962 census (see table 10). If these changes in marital status continue, they may have a significant impact upon future trends in fertility. Based on 1974 census data the median age at marriage was estimated at 18 years for females and 26 years for males, while the median age at marriage was a year younger for each sex in the previous census. About 42 percent of the females ages 15 to 19 years were reported as ever-married in 1974, whereas the corresponding figure in 1962 was 56 percent.

A family planning program has existed since 1956. However, substantial increases in the total number of acceptors of family planning did not occur until the Proclamation of the President issued in 1972 incorporated family planning into Liberia's health programs. Today the program is multi-dimensional, involving community participation in an integrated maternal-child health and family planning service delivery system. The program appeared to be gaining some momentum during the 1970's. Available data from the Family Planning Association of Liberia indicates that in the early 1970's most acceptors used oral contraceptives and IUD's. More recently, there have been increases in the proportion of acceptors of condoms and other methods including injectables.

### International Migration

Three and four percent of the 1962 and 1974 total enumerated census population, respectively, were foreign born.

The past decade has witnessed a substantial amount of gross population movement between Liberia and other countries (principally within West Africa). Data from the 1970 and 1971 Population Growth Survey (PGS) indicates that there has been international migration between Liberia and Guinea, Sierra Leone, Ghana, and the Ivory Coast, resulting in a net gain in population for Liberia (see table 25).

The net exchange of persons is suspected to have increased the proportion of males 15 to 49 years old. Almost half of the foreign-born population enumerated in the 1974 census (46 percent) consisted of males 15 to 54 years old (Liberia Ministry of Planning and Economic Affairs, 1977, table 4). In the 1970-71 PGS it was found that most of the immigrants were males. Based on an analysis of international and internal migration data from the PGS one of the major reasons given for migrating was related to job opportunities.

### Urbanization and Regional Growth

Like many developing countries, Liberia has experienced a considerable growth of its urban population due both to natural increase and a high rate of rural to urban migration. Almost one-third (29 percent) of the 1974 population lived in urban areas. The urban population more than doubled from 201 thousand in 1962 to 438 thousand persons in 1974, while the rural population grew from 816 thousand in 1962 to 1,065 thousand persons in 1974, an increase of 31 percent.

Liberia has only one urban center, Monrovia, the capital, with more than 100,000 inhabitants. Monrovia Proper had a population of 167 thousand in 1974 (the greater Monrovia area had 201 thousand inhabitants in 1974 comparable with 84 thousand in 1962, see table 22). Besides Monrovia Proper, there were two urban centers in 1974 with more than 20,000 persons.

There was a great deal of variation in the growth rate among Liberia's nine counties during the 1962-74 intercensal period. Montserrado (containing the capital city of Monrovia) and Grand Cape Mount counties in the northwestern section of Liberia grew the fastest at average annual growth rates of about 5 percent. Grand Bassa in the southwest, and Maryland in the southeast grew the slowest at average annual growth rates of 2 percent or less (see table 23). While changes in county boundaries may have had some impact on the differences in county population between the 1962 and 1974 censuses, migration contributed greatly to annual rates of growth for Montserrado, where in both 1962 and 1974 more than half of the population were found to have been born outside of Montserrado county.

### Socioeconomic Characteristics

The level of literacy in Liberia is low, particularly among women. In 1974, only 30 percent of the men and 12 percent of the women ages 10 years and over were able to read and write English. Nevertheless, there was improvement during the 1962-74 intercensal period—literacy rates for both sexes almost doubled in all age groups.

Comparison of 1962 and 1974 census data indicates that there have been slight increases in the rate of school enrollment and completed school level. In 1974, about 26 percent of the population ages 5 to 19 years, was enrolled in school as compared to 22 percent in 1962. About 10 percent of the population 15 years of age and over, had completed primary school (grades one through eight) in 1974 as compared with only 4 percent in 1962.

The proportion of population enrolled in school is significantly lower for females than for males in all age groups. In the 1974 census, 32 and 19 percent of the males and females, respectively, ages 5 to 19 were enrolled in school. The differential between the sexes in the proportions enrolled in school is smallest among the youngest age group. In 1974 the differential for ages 10 to 14 years was less than half the differential for ages 15 to 19 years. Similarly, the proportion of persons 15 and over completing some school was almost three times greater for males, than females.

### Economic Activity in Liberia

Based on data from the 1974 census, 60 percent of the male population and 22 percent of the females were reported as economically active. Comparison of the 1962 and 1974 census data on economic activity revealed that there was a decline in the percent of the total population economically active for both sexes. However, it is suspected that much of this decline may be a statistical artifact rather than reflecting actual change in the level of participation in economic activity (see table 15 for further discussion).

The vast majority of the population is employed in agriculture. In 1974, 71 percent of the female and 89 percent of the male workers were reported employed in agriculture.

In 1974, workers on own account comprised 70 percent of the male agricultural workers, while 52 percent of the female agricultural workers were workers on own account and 46 percent were unpaid family workers. Men are dominant in the labor force in Liberia. In 1974, two out of every three agricultural workers and nine out of ten non-agricultural workers were men.

**Table 1. Estimates and Projections of Midyear Population and Period Growth Rates: 1950 to 1981**

(Numbers in thousands. Growth rates, in percent, are from midyear to midyear)

Year or period	Number or percent	Year or period	Number or percent	Year or period	Number or percent
POPULATION		POPULATION--Con.		POPULATION--Con.	
Estimates		Estimates--Con.		Projections--Con.	
1950.....	824	1965.....	1,209	1976.....	1,675
1951.....	843	1966.....	1,243	1977.....	1,728
1952.....	863	1967.....	1,279	1978.....	1,782
1953.....	884	1968.....	1,317	1979.....	1,839
1954.....	906	1969.....	1,356	1980.....	1,898
1955.....	928			1981.....	1,960
1956.....	952	1970.....	1,397	AVERAGE ANNUAL GROWTH RATE <sup>1</sup>	
1957.....	976	1971.....	1,439	1950-55.....	2.4
1958.....	1,001	1972.....	1,483	1955-60.....	2.6
1959.....	1,028	1973.....	1,528	1960-65.....	2.7
1960.....	1,055	Projections		1965-70.....	2.9
1961.....	1,083	1974.....	1,575	1970-75.....	3.0
1962.....	1,113	1975.....	1,624	1975-80.....	3.1
1963.....	1,144			1980-81.....	3.2
1964.....	1,175				

<sup>1</sup>The average annual rate of growth,  $r$ , is computed by the exponential formula,

$$r = \frac{1}{n} \ln \frac{p^{t+n}}{p^t}$$

where  $\ln$  indicates the natural logarithm,  $p^{t+n}$  = the population at the end of the period,  $p^t$  = the population at the beginning of the period, and  $n$  = time (number of years in the period).

Source: the 1950 to 1973 estimates are based on the 1974 census adjusted at the U.S. Bureau of the Census for net underenumeration of 14 percent and estimated fertility, mortality, and migration trends for the period (see the Technical Notes in the appendix for details on the adjustment of the census).

The 1974 to 1981 population figures were projected by the component method. The base of the projections was the 1974 adjusted census population, by age and sex, moved to midyear. Fertility, mortality, and migration assumptions for this projection are discussed in the Technical Notes and presented in appendix table A-4.

**Table 2. Reported and Adjusted Census Population, by Age and Sex: February 1974**

(Numbers in thousands. Figures may not add to totals due to rounding)

Age	Reported population <sup>1</sup>			Adjusted population		
	Both sexes	Male	Female	Both sexes	Male	Female
<b>POPULATION</b>						
All ages.....	1,503.4	759.1	744.3	1,556	787	769
0 to 4 years.....	227.7	115.3	112.5	274	138	136
5 to 9 years.....	223.9	114.6	109.3	222	112	111
10 to 14 years.....	163.3	87.5	75.8	182	91	91
15 to 19 years.....	159.0	75.6	83.5	154	77	77
20 to 24 years.....	121.5	54.5	67.0	133	67	66
25 to 29 years.....	120.7	53.7	66.9	116	59	56
30 to 34 years.....	104.7	47.1	57.6	100	52	48
35 to 39 years.....	93.3	47.3	45.9	85	45	40
40 to 44 years.....	67.0	36.1	30.9	71	37	34
45 to 49 years.....	57.0	31.7	25.3	58	30	28
50 to 54 years.....	46.2	26.1	20.1	46	23	23
55 to 59 years.....	29.5	17.8	11.7	36	18	18
60 to 64 years.....	33.8	19.1	14.7	27	13	14
65 to 69 years.....	21.1	12.1	9.0	21	10	11
70 to 74 years.....	14.4	8.9	5.5	15	7	8
75 years and over.....	20.1	11.8	8.3	17	8	10
<b>PERCENT</b>						
All ages.....	100.0	100.0	100.0	100.0	100.0	100.0
0 to 4 years.....	15.1	15.2	15.1	17.6	17.5	17.7
5 to 9 years.....	14.9	15.1	14.7	14.3	14.2	14.4
10 to 14 years.....	10.9	11.5	10.2	11.7	11.6	11.8
15 to 19 years.....	10.6	10.0	11.2	9.9	9.8	10.0
20 to 24 years.....	8.1	7.2	9.0	8.5	8.5	8.5
25 to 29 years.....	8.0	7.1	9.0	7.4	7.6	7.3
30 to 34 years.....	7.0	6.2	7.7	6.4	6.6	6.2
35 to 39 years.....	6.2	6.2	6.2	5.5	5.7	5.2
40 to 44 years.....	4.5	4.8	4.1	4.6	4.7	4.4
45 to 49 years.....	3.8	4.2	3.4	3.7	3.8	3.6
50 to 54 years.....	3.1	3.4	2.7	3.0	3.0	2.9
55 to 59 years.....	2.0	2.3	1.6	2.3	2.2	2.3
60 to 64 years.....	2.3	2.5	2.0	1.7	1.7	1.8
65 to 69 years.....	1.4	1.6	1.2	1.3	1.2	1.4
70 to 74 years.....	1.0	1.2	0.7	1.0	0.9	1.1
75 years and over.....	1.3	1.6	1.1	1.1	1.0	1.2

<sup>1</sup>Census population officially adjusted by 11 percent based on the Post Enumeration Survey (PES). Estimated percentage coverage, by age and sex, based on the PES are shown in appendix table A-2. The unadjusted census population is not available.

Source: Reported census population - Liberia Ministry of Planning and Economic Affairs, 1977, table 4.

Adjusted population - U.S. Bureau of the Census. For description of the adjustment by the U.S. Bureau of the Census (for 14 percent net underenumeration), see the census evaluation section of the Technical Notes.

**Table 3. Estimated Vital Rates: 1974**

Year	Births per 1,000 population	Deaths per 1,000 population	Rate of natural increase (percent)	Growth rate (percent)
1974.....	46	17	2.8	3.0

Note: For projected vital rates, see appendix table A-4; and for alternate estimates, see appendix table A-5.

Source: The crude birth rate was estimated at the U.S. Bureau of the Census using 1974 age-specific fertility rates and the midyear population, by age and sex, based on the 1974 adjusted census population. The 1974 age-specific fertility rates were derived based on the assumption that the 1970-71 fertility rates (see table 7) remained constant to 1974.

The 1974 crude death rate was based on the midyear population and age-sex-specific death rates from 1974 life tables estimated at the U.S. Bureau of the Census. Life tables, by age and sex, for 1974 were derived using the estimated 1970-71 life tables (see table 5) and assumed trends in mortality during the period. This death rate is consistent with a life expectancy at birth of 47 years for males and 50 years for females. See the mortality section of the Technical Notes for further discussion.

The difference between the growth rate and the rate of natural increase is due to the effect of net international migration. See the migration section of the Technical Notes for further discussion.

**Table 4. Estimated Infant Mortality Rate and Life Expectancy at Birth, by Sex: 1970-71**

Period	Infant deaths per 1,000 live births			Life expectancy at birth (years)		
	Both sexes	Male	Female	Both sexes	Male	Female
1970-71.....	165	174	156	47.1	45.6	48.6

Note: Infant mortality rate and life expectancy at birth for both sexes were obtained by weighting the male and female estimates using an assumed sex ratio at birth of 1.03. For alternate estimates of infant mortality rates and life expectancies at birth, see appendix tables A-7 and A-8.

Source: Infant mortality rates (IMR) were calculated at the U.S. Bureau of the Census based on the female IMR from the 1970-71 Population Growth Survey (PGS) and the sex difference of the 1970 PGS IMR's (Liberia Department of Planning and Economic Affairs, 1970 and 1971a, table 1a; and Liberia Ministry of Planning and Economic Affairs, 1972a and 1972c, table 1).

Life expectancies at birth were derived from life tables generated at the U.S. Bureau of the Census, based on vital events that occurred in the 12 months during the 1970-71 PGS (Liberia Department of Planning and Economic Affairs, 1970 and 1971a, table 1a; and Liberia Ministry of Planning and Economic Affairs, 1972a and 1972c, table 1). For further details, see the mortality section of the Technical Notes.

Table 5. Estimated Life Table Values, by Sex: 1970-71

Age interval (x to x+n)	1,000 ${}_nq_x$	$l_x$	${}_n d_x$	${}_n L_x$	1,000 ${}_n m_x$	${}^o e_x$
<b>MALE</b>						
0 to 1 year.....	173.8	100,000	17,376	88,358	196.6	45.6
1 to 5 years.....	71.7	82,624	5,926	316,027	18.8	54.1
5 to 10 years.....	30.7	76,699	2,353	377,612	6.2	54.2
10 to 15 years.....	16.2	74,346	1,206	368,717	3.3	50.8
15 to 20 years.....	23.6	73,140	1,727	361,384	4.8	46.6
20 to 25 years.....	28.0	71,413	2,003	352,057	5.7	42.7
25 to 30 years.....	32.8	69,410	2,273	341,365	6.7	38.8
30 to 35 years.....	36.6	67,136	2,455	329,543	7.4	35.0
35 to 40 years.....	46.9	64,681	3,035	315,818	9.6	31.3
40 to 45 years.....	62.0	61,646	3,823	298,673	12.8	27.7
45 to 50 years.....	83.3	57,823	4,818	277,070	17.4	24.4
50 to 55 years.....	101.9	53,005	5,400	251,524	21.5	21.4
55 to 60 years.....	128.0	47,605	6,095	222,785	27.4	18.5
60 to 65 years.....	153.1	41,509	6,354	191,662	33.2	15.8
65 to 70 years.....	182.5	35,156	6,416	159,738	40.2	13.2
70 to 75 years.....	216.9	28,740	6,235	128,112	48.7	10.6
75 to 80 years.....	256.9	22,505	5,783	98,069	59.0	7.9
80 years and over.....	1,000.0	16,723	16,723	79,769	209.6	4.8
<b>FEMALE</b>						
0 to 1 year.....	155.6	100,000	15,558	89,887	173.1	48.6
1 to 5 years.....	79.8	84,442	6,737	321,399	21.0	56.5
5 to 10 years.....	23.9	77,706	1,858	383,883	4.8	57.2
10 to 15 years.....	16.6	75,848	1,256	376,098	3.3	53.6
15 to 20 years.....	22.1	74,592	1,649	368,836	4.5	49.4
20 to 25 years.....	24.4	72,943	1,783	360,255	5.0	45.5
25 to 30 years.....	26.4	71,159	1,875	351,110	5.3	41.6
30 to 35 years.....	28.5	69,285	1,977	341,480	5.8	37.6
35 to 40 years.....	35.4	67,307	2,380	330,586	7.2	33.7
40 to 45 years.....	45.8	64,927	2,975	317,197	9.4	29.8
45 to 50 years.....	62.7	61,952	3,886	300,045	13.0	26.1
50 to 55 years.....	82.1	58,066	4,769	278,408	17.1	22.7
55 to 60 years.....	111.9	53,297	5,962	251,579	23.7	19.5
60 to 65 years.....	135.8	47,335	6,428	220,602	29.1	16.6
65 to 70 years.....	164.4	40,906	6,726	187,717	35.8	13.9
70 to 75 years.....	198.4	34,181	6,782	153,949	44.0	11.1
75 to 80 years.....	238.5	27,399	6,535	120,656	54.2	8.2
80 years and over.....	1,000.0	20,864	20,864	104,922	198.8	5.0

Note:

x = Exact age at beginning of age interval, in years.

n = Length of age interval, in years.

$1,000 {}_n q_x$  = Number of deaths occurring between age x and age x+n per 1,000 persons alive at age x; calculated as  $\frac{{}_n d_x}{l_x} \times 1,000$ .

 $l_x$  = Number of persons living at age x. ${}_n d_x$  = Number of deaths occurring between age x and age x+n. ${}_n L_x$  = Number of persons living between age x and age x+n.

$1,000 {}_n m_x$  = Number of deaths occurring between age x and age x+n per 1,000 persons living between age x and age x+n; calculated as  $\frac{{}_n d_x}{{}_n L_x} \times 1,000$ .

 ${}^o e_x$  = Average number of years of life remaining for those alive at age x.

Source: See table 4 and the Technical Notes in the appendix. For an alternate estimate life table for 1978, see appendix table A-9.

**Table 6. Estimated and Projected Number of Women of Childbearing Age: 1974, and 1975 to 1990**

(Midyear population in thousands. Figures may not add to totals due to rounding)

Year	All women, 15 to 49 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	40 to 44 years	45 to 49 years
<b>ESTIMATED</b>								
1974.....	352.6	77.9	66.4	56.8	48.3	40.7	34.2	28.3
<b>PROJECTED</b>								
1975.....	362.8	80.2	68.4	58.5	49.7	41.9	35.1	29.0
1976.....	373.4	82.6	70.4	60.2	51.2	43.1	36.0	29.8
1977.....	384.5	85.2	72.6	61.9	52.7	44.4	37.0	30.6
1978.....	386.0	87.9	74.8	63.6	54.3	45.8	38.1	31.4
1979.....	408.1	90.9	77.0	65.7	55.9	47.1	39.2	32.2
1980.....	420.8	94.2	79.4	67.7	57.6	48.6	40.4	33.1
1981.....	434.1	97.7	81.8	69.7	59.3	50.0	41.6	34.0
1982.....	448.0	101.4	84.4	71.9	61.0	51.5	42.8	35.0
1983.....	462.5	105.1	87.1	74.1	62.9	53.1	44.2	36.0
1984.....	477.4	108.8	90.1	76.4	64.8	54.7	45.5	37.1
1985.....	492.8	112.5	93.4	78.7	66.8	56.3	46.9	38.2
1986.....	508.6	115.9	96.9	81.1	68.8	58.0	48.3	39.4
1987.....	524.8	119.3	100.6	83.7	70.9	59.8	49.8	40.6
1988.....	541.7	122.9	104.3	86.5	73.2	61.6	51.4	41.9
1989.....	558.9	126.3	108.1	89.5	75.4	63.5	52.9	43.2
1990.....	577.2	130.3	111.7	92.8	77.8	65.5	54.6	44.6

**Source:**

1974 - Based on the adjusted 1974 census, by age and sex, moved to the midyear.

1975 to 1990 - Projected based on the estimated 1974 midyear population, by age and sex, and the following assumptions:

**Fertility:** Total fertility rate per woman decreased from 6.38 in 1974 to 6.11 in 1990, consistent with the medium projection series in table 1. Assumptions regarding fertility only affect the projected number of women ages 15 to 19 for the years 1989 to 1990.

**Mortality:** Life expectancy at birth for women increased from 50 years in 1974 to 57 years in 1990.

**Migration:** Net international migration was held constant at the level estimated in the 1974 census (see the migration section of the Technical Notes).

**Table 7. Estimated Age-Specific Fertility Rates and Selected Derived Measures: 1970-71**

Age	Births per 1,000 women	Derived measures	1970-71
15 to 19 years.....	216	Total fertility rate per	
20 to 24 years.....	265	woman.....	6.38
25 to 29 years.....	272	Gross reproduction rate per	
30 to 34 years.....	238	woman.....	3.14
35 to 39 years.....	175	Net reproduction rate per	
40 to 44 years.....	83	woman.....	2.19
45 to 49 years.....	29	Sex ratio at birth.....	1.03

Note: For alternate estimates of total and age-specific fertility rates, see appendix table A-6.

Source: The adjusted total and age-specific fertility rates are based on births for the 12-month periods reported in the 1970 and 1971 Population Growth Survey (Liberia Department of Planning and Economic Affairs, 1970, table 1A and 1971b, table 1a; and Liberia Ministry of Planning and Economic Affairs, 1972b, table 1 and 1972c, table 1). Age-specific fertility rates based on births adjusted by the Chandrasekaran-Deming technique were further adjusted at the U.S. Bureau of the Census using the Brass fertility technique based on an average of the  $P_2/F_2$  and  $P_3/F_3$  ratios (see appendix table A-6).

The gross reproduction rate is based on the total fertility rate and the sex ratio at birth.

The net reproduction rate is based on the age-specific fertility rates, sex ratio at birth, and  $L_x$  values for females from the corresponding life table (see table 5).

The sex ratio at birth is assumed to be 1.03 (United Nations, 1967, p. 23).

**Table 8. Women Ages 15 to 49 Years, by Number of Children Ever Born, Average Number of Children Ever Born, and Average Number of Children Surviving: 1970-71 and 1974**

(Numbers in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Year or period and age	Total	Number of children ever born								Average number of children ever born per woman	Average number of children surviving per woman	
		0	1	2	3	4	5	6	7 or more			
<b>1970-71<sup>1</sup></b>												
All women, 15 to 49 years.....	395.1	108.6	60.3	49.5	41.7	35.4	27.0	21.6	51.0	2.8	2.0	
15 to 19 years.....	69.4	46.4	15.5	4.7	1.6	0.8	0.2	0.2	(2)	0.5	0.4	
20 to 24 years.....	71.4	19.3	16.3	15.5	9.1	5.5	3.1	1.2	1.5	1.8	1.4	
25 to 29 years.....	83.4	15.8	12.5	12.4	12.2	10.5	7.8	4.9	7.2	2.9	2.1	
30 to 34 years.....	58.8	9.3	6.8	6.6	7.7	6.3	5.4	5.5	11.1	3.8	2.7	
35 to 39 years.....	51.9	7.5	4.5	5.4	5.4	6.2	5.3	4.9	12.7	4.2	2.9	
40 to 44 years.....	33.5	5.5	2.6	3.1	3.0	3.4	2.9	2.8	10.2	4.5	3.0	
45 to 49 years.....	26.6	4.7	2.1	1.9	2.6	2.6	2.4	2.2	8.2	4.6	2.8	
<b>1974</b>												
All women, 15 to 49 years.....	377.3	81.0	69.8	56.4	45.8	36.1	29.9	18.1	40.1	2.8	2.2	
15 to 19 years.....	83.5	41.9	32.5	5.9	2.0	1.0	0.3	0.2	0.1	0.7	0.6	
20 to 24 years.....	67.0	14.6	14.0	20.0	9.0	4.7	2.3	1.2	1.2	1.9	1.6	
25 to 29 years.....	66.9	8.4	8.9	12.8	13.9	9.3	5.7	3.4	4.5	3.0	2.4	
30 to 34 years.....	57.6	5.9	5.7	7.3	8.6	9.5	6.7	4.7	9.1	3.9	3.0	
35 to 39 years.....	45.9	4.1	3.8	5.0	6.0	5.8	6.7	4.0	10.5	4.5	3.3	
40 to 44 years.....	30.9	3.2	2.8	3.0	3.5	3.4	4.5	2.5	8.0	4.6	3.3	
45 to 49 years.....	25.3	2.9	2.2	2.4	2.8	2.6	3.7	2.0	6.7	4.7	3.2	

<sup>1</sup>The 1970 and 1971 Population Growth Survey (PGS) estimates of total population of 1,523,050 and 1,571,477 persons, respectively, appear to be overestimates when compared with the 1974 census population. Evaluation of the data also indicates that there was a problem with age reporting by women and underreporting of children ever born.

Source: 1970-71 - Based on an average of the results from the 1970 and 1971 PGS as reported in Liberia Department of Planning and Economic Affairs, 1970, tables 1A, 7A, and 8A; and Liberia Ministry of Planning and Economic Affairs, 1972c, tables 1, 10A, and 12A.

1974 - Based on the results of the 1974 census as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 20.

**Table 9. Distribution of Births, by Order of Birth: 1970-71**

(Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Birth order	Number	Percent distribution
All orders.....	77,912	100.0
1st birth.....	22,932	29.4
2nd birth.....	12,932	16.6
3rd birth.....	9,684	12.4
4th birth.....	8,415	10.8
5th birth.....	6,946	8.9
6th birth.....	4,434	5.7
7th birth.....	5,932	7.6
8th birth.....	3,022	3.9
9th birth.....	1,428	1.8
10th birth and over.....	2,187	2.8
Median birth order.....	2.8	(X)

Source: Based on the 1970 and 1971 Population Growth Survey as reported in Liberia Department of Economic Affairs, 1971b, table 6A; and Liberia Ministry of Planning and Economic Affairs, 1972b, table 4. These births were adjusted by the Chandrasekaran-Deming technique.

Table 10. Population Ages 10 Years and Over, by Marital Status, Age and Sex: 1962 and 1974

(Population in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Year, sex, and age	Population					Percent				
	Total	Single	Married	Widowed	Divorced or separated	Total	Single	Married	Widowed	Divorced or separated
1962										
Male										
Total, 10 years and over.....	353.2	141.2	184.6	9.9	17.5	100.0	40.0	52.3	2.8	5.0
10 to 14 years.....	43.5	43.2	0.2	(%)	(%)	100.0	99.3	0.5	0.1	0.1
15 to 19 years.....	39.2	37.4	1.7	(%)	0.2	100.0	95.2	4.3	0.1	0.4
20 to 24 years.....	34.8	23.8	9.8	0.2	0.9	100.0	68.5	28.3	0.6	2.6
25 to 29 years.....	40.2	16.1	22.0	0.4	1.7	100.0	40.0	54.7	0.9	4.3
30 to 34 years.....	36.8	8.2	25.7	0.6	2.2	100.0	22.4	70.0	1.6	6.0
35 to 39 years.....	34.5	4.7	27.0	0.7	2.1	100.0	13.7	78.2	2.0	6.1
40 to 44 years.....	31.4	2.8	25.4	1.0	2.2	100.0	9.0	80.9	3.1	7.1
45 to 49 years.....	24.7	1.7	20.2	0.9	1.9	100.0	7.0	81.7	3.5	7.8
50 to 54 years.....	19.7	1.1	16.1	1.0	1.6	100.0	5.8	81.3	4.9	8.0
55 to 59 years.....	13.3	0.6	10.8	0.8	1.1	100.0	4.6	80.9	5.9	8.6
60 years and over.....	35.1	1.4	25.8	4.4	3.5	100.0	4.1	73.6	12.5	9.9
Female										
Total, 10 years and over.....	364.1	65.8	254.1	30.7	13.6	100.0	18.1	69.8	8.4	3.7
10 to 14 years.....	35.1	32.9	2.1	(%)	(%)	100.0	93.8	6.0	0.1	0.1
15 to 19 years.....	44.0	19.2	24.0	0.2	0.7	100.0	43.5	54.5	0.4	1.6
20 to 24 years.....	49.6	5.9	41.6	0.5	1.5	100.0	12.0	83.9	1.0	3.1
25 to 29 years.....	55.1	3.1	49.5	0.8	1.7	100.0	5.5	89.9	1.5	3.1
30 to 34 years.....	45.2	1.5	41.0	1.1	1.5	100.0	3.4	90.7	2.5	3.4
35 to 39 years.....	35.0	1.1	31.1	1.4	1.4	100.0	3.1	88.9	4.0	4.0
40 to 44 years.....	27.2	0.6	22.9	2.4	1.4	100.0	2.1	84.2	8.6	5.1
45 to 49 years.....	19.5	0.4	15.3	2.6	1.2	100.0	2.1	78.3	13.5	6.1
50 to 54 years.....	14.5	0.3	10.2	3.1	1.0	100.0	1.8	69.9	21.5	6.8
55 to 59 years.....	9.5	0.2	5.9	2.7	0.7	100.0	1.8	62.0	28.9	7.3
60 years and over.....	29.3	0.6	10.5	15.8	2.4	100.0	2.2	35.7	54.0	8.1
1974										
Male										
Total, 10 years and over.....	529.3	249.9	245.7	10.8	22.9	100.0	47.2	46.4	2.0	4.3
10 to 14 years.....	87.5	87.2	0.3	(%)	(%)	100.0	99.6	0.3	-	-
15 to 19 years.....	75.6	73.2	2.2	0.1	0.2	100.0	96.8	2.9	0.1	0.3
20 to 24 years.....	54.5	40.5	12.9	0.2	1.0	100.0	74.4	23.6	0.3	1.7
25 to 29 years.....	53.7	22.1	29.0	0.4	2.3	100.0	41.1	54.0	0.7	4.2
30 to 34 years.....	47.1	10.0	33.8	0.6	2.8	100.0	21.3	71.7	1.2	5.9
35 to 39 years.....	47.3	6.3	37.3	0.7	3.0	100.0	13.4	78.8	1.5	6.4
40 to 44 years.....	36.1	3.4	29.3	0.9	2.5	100.0	9.5	81.2	2.4	6.9
45 to 49 years.....	31.7	2.4	26.4	0.8	2.2	100.0	7.5	83.2	2.5	6.8
50 to 54 years.....	26.1	1.6	21.4	1.0	2.1	100.0	6.1	82.1	3.9	7.9
55 to 59 years.....	17.8	0.9	14.7	0.8	1.4	100.0	4.8	82.6	4.6	8.0
60 years and over.....	51.9	2.3	38.6	5.4	5.5	100.0	4.5	74.4	10.4	10.7
Female										
Total, 10 years and over.....	522.5	151.0	317.0	33.6	20.8	100.0	28.9	60.7	6.4	4.0
10 to 14 years.....	75.8	74.1	1.6	(%)	0.1	100.0	97.8	2.1	0.1	0.1
15 to 19 years.....	83.5	48.1	34.2	0.2	0.9	100.0	57.7	40.9	0.3	1.1
20 to 24 years.....	67.0	14.3	50.2	0.6	2.0	100.0	21.4	74.8	0.9	2.9
25 to 29 years.....	66.9	6.1	57.7	0.9	2.2	100.0	9.1	86.2	1.4	3.4
30 to 34 years.....	57.6	2.9	50.8	1.5	2.4	100.0	5.0	88.2	2.6	4.2
35 to 39 years.....	45.9	1.7	40.5	1.7	2.1	100.0	3.6	88.1	3.7	4.6
40 to 44 years.....	30.9	0.9	25.7	2.3	1.9	100.0	3.0	83.3	7.4	6.3
45 to 49 years.....	25.3	0.7	20.1	2.8	1.8	100.0	2.8	79.3	11.0	7.0
50 to 54 years.....	20.1	0.6	14.3	3.7	1.6	100.0	2.8	70.8	18.2	8.2
55 to 59 years.....	11.7	0.3	7.5	2.8	1.1	100.0	2.8	63.8	23.7	9.7
60 years and over.....	37.5	1.3	14.5	17.2	4.6	100.0	3.3	38.7	45.7	12.2

Note: See appendix table A-10 for a distribution of the population by marital status in 1971.

Source: Census data as reported in Liberia Office of National Planning, Bureau of Statistics, 1965, table 8; and Liberia Ministry of Planning and Economic Affairs, 1977, table 9.

**Table 11. Legal Age at Marriage and Ages at Which Specified Percents of the Population are Ever Married, by Sex: 1962 and 1974**

Item	1962		1974	
	Male	Female	Male	Female
Minimum legal age at marriage <sup>1</sup> .....	21	18	16	16
Age at which 25 percent of the population is ever married.....	22	15	22	16
Age at which 50 percent of the population is ever married.....	25	17	26	18
Age at which 75 percent of the population is ever married.....	32	19	31	21

<sup>1</sup>With or without parental consent in 1962 and with parental consent in 1974.

Source: The age at which the specified percent of the population is ever married were derived at the U.S. Bureau of the Census by fitting a Makeham curve to data from the 1962 and 1974 census (Liberia Office of National Planning, 1965, table 8; and Liberia Ministry of Planning and Economic Affairs, 1977, table 9). Legal age at marriage in 1962 is based on the 1956 (Revised) Domestic Relation Law as reported in Liberia Ministry of Health, 1957 and in 1974 on the 1973 New Domestic Relations Law, Marriage, reported in Piepmeier and Hellyer, 1977, p. 2b.

**Table 12. Population Ages 10 Years and Over, by Literacy, Age, and Sex: 1962 and 1974**

(Population in thousands. Figures may not add to totals due to rounding)

Year and age	Both sexes			Male			Female		
	Total population	Literate population		Total population	Literate population		Total population	Literate population	
		Number	Percent of total		Number	Percent of total		Number	Percent of total
<b>1962</b>									
Total, 10 years and over.....	717.3	64.0	8.9	353.2	47.4	13.4	364.1	16.5	4.5
10 to 14 years.....	78.6	6.8	8.7	43.5	4.2	9.7	35.1	2.6	7.4
15 to 19 years.....	83.3	13.3	15.9	39.2	9.5	24.3	44.0	3.7	8.4
20 to 24 years.....	84.4	11.2	13.3	34.8	8.7	25.0	49.6	2.5	5.1
25 to 29 years.....	95.3	9.2	9.7	40.2	7.3	18.1	55.1	1.9	3.5
30 to 34 years.....	82.0	6.1	7.5	36.8	4.9	13.4	45.2	1.2	2.7
35 to 39 years.....	69.4	5.8	8.4	34.5	4.3	12.3	35.0	1.6	4.5
40 to 44 years.....	58.6	3.6	6.1	31.4	2.7	8.7	27.2	0.8	3.0
45 to 49 years.....	44.3	2.7	6.2	24.7	2.1	8.5	19.5	0.6	3.2
50 years and over.....	121.5	5.2	4.2	68.2	3.6	5.3	53.3	1.5	2.8
<b>1974</b>									
Total, 10 years and over.....	1,051.7	220.7	21.0	529.3	156.7	29.6	522.5	64.0	12.2
10 to 14 years.....	163.3	46.8	28.7	87.5	28.7	32.7	75.8	18.2	24.0
15 to 19 years.....	159.0	60.1	37.8	75.6	39.7	52.6	83.5	20.4	24.4
20 to 24 years.....	121.5	36.3	29.9	54.5	27.5	50.5	67.0	8.8	13.1
25 to 29 years.....	120.7	23.7	19.6	53.7	18.4	34.2	66.9	5.3	7.9
30 to 34 years.....	104.7	15.9	15.2	47.1	12.6	26.7	57.6	3.4	5.9
35 to 39 years.....	93.3	12.9	13.9	47.3	10.3	21.8	45.9	2.6	5.7
40 to 44 years.....	67.0	8.2	12.2	36.1	6.5	18.0	30.9	1.6	5.3
45 to 49 years.....	57.0	6.0	10.5	31.7	4.8	15.1	25.3	1.2	4.8
50 years and over.....	165.1	10.8	6.5	95.7	8.2	8.6	69.4	2.5	3.7

Note: Literacy is defined as the ability to read and write English.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 16; and Liberia Ministry of Planning and Economic Affairs, 1977, table 18.

**Table 13. Population Ages 5 to 19 Years, Enrolled in School, by Age and Sex: 1962 and 1974**

(Population in thousands. Figures may not add to totals due to rounding)

Year and age	Both sexes			Male			Female		
	Total population	Enrolled in school		Total population	Enrolled in school		Total population	Enrolled in school	
		Number	Percent of total		Number	Percent of total		Number	Percent of total
<b>1962</b>									
Total, 5 to 19 years.....	295.7	63.6	21.5	151.5	43.4	28.7	144.1	20.2	14.0
5 to 9 years.....	133.8	21.5	16.1	68.8	13.0	18.9	65.0	8.6	13.2
10 to 14 years.....	78.6	25.1	31.9	43.5	17.4	40.0	35.1	7.7	21.9
15 to 19 years.....	83.3	17.0	20.4	39.2	13.1	33.3	44.0	3.9	9.0
<b>1974</b>									
Total, 5 to 19 years.....	546.3	140.7	25.8	277.7	89.5	32.2	268.6	51.2	19.1
5 to 9 years.....	223.9	28.5	12.7	114.6	16.1	14.0	109.3	12.5	11.4
10 to 14 years.....	163.3	56.9	34.8	87.5	35.1	40.2	75.8	21.7	28.7
15 to 19 years.....	159.0	55.3	34.8	75.6	38.3	50.7	83.5	17.0	20.4

Note: Enrollment is defined as attending graded public, private, parochial or mission school, college, university, or professional school, which includes night school and part-time attendance.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 13; and Liberia Ministry of Planning and Economic Affairs, 1977, table 15.

**Table 14. Population Ages 15 Years and Over, Who Have Completed School, by Level, Age, and Sex: 1962 and 1974**

(Population in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Year, sex, and age	Total population	Persons who have completed at least—					
		Primary school		Secondary school		Higher level	
		Number	Percent of total	Number	Percent of total	Number	Percent of total
<b>1962</b>							
BOTH SEXES							
Total, 15 years and over.....	638.7	24.7	3.9	10.3	1.6	3.6	0.6
15 to 19 years.....	83.3	2.6	3.1	0.3	0.3	(2)	(2)
20 to 24 years.....	84.4	4.9	5.8	1.5	1.8	0.3	0.3
25 to 29 years.....	95.3	4.8	5.0	2.1	2.2	0.7	0.7
30 years and over.....	375.8	12.5	3.3	6.5	1.7	2.7	0.7
MALE							
Total, 15 years and over.....	309.6	18.2	5.9	7.5	2.4	2.7	0.9
15 to 19 years.....	39.2	1.6	4.2	0.1	0.3	(2)	(2)
20 to 24 years.....	34.8	3.7	10.6	1.0	2.9	0.2	0.5
25 to 29 years.....	40.2	3.6	9.0	1.5	3.8	0.5	1.1
30 years and over.....	195.4	9.2	4.7	4.8	2.5	2.0	1.0
FEMALE							
Total, 15 years and over.....	329.1	6.5	2.0	2.8	0.9	1.0	0.3
15 to 19 years.....	44.0	0.9	2.1	0.1	0.3	(2)	(2)
20 to 24 years.....	49.6	1.2	2.5	0.5	1.0	0.1	0.2
25 to 29 years.....	55.1	1.1	2.0	0.6	1.0	0.2	0.4
30 years and over.....	180.3	3.2	1.8	1.7	0.9	0.7	0.4
<b>1974</b>							
BOTH SEXES							
Total, 15 years and over.....	888.4	87.7	9.9	30.8	3.5	6.9	0.8
15 to 19 years.....	159.0	17.3	10.9	1.2	0.8	-	-
20 to 24 years.....	121.5	21.4	17.6	6.0	4.9	0.6	0.5
25 to 29 years.....	120.7	14.8	12.3	6.2	5.1	1.2	1.0
30 years and over.....	487.2	34.2	7.0	17.4	3.6	5.1	1.0
MALE							
Total, 15 years and over.....	441.7	65.5	14.8	22.6	5.1	4.9	1.1
15 to 19 years.....	75.6	11.2	14.8	0.7	0.9	-	-
20 to 24 years.....	54.5	16.3	30.0	4.2	7.7	0.3	0.6
25 to 29 years.....	53.7	11.5	21.3	4.6	8.5	0.7	1.4
30 years and over.....	258.0	26.5	10.3	13.2	5.1	3.8	1.5
FEMALE							
Total, 15 years and over.....	446.7	22.3	5.0	8.2	1.8	2.0	0.4
15 to 19 years.....	83.5	6.1	7.4	0.5	0.6	-	-
20 to 24 years.....	67.0	5.1	7.6	1.8	2.7	0.3	0.4
25 to 29 years.....	67.0	3.4	5.0	1.7	2.5	0.4	0.6
30 years and over.....	229.2	7.7	3.3	4.2	1.8	1.3	0.6

Note: Data shown in this table are cumulative. For example, persons completing higher level education are also included in the primary and secondary school categories.

Primary level represents the completion of the eighth grade or higher. Secondary level represents the completion of the twelfth grade or higher. Higher level is defined as having completed at least 4 or more years of schooling at a college or other institute of higher learning.

Source: Census data as reported in Liberia Office of National Planning, 1965, tables 14 and 15; and Liberia Ministry of Planning and Economic Affairs, 1977, tables 16 and 17.

**Table 15. Economically Active Population, by Age and Sex: 1974**

(Population in thousands. Figures may not add to totals due to rounding)

Age	Male			Female		
	Total population	Economically active		Total population	Economically active	
		Number	Percent of total		Number	Percent of total
Total, 10 years and over.....	529.3	316.8	59.9	522.5	116.0	22.2
10 to 14 years.....	87.5	7.5	8.6	75.8	5.1	6.7
15 to 19 years.....	75.6	15.9	21.1	83.5	12.8	15.4
20 to 24 years.....	54.5	28.0	51.3	67.0	14.5	21.6
25 to 29 years.....	53.8	42.1	78.4	66.9	17.0	25.4
30 to 34 years.....	47.1	41.5	88.1	57.6	16.5	28.7
35 to 39 years.....	47.3	43.2	91.2	45.9	14.1	30.7
40 to 44 years.....	36.1	33.1	91.6	30.9	10.3	33.5
45 to 49 years.....	31.7	29.1	91.8	25.3	8.6	33.9
50 to 54 years.....	26.1	23.6	90.4	20.1	6.3	31.4
55 to 59 years.....	17.8	15.9	89.6	11.7	3.6	30.4
60 to 64 years.....	19.1	15.4	80.3	14.7	3.5	23.7
65 years and over.....	32.7	21.6	66.0	22.8	3.7	16.2

Note: Economically active population is defined as those persons working for pay or profit during the 12 months preceeding the census. It was not necessary for a person to have received money if the persons worked in an establishment, farm, or business operated by another family member, or was a servant working for food, clothing, schooling, etc.

Data for 1962 (see appendix table A-11) are probably not comparable to 1974 data. Differences in the labor force estimates in the 1962 and 1974 censuses are due "in large measure to conceptual problems and the lack of consistency and clarity at both the enumeration and processing stages" (Liberia Ministry of Planning and Economic Affairs, 1981). The "concept of housewife and housekeeping were used interchangeably in the 1974 census," thus increasing the chances of unpaid family workers being classified into one of several not working categories (see Liberia Ministry of Planning and Economic Affairs, 1977, annexures i, iii, v, pp. 12 and 22; 1976, pp. viii, xv, xvi; and 1981). Caution should be used in making comparisons between the 1962 and 1974 data, since much of the decline may be a statistical artifact rather than reflect actual changes in the level of participation in economic activity. One group for whom an actual decline in the economically active population may have occurred is the school-age population due to a large increase in school attendance.

Source: Census data as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 22.

**Table 16. Distribution of Labor Force, by Sex and Industry: 1974**

(Population in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Industry	Population			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
Total classified workers.....	409.4	299.4	110.0	100.0	100.0	100.0
Agricultural, forestry, hunting, and fishing.....	310.0	212.6	97.4	75.7	71.0	88.6
Mining and quarrying.....	22.1	21.4	0.7	5.4	7.2	0.6
Manufacturing.....	5.6	5.3	0.3	1.4	1.8	0.2
Construction.....	4.1	4.0	0.1	1.0	1.3	0.1
Electricity, gas, and water.....	0.2	0.2	(%)	0.1	0.1	(%)
Transport, storage, and communication	6.4	6.2	0.1	1.5	2.1	0.1
Wholesale and retail trade, restaurants, and hotels.....	16.3	11.7	4.6	4.0	3.9	4.1
Financing, insurance, real estate, and business services.....	1.4	1.2	0.2	0.3	0.4	0.2
Community, social, and personal services.....	43.2	36.6	6.6	10.6	12.2	6.0

Note: Figures exclude 17,476 male and 6,023 female workers with economic activities not classified by industry. See table 15 for the definition of economically active and appendix table A-12 for 1962 data.

Source: Census data as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 31.

**Table 17. Distribution of Labor Force, by Sex and Occupation: 1974**

(Population in thousands. Figures may not add to totals due to rounding)

Occupation	Population			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
Total classified workers.....	414.4	303.7	110.7	100.0	100.0	100.0
Professional, technical, and related workers.....	15.1	11.4	3.8	3.6	3.7	3.4
Administrative and managerial workers	1.1	1.1	0.1	0.3	0.3	0.1
Clerical and related workers.....	10.7	8.7	1.9	2.6	2.9	1.8
Sales workers.....	14.0	9.6	4.4	3.4	3.2	4.0
Service workers.....	15.6	14.0	1.7	3.8	4.6	1.5
Agriculture, animal husbandry and forestry workers, fishers, and hunters.....	303.7	206.2	97.5	73.3	67.9	88.1
Production and related workers, transport equipment operators, and laborers.....	54.1	52.8	1.3	13.1	17.4	1.2

Note: Figures exclude 13,136 male and 5,339 female workers not classified by occupation. See table 15 for the definition of economically active and appendix table A-13 for 1962 data.

Source: Census data as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 23.

**Table 18. Agricultural and Nonagricultural Workers, by Status and Sex: 1974**

(Population in thousands. Figures may not add to totals due to rounding)

Sex and status	Agricultural <sup>1</sup>		Nonagricultural	
	Population	Percent	Population	Percent
<b>BOTH SEXES</b>				
Total classified workers.....	303.7	100.0	110.7	100.0
Employers.....	1.0	0.3	1.1	1.0
Workers on own account.....	195.3	64.3	23.3	21.1
Salaried employees and wage earners.....	37.1	12.2	83.3	75.3
Unpaid family workers.....	70.3	23.1	3.0	2.7
<b>MALE</b>				
Total classified workers.....	206.2	100.0	97.5	100.0
Employers.....	0.1	0.3	1.0	1.0
Workers on own account.....	144.7	70.2	19.0	19.5
Salaried employees and wage earners.....	35.4	17.2	75.9	77.8
Unpaid family workers.....	25.4	12.3	1.6	1.7
<b>FEMALE</b>				
Total classified workers.....	97.5	100.0	13.2	100.0
Employers.....	0.3	0.3	0.1	0.6
Workers on own account.....	50.6	51.9	4.3	32.7
Salaried employees and wage earners.....	1.7	1.7	7.5	56.6
Unpaid family workers.....	44.9	46.1	1.3	10.1

<sup>1</sup>Data include workers in animal husbandry, forestry, fishing, and hunting industry.

Note: Figures exclude 13,136 male and 5,339 female with economic activities not adequately defined. See table 15 for the definition of economically active and appendix table A-14 for 1962 data.

Source: Census data as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 29.

**Table 19. Distribution of Households and of Population, by Size of Household: 1962 and 1974**

(Numbers in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Size of household	1962 <sup>1</sup>				1974 <sup>2</sup>			
	Households		Population in households		Households		Population in households	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All households.....	232.5	100.0	982.3	100.0	263.3	100.0	1,484.7	100.0
1 person.....	29.8	12.8	29.8	3.0	28.5	10.8	28.5	1.9
2 persons.....	42.1	18.1	84.4	8.6	33.0	12.5	66.1	4.4
3 persons.....	53.6	23.1	160.9	16.4	33.3	12.6	99.9	6.7
4 persons.....	24.4	10.5	97.7	9.9	31.1	11.8	124.5	8.4
5 persons.....	26.8	11.5	133.9	13.6	28.0	10.6	139.8	9.4
6 persons.....	18.8	8.1	113.0	11.5	23.2	8.8	139.0	9.4
7 persons.....	13.0	5.6	91.3	9.3	19.0	7.2	133.0	9.0
8 persons.....	9.0	3.9	71.9	7.3	14.9	5.7	119.5	8.1
9 persons.....	6.0	2.6	54.1	5.5	11.8	4.5	106.2	7.2
10 persons or more.....	8.9	3.8	145.4	14.8	40.6	15.4	528.3	35.6
OTHER HOUSEHOLD MEASURES								
Mean number of persons per household.....	4.2	(X)	(X)	(X)	5.6	(X)	(X)	(X)
Median number of persons per household.....	5.4	(X)	(X)	(X)	7.6	(X)	(X)	(X)

<sup>1</sup>Excludes 34,153 persons living in "group quarters" or institutions.

<sup>2</sup>Excludes 18,686 persons living in "group quarters" or institutions.

Note: A household is defined as one or more persons who usually shared their living quarters and their principal meals.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 9; and Liberia Ministry of Planning and Economic Affairs, 1977, table 10.

**Table 20. Urban and Rural Population, by Age and Sex: 1974**

(Population in thousands. Figures may not add to totals due to rounding)

Age	Urban			Rural		
	Both sexes	Male	Female	Both sexes	Male	Female
<b>POPULATION</b>						
All ages.....	438.2	232.9	205.2	1,065.2	526.2	539.0
0 to 4 years.....	67.7	34.6	33.2	160.0	80.7	79.3
5 to 9 years.....	62.1	31.0	31.0	161.9	83.6	78.3
10 to 14 years.....	49.8	26.8	23.1	113.5	60.8	52.7
15 to 19 years.....	54.2	26.4	27.8	104.9	49.2	55.6
20 to 24 years.....	47.3	23.7	23.5	74.3	30.7	43.5
25 to 29 years.....	43.1	22.2	20.9	77.5	31.5	46.1
30 to 34 years.....	32.4	18.1	14.3	72.4	29.0	43.4
35 to 39 years.....	26.5	15.9	10.6	66.8	31.4	35.3
40 to 44 years.....	16.4	10.4	6.0	50.6	25.7	24.8
45 to 49 years.....	12.7	8.2	4.5	44.3	23.5	20.8
50 to 54 years.....	7.5	5.3	3.2	37.7	20.8	17.0
55 to 59 years.....	5.1	3.3	1.8	24.4	14.5	9.9
60 to 64 years.....	5.1	2.9	2.1	28.8	16.2	12.6
65 to 69 years.....	3.2	1.8	1.4	17.9	10.3	7.6
70 to 74 years.....	1.9	1.1	1.0	12.5	7.7	4.8
75 years and over.....	2.1	1.2	1.0	18.0	10.6	7.3
<b>PERCENT</b>						
All ages.....	100.0	100.0	100.0	100.0	100.0	100.0
0 to 4 years.....	15.5	14.8	16.2	15.0	15.3	14.7
5 to 9 years.....	14.2	13.3	15.1	15.2	15.9	14.5
10 to 14 years.....	11.4	11.5	11.2	10.7	11.6	9.8
15 to 19 years.....	12.4	11.3	13.6	9.8	9.4	10.3
20 to 24 years.....	10.8	10.2	11.5	7.0	5.8	8.1
25 to 29 years.....	9.8	9.6	10.2	7.3	6.0	8.5
30 to 34 years.....	7.4	7.8	7.0	6.8	5.5	8.0
35 to 39 years.....	6.1	6.8	5.2	6.3	6.0	6.6
40 to 44 years.....	3.7	4.5	2.9	4.7	4.9	4.6
45 to 49 years.....	2.9	3.5	2.2	4.2	4.5	3.9
50 to 54 years.....	1.9	2.3	1.5	3.5	3.9	3.1
55 to 59 years.....	1.2	1.4	0.9	2.3	2.7	1.8
60 to 64 years.....	1.2	1.3	1.0	2.7	3.1	2.3
65 to 69 years.....	0.7	0.8	0.7	1.7	2.0	1.4
70 to 74 years.....	0.4	0.5	0.4	1.2	1.5	0.9
75 years and over.....	0.5	0.5	0.4	1.7	2.0	1.4

Note: Urban was defined as localities having 2,000 or more inhabitants, or as localities satisfying the criterion of civic amenities like school, hospital, electricity, water supply, etc., and yet not qualifying by the population criterion.

Source: Census data as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 4.

**Table 21. Population, by Urban and Rural Residence and Size of Urban Locality: 1974**

(For meaning of symbols, see page IV)

Subject	Number	Population	Percent of total country
Total country.....	(X)	1,503,368	100.0
Urban localities.....	(X)	438,171	29.1
Localities with 20,000 or more inhabitants <sup>1</sup> ..	4	114,615	7.6
Localities with 10,000 to 19,999 inhabitants.	9	123,852	8.2
Localities with 5,000 to 9,999 inhabitants...	18	132,571	8.8
Localities with 2,000 to 4,999 inhabitants...	22	66,819	4.4
Localities with less than 2,000 inhabitants..	1	314	(Z)
Rural areas.....	(X)	1,065,197	70.9

<sup>1</sup>"It would appear that there is no locality in Liberia with a population of 100,000 or more. This pattern, which does not conform to the real situation, has emerged as a result of the coding structure designed for the 1974 census, whereby large localities got divided into communities and each community was treated at par with locality. For example, Monrovia Proper which had a population of 166,507 in the 1974 census was split into community centers for the purpose of easy supervision with codes assigned similar to that of locality codes. The population was likewise distributed according to these codes" (Liberia Ministry of Planning and Economic Affairs, 1977, p. 21).

Note: Locality was defined as a nucleated settlement such as a town or village having a distinct name. An urban locality was defined as having 2,000 or more inhabitants, while the rural locality had less than 2,000 inhabitants. Exceptions were (1) urban localities with less than 2,000 persons satisfying the criterion of civic amenities like school, hospital, electricity, water supply, etc., and (2) rural localities with more than 2,000 persons considered as the remainder of a clan (Liberia Ministry of Planning and Economic Affairs, 1977, pp. 9 and 10). For a distribution of the population by size of locality in 1962 and 1974, regardless of urban or rural classification, see appendix table A-15.

Source: Census data are as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 2.

Table 22. Population of Urban Centers With 5,000 or More Inhabitants in 1974, by Sex: 1962 and 1974

(For meaning of symbols, see page IV)

Urban centers	1974				1962			
	Rank	Population			Rank	Population		
		Both sexes	Male <sup>1</sup>	Female <sup>1</sup>		Both sexes	Male	Female
Monrovia Proper <sup>2</sup> .....	1	166,507	90,690	75,817	1	80,992	47,191	33,801
Buchanan.....	2	23,999	12,506	11,494	3	11,909	6,795	5,114
Congo Town.....	3	21,495	11,397	10,098	(X)	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Yekepa <sup>4</sup> .....	4	14,189	7,318	6,871	15	2,579	1,805	774
Tubmanburg <sup>5</sup> .....	5	14,089	7,419	6,670	5	6,615	3,782	2,833
Harbel.....	6	11,445	6,261	5,184	2	31,730	19,026	12,704
Harper.....	7	10,627	5,292	5,335	6	6,095	3,185	2,918
Kakata.....	8	9,992	5,223	4,769	7	4,734	2,667	2,067
Paynesville.....	9	9,676	5,202	4,474	12	3,048	1,718	1,330
Greenville.....	10	8,462	4,525	3,937	8	3,962	2,047	1,915
L.A.C. Concession.....	11	8,243	4,559	3,684	17	1,740	880	860
Firestone Concession.....	12	7,846	4,121	3,725	4	7,613	4,150	3,436
Camp Four.....	13	7,220	3,847	3,373	(X)	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Gbarnga.....	14	6,896	3,533	3,363	13	2,810	1,432	1,378
Sanniquelle.....	15	6,690	3,353	3,337	14	2,809	1,446	1,363
Gardnersville.....	16	6,532	3,339	3,193	19	244	135	109
Ganta.....	17	6,358	3,097	3,259	9	3,889	2,004	1,885
Voinjama.....	18	6,343	3,248	3,095	11	3,102	1,524	1,578
B. F. Goodrich Concession....	19	6,326	3,605	2,721	16	2,163	1,226	937
Pleebo.....	20	6,315	3,109	3,206	10	3,440	1,770	1,670
Zwedru.....	21	6,094	3,158	2,936	18	945	490	455
Kongo Town.....	22	6,020	3,219	2,801	(X)	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )

<sup>1</sup>Calculated at the U.S. Bureau of the Census based on the total population and sex ratios (number of females per 1,000 males) as reported in Liberia Ministry of Planning and Economic Affairs, 1977, pp. 43-46.

<sup>2</sup>Monrovia Proper and its environs which include Paynesward, Congo Town, and Gardnersville was referred to as Greater Monrovia with a population of 204,210 in the 1974 census and is comparable to the Commonwealth District of Monrovia with a population of 83,780 in the 1962 census (Liberia Ministry of Planning and Economic Affairs, 1977; and 1981). Monrovia Proper consists of 11 newly designated urban communities.

<sup>3</sup>Newly designated areas not shown in the 1962 census. The University of Liberia, Demographic Unit (1978) notes that Camp Four evolved out of several closely situated rural localities with a population of 3,829 persons in 1962. Data are not available to derive a 1962 population for Congo Town and Kongo District of Monrovia.

<sup>4</sup>Formerly Lamco.

<sup>5</sup>Formerly Via Town.

Source: Census data as reported in Liberia Office of National Planning, 1965; and Liberia Ministry of Planning and Economic Affairs, 1977, 1977, pp. 43-46.

**Table 23. County and Territory Population and Growth Rates: Selected Year or Periods, 1952 to 1974**

County and territory <sup>1</sup>	Population (in thousands)		Average annual growth rate, 1962-74 <sup>3</sup> (percent)
	1962 <sup>2</sup>	1974	
Bong.....	139.8	194.2	+2.8
Grand Bassa.....	99.6	123.4	+1.8
Rivercess (T).....	28.8	27.7	-0.3
Grand Cape Mount.....	32.2	56.6	+4.8
Grand Gedeh.....	48.3	71.8	+3.4
Lofa.....	131.6	180.7	+2.7
Maryland.....	54.8	64.5	+1.4
Kru Coast (T).....	21.3	27.1	+2.0
Montserrado.....	191.1	357.1	+5.3
Bomi (T).....	39.4	62.1	+3.9
Marshall (T).....	12.7	20.7	+4.1
Nimba.....	162.9	249.7	+3.6
Sinoe.....	44.6	57.6	+2.2
Sasstown (T).....	9.5	10.0	+0.4

<sup>1</sup>Territories (T) form part of the county under which they are listed.

<sup>2</sup>Figures derived at the Ministry of Planning and Economic Affairs taking into consideration changes in county and territory boundaries that occurred after the 1962 census, i.e., Lofa County was formerly part of the Western Province; Bomi Territory was formerly part of the Western Province and Montserrado County; Bong County and Nimba County were formerly the Central Province; Grand Gedeh County (excluding Webbo District) was formerly the Eastern Province; and Maryland County contained Webbo District which is now part of Grand Gedeh (see appendix table A-16 for county population according to 1962 boundaries).

<sup>3</sup>A plus (+) sign denotes population gain, a minus (-) sign denotes population loss.

Source: Based on the 1962 and 1974 censuses as reported in Liberia Ministry of Planning and Economic Affairs, 1974; 1977, table 1; and 1981.

**Table 24. Foreign-Born Population, by Country of Birth: 1962 and 1974**

(For meaning of symbols, see page IV)

Country of birth	1962	1974
All countries.....	31,633	59,458
Ghana.....	6,896	8,068
Guinea.....	8,579	26,337
Ivory Coast.....	1,131	1,770
Lebanon.....	2,077	3,430
Mali.....	565	1,597
Nigeria.....	543	1,940
Sierra Leone.....	4,685	6,440
United States.....	1,876	2,399
European countries.....	3,233	4,101
Other countries.....	1,662	3,376
Countries not reported.....	386	-
Foreign-born population as percent of total population.....	3.1	4.0

Source: Based on 1962 and 1974 census data as reported in Liberia Office of National Planning, 1965, table 6; and Liberia Ministry of Planning and Economic Affairs, 1977, table 6.

**Table 25. Estimated Net International Migration, by Age and Sex: 1970-71**

(Numbers in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Age	1970-71	
	Male	Female
All ages.....	+2.3	+0.4
0 to 4 years.....	-0.2	+0.2
5 to 9 years.....	-0.2	(Z)
10 to 14 years.....	-0.3	-0.3
15 to 19 years.....	+0.3	+0.3
20 to 24 years.....	+0.8	+0.2
25 to 29 years.....	+0.8	+0.1
30 to 34 years.....	+0.5	+0.1
35 to 39 years.....	+0.4	(Z)
40 to 44 years.....	+0.2	(Z)
45 to 49 years.....	+0.1	-0.1
50 to 54 years.....	(Z)	-0.1
55 to 59 years.....	(Z)	(Z)
60 to 64 years.....	(Z)	(Z)
65 years and over.....	-0.1	(Z)

Note: A plus (+) sign denotes net immigration, a minus (-) sign denotes net emigration.

Source: Average of 1970 and 1971 Population Growth Survey (PGS) data as reported in Liberia Ministry of Planning and Economic Affairs (1971, tables 1 and 6; and 1973b, tables 1 and 5). The estimates of net international migration from the PGS were +4,100 males and +1,600 females in 1970 and +400 males and -700 females in 1971 (see appendix table A-17 for estimates of net international migration for 1974).

## Appendix

### Technical Notes

#### SUMMARY

The demographic data presented in this profile covers primarily the period 1950 to 1981. Since national vital registration data are not available, fertility and mortality parameters

were estimated using population census and survey information. The 1974 census was evaluated after an analysis of the following census and survey data:

Type of data	Census		Population Growth Survey 1970-71	National Demographic Survey 1978-79 <sup>1</sup>
	1962	1974		
Age-sex distribution				
5-year age groups . . . . .	X	X	X	X
Single years . . . . .	X	X		
Births in last 12 months, by age of mother . . . . .		X	X <sup>2</sup>	X
Children ever born, by age of mother . . . . .		X	X	
Deaths, by age and sex . . . . .		X <sup>3</sup>	X	X
Children surviving, by age of mother . . . . .		X	X	
Survival of most recently born child . . . . .			X	
Marital status . . . . .	X	X	X	X
International migration, by age and sex . . . . .			X	

<sup>1</sup> Only preliminary data are available from the first round of the 1978 National Demographic Survey.

<sup>2</sup> The Population Growth Survey collected information on births occurring in the last 6 months, as well as, on a monthly basis.

<sup>3</sup> Only the total number of persons dying in the households in the past year was reported in the 1974 census extended schedule of household characteristics.

#### MORTALITY

Mortality estimates shown in this profile are based primarily on data from the 1970 and 1971 Population Growth Surveys (PGS), although additional information were obtained from the 1974 census and the 1978 National Demographic Survey (NDS). The 1974 census (extended schedule) collected information on the number of deaths in the household in the last 12 months; however, the information does not seem to be reliable due to enumeration error. The Liberia Ministry of Planning and Economic Affairs (1979a, p. 26) noted that "the census enumerator erroneously counted the number of dead children to a woman and entered the same against the entry of number of persons dying in the household during the past year." When the Brass, Trussell, Sullivan, and Feeny techniques were applied to the child survivorship data from the 1974 population census, the resulting estimates of infant and childhood mortality were significantly

lower than those from the 1970-71 PGS (see appendix table A-8). Apparently the problems of recall and omissions involving the deaths of children were greater in the census than in the PGS.

Only preliminary mortality estimates are available from the 1978 NDS (see appendix tables A-5, A-7, and A-9). Due to the lack of data and insufficient information on the 1978 NDS the results could not be adequately evaluated. However, an unadjusted empirical life table was calculated at the U.S. Bureau of the Census based on age-specific death rates for both sexes as reported by the Liberia Ministry of Planning and Economic Affairs (1979b, table C1). This life table implies a life expectancy at birth of 44 years and for infant mortality a rate of 144 per 1,000 births for both sexes (see appendix table A-7). Since data from the 1974 census (children surviving) and the 1978 NDS (age-specific death rates) appear to underestimate mortality when compared with estimates based on 1970-71 PGS data, their results were not accepted.

## 1970 to 1971 Estimates

The Population Growth Surveys (PGS) were conducted from May 1969 to April 1970 and from May 1970 to April 1971. These surveys utilized a dual record system, which involved independent monthly and semi-annual enumeration of the same households. The reported mortality estimates from the PGS were adjusted by the Liberia Ministry of Planning and Economic Affairs (1972a) using the Chandrasekaran-Deming (CD) technique. Using the CD technique, Rumford (1971) reported that the percentage completeness of the infant deaths reported as occurring during the 12 months of the 1970 PGS from the monthly and semi-annual enumerations were 63 and 60 percent, respectively. Infant deaths obtained from matching the two systems raised the level of completeness to 86 percent. For all deaths he found that the percentage completeness for the monthly, semi-annual, and matched systems were 65, 64, and 86 percent, respectively. Information for the unadjusted or independent estimates from either the monthly or semi-annual enumeration are not available to further evaluate the quality of the CD adjusted rates.

The results of the 1970 and 1971 PGS should have been comparable since the enumeration procedures, sampling frame, and questionnaires were similar in both rounds (see appendix tables A-5, A-6, and A-7). Massalee (1974) suggests that events during the 1971 PGS were probably better reported. The 1971 PGS, however, was affected by a cholera outbreak which occurred during the latter half of 1970 and early 1971.

An examination of the reported CD adjusted age-specific death rates ( ${}_n m_x$  values) revealed some fluctuations in the pattern of mortality, in both rounds of the PGS. These irregularities are probably due to underreporting of deaths and age misreporting as well as to sampling errors. Life tables for 1970-71, by sex, using 1970 and 1971 PGS data were estimated as follows:

1. The 1970 and 1971 PGS report showed some discrepancies in the infant mortality rates between the two rounds of the survey. For instance, the infant mortality rate (IMR) from the PGS for females born in urban and rural areas were higher in 1971 than in 1970, while the reverse was found for males. In addition, the IMR in 1970 was higher for males than females, while in the following year it was higher for females. Because of these fluctuations, which may have been introduced by several factors including the cholera epidemic, sampling errors, age misreporting, and underreporting of infant deaths, the estimate of the IMR based on the average of the 1970 and 1971 PGS (148 for both sexes) was not accepted. Instead, IMR's, by sex, for the 1970-71 life tables were based on the 1970-71 female IMR and the sex differential of the 1970 PGS IMR's. The resulting IMR of 165 for both sexes is comparable with IMR's of 164 and 168 obtained for approximately 1964-67 from the application of the Sullivan and Trussell techniques, respectively,

(average of ages 20 to 24 and 25 to 29 years based on the north region Coale-Demeny model life tables) using data from the 1970-71 PGS (see appendix table A-8). It would be expected that the cholera epidemic increased the IMR for the 1970-71 period, while estimates for the earlier period from the indirect technique would not be strongly affected.

2. Age-specific death rates ( ${}_n m_x$ ), by sex, from the 1970 and 1971 PGS (Liberia Department of Planning and Economic Affairs, 1971a; and Ministry of Planning and Economic Affairs, 1972a) were averaged to reduce random fluctuations in the data. Even after smoothing (by applying a five-point moving average to the logarithms of the  ${}_n m_x$  values for ages 15 to 59 years for males and 20 to 59 years for females) the 1970-71  ${}_n m_x$  values, by sex, there were still obvious irregularities in the age pattern of the male and female rates. Therefore, we decided to work with the reported  ${}_n m_x$  values for both sexes rather than to make an arbitrary assumption regarding the pattern of mortality for each sex. Using these  ${}_n m_x$  values for both sexes, final  ${}_n m_x$  values, by sex, for ages 10 to 59 were obtained as follows:

- a. The final  ${}_n m_x$  values for ages 10 to 59 years for both sexes were obtained by applying a five-point moving average to the logarithms of the observed  ${}_n m_x$  values for both sexes.
- b. The final 1970-71  ${}_n m_x$  values for each sex for ages 10 to 59 years were derived using the following equations:

$${}_5 FR_x = \frac{{}_5 BSR_x}{1 + {}_5 K_x ({}_5 A_x - 1)}$$

$${}_5 MR_x = {}_5 FR_x \cdot {}_5 A_x$$

- |     |  |
|-----|--|
| X   | — Age at the beginning of the 5-year age group.  |
| BSR | — Final ${}_n m_x$ values for both sexes obtained in step A.   |
| A   | — Sex ratios of the ${}_n m_x$ values. These sex ratios were obtained by smoothing (ages 10 to 59 years using a five-point moving average) the sex ratios of the smoothed ${}_n m_x$ for each sex discussed above. |
| K   | — Male proportion of the population in each 5-year age group. These proportions were obtained from the 1970-71 PGS population distribution smoothed using Arriaga's (1968) technique.                              |
| MR  | — Final ${}_n m_x$ values for males.   |
| FR  | — Final ${}_n m_x$ values for females.   |
- c. The 1970-71 observed  ${}_n m_x$  values, for each sex, for ages 1 to 9 years and 60 years and over were accepted.

- Using the infant mortality rates and age-specific death rates for ages 1 year and over (see steps 1 and 2), final life tables for males and females were derived for 1970-71 using separation factors for ages under 1 year and 1 to 4 years from the Coale-Demeny north region model life tables (see table 5).

### 1974 and 1981 Projection Assumptions.

The 1974 life expectancy at birth, by sex, was derived assuming an annual increase of four-tenths of a year per annum in the life expectancy at birth from 1970-71. The life expectancy at birth was estimated at 47 years for males and 50 years for females in 1974.

Mortality assumptions for 1981 were identical for each of the projection series made for 1975 to 1981. The 1981 life expectancy at birth for each sex was derived by extrapolating the estimated 1970-71 and 1974 life expectancies with a logistic function. In applying the logistic function, the asymptotic values of life expectancy at birth were assumed to be 75 years for males and 80 years for females for the upper limit and 25 years for each sex for the lower limit.

Life tables, by sex, for 1974 and 1981 were calculated based on an estimated set of  $nq_x$  values from the 1970-71 empirical life tables (see table 5) and the relative change observed between  $nq_x$  values from Coale-Demeny north region model life tables with life expectancies at birth similar to those obtained for 1970-71, 1974, and 1981 for Liberia.

## FERTILITY

As with death registration, there is no birth registration data available for Liberia. There are four sources of data from which fertility estimates can be derived: the 1970 and 1971 Population Growth Surveys (PGS), the 1974 census, and the 1978 National Demographic Survey (NDS).

### Direct Estimates

The total fertility rate (TFR) for 1970-71 calculated from the PGS dual record system and adjusted by the Chandrasekaran-Deming (CD) technique was 5.99 children per woman. Using the CD technique, Rumford (1971) estimated the percent completeness of births reported as occurring during the 12 months of the 1970 PGS for the monthly, semi-annual, and matched enumerations were 57, 58, and 81 percent, respectively.

Unadjusted data from the 1974 census and 1978 NDS reflect a considerable degree of underreporting of children born during the last 12 months. A TFR of 2.76 children per woman was estimated based on results of the 1974 census. The Liberia Ministry of Planning and Economic Affairs (1977, p. 22) acknowledges that there was underreporting of births in the 1974 census. Similarly, the TFR of 3.03 children per woman calculated from 1978 NDS data on births in the last 12 months, also appears to be too low. Insufficient information was available to adjust the 1978 rates.

### Indirect Estimates

A wide range of variation in the level of Liberian fertility was obtained by various indirect estimates of fertility. The application of the Brass fertility technique (Brass and Coale, 1968) to births in the last 12 months adjusted by the CD technique and children ever born data from the 1970-71 PGS resulted in TFR's of 6.80 and 5.97 children per woman for the  $P_2/F_2$  and  $P_3/F_3$  ratios, respectively (see appendix table A-6). Similarly, when the Brass fertility technique was applied to the 1974 census data, the resulting TFR's were 8.20 and 6.59 children per woman based on the  $P_2/F_2$  and  $P_3/F_3$  ratios, respectively.

The Arriaga (1981) fertility technique was also applied to the 1970-71 PGS and 1974 census data. The results implied TFR's for 1970-71 of 7.26, 6.47, and 6.01 based on age groups 20 to 24, 25 to 29, and 30 to 34 years, respectively. For 1974 the implied TFR's were 8.06, 7.02, and 6.54 based on age groups 20 to 24, 25 to 29, and 30 to 34 years, respectively.

After analyzing the patterns of P/F ratios from the Brass technique, as well as fertility levels obtained by other techniques, we decided to accept the average of the  $P_2/F_2$  and  $P_3/F_2$  Brass estimates for 1970-71. The estimates of fertility based on the 1974 census data were not accepted because the pattern of births by age of mother is based on a relatively small number of births (TFR = 2.8) and the shape of the fertility pattern is inconsistent with the pattern of children ever born by age of mother.

### Projection Assumptions

**1971 to 1974.** A single assumption was made for the trend in fertility for the period 1971 to 1974. Accepted total and age-specific fertility rates for 1970-71 (see table 7) were assumed to remain constant to 1974.

**1974 to 1981.** From 1974 to 1981 two projection series were made. In the lower series, the 1974 TFR (6.38) was projected from 1974 to 1981 based on the assumption that fertility would remain constant during the period. For the upper series, it was assumed that fertility would increase slightly<sup>1</sup>, reaching a TFR of 6.50 by 1985. The TFR for 1981 (6.46) was obtained by linear interpolation of the 1974 and 1985 TFR's. Age-specific fertility rates were obtained by interpolation of the 1974 estimated age-specific fertility rates and a set of age-specific fertility rates having a TFR of 4.50 and a high fertility, broad peak age pattern (United Nations, 1965, p. 110). The weights used for interpolating the 1981 age-specific fertility rates for each series were calculated considering the 1974 estimated TFR of 6.38 the TFR of 4.50, and the 1981 projected TFR for each respective series.

<sup>1</sup> Although fertility estimates based on the 1974 census data were not accepted for the profile (see discussion above), it should be noted that based on the results of the indirect techniques fertility increased from 1970 to 1974 (see appendix table A-6). Other factors considered include the possibility that increased access to health facilities and educational opportunities might result in some rise in fertility levels.

## INTERNATIONAL MIGRATION

### Estimates

Data from the 1970 and 1971 PGS and the 1962 and 1974 censuses indicates that there has been immigration to Liberia, from neighboring countries. Zachariah and Conde (1978, p. 3) have estimated 55,700 immigrants and 20,900 emigrants using data on foreign national and foreign-born populations as reported in censuses for several West African countries taken during the period 1970 to 1975. The 1974 census shows that about two-thirds of the foreign population in Liberia were born in West African countries, mainly Guinea, Ghana, and Sierra Leone (see table 24).

Migration data for the foreign- and native-born populations combined are available from the 1970 and 1971 PGS (see table 25). Age-specific migration rates, by sex, for 1974 were obtained using the number of 1970-71 net migrants (average of 1970 and 1971 PGS data) and the smoothed (using Arriaga's technique) 1974 census population. These rates were adjusted by applying a five-point moving average to ages 10 years and over in order to reduce the irregular pattern of the rates. The adjusted migration rates show net immigration for ages 15 to 54 years as being slightly higher for males than for females. Because of discrepancies by sex in net migration for ages 0 to 4 years and 5 to 9 years (i.e., immigration for males and emigration for females) and the fact that these rates were close to zero, net migration was assumed nil for these age groups.

Available census data on the Ghanaian-born population in Liberia, and vice versa, are consistent with the pattern of net migration estimated from the 1970-71 PGS. In the 1974 Liberian census 4,451 males and 3,617 females born in Ghana were enumerated, while in the 1970 Ghanaian census there were 2,495 male and 1,589 female Liberians enumerated. Data from the 1970 Ghana census show 70 percent of the males born in Liberia were 35 years of age and older in comparison with 41 percent of the females (Ghana Census Office, 1975, table C6).

### 1981 Projection Assumptions

Net migration assumptions from 1974 to 1981 were identical for each of the projection series. The estimated 1974 net migration rate was +2.1 per 1,000 population. The age-sex-specific migration rates estimated for 1974 were assumed to remain constant after 1974.

## CENSUS EVALUATION

Prior to the 1960's, population counts were limited to small areas, such as the enumeration of the capital, Monrovia, in 1956 (Joseph, 1975, p. 527). The first census of the total Liberian population was undertaken in 1962. A second census conducted in 1974 included questions similar to those asked in the 1962 census, as well as, new retrospective questions on fertility and mortality.

The results of the 1962 Post Enumeration Survey (PES) indicated that the net error was less than five percent and the findings were not used to adjust the 1962 census (Liberia Office of National Planning, 1965, p. xvii). A U.S. Bureau of the Census cohort analysis, by age and sex, of the 1962 and 1974 censuses indicated problems of age misreporting and omissions. Besides omissions, both census distributions have been affected by international migration. Because of insufficient information, particularly migration data, the two censuses could not be precisely linked. It was decided therefore, to focus the evaluation on the 1974 census.

The Liberia Ministry of Planning and Economic Affairs (1977) adjusted the reported 1974 census population, by age and sex, by matching the Post Enumeration Survey and the census. The results of the PES were assumed to be complete and were used to inflate the census results. No attempts were made to account for persons missed in both the PES and census. This adjustment yielded an overall underenumeration estimate of 11 percent for the total population. However, this adjustment did not sufficiently address the problem of age misreporting and differential undercoverage as indicated by the irregular pattern of the adjusted 5-year age group distribution. These irregularities in the PES age and sex distribution and inconsistencies in the population under 10 years of age as compared with estimated levels of fertility led to further analysis and adjustment of the 1974 census by the U.S. Bureau of the Census.

The 1974 census population was adjusted according to the following steps:

1. Liberia was assumed to have had a stable population distribution in 1914 with the following fertility and mortality characteristics: fertility, the same age-specific fertility rates as estimated for 1970-71, with a sex ratio at birth of 1.03; and mortality, levels of life expectancies at birth of 30 and 32 years for males and females, respectively. The levels of life expectancy were estimated by extrapolating the 1970-71 and 1974 life expectancies at birth, by sex, using the logistic function with the asymptotic values of life expectancy at birth of 75 years and 25 years for males and 80 years and 25 years for females. South region model life tables were used for 1914 since it was assumed that in Liberia childhood mortality was relatively high in relation to infant mortality in the past. With the set of female  ${}_5L_x$  values from the life tables and the age-specific fertility rates for female births (sex ratio at birth of 1.03), a female stable population was calculated for 1914. The male stable population was obtained using the intrinsic growth rate for females and the male life table for 1914. The male stable population was then adjusted to reflect a sex ratio at birth of 1.03.
2. The 1914 stable population, by age and sex, was destabilized by projecting up to 1974 using estimated trends of mortality, fertility, and migration. Life expectancies at birth, by sex, for each consecutive 10 years 1924 to 1964, were derived by the same logistic function used for obtaining the 1914 levels. The patterns of  ${}_nq_x$  values

were obtained by interpolation of the  ${}_nq_x$  values from the 1914 and 1970-71 life tables. These values were then adjusted to be consistent with the estimated life expectancies at birth to obtain the life tables, by age and sex, for each specified year. The adjustment was made by taking into account the changes of  ${}_nq_x$  values in Coale-Demeny south and north region model life tables for 1914 to 1934 and 1944 to 1964, respectively. Survival ratios for 1971 and 1974 were based on the 1970-71 and 1974 life tables. Fertility was assumed to remain constant from 1914 to 1974 at the level estimated for 1970-71. The sex ratio at birth was assumed to be 1.03. Migration was assumed to be nil from 1914 to 1944. Estimated migration rates, by age and sex, for 1974 were based on migrants from the 1970-71 PGS and the smoothed 1974 census population (see international migration section). Migration rates for each 5-year period, 1944 to 1974, were obtained by linear interpolation of the 1944 and 1974 rates.

After comparing the proportional distribution of the destabilized population with the distribution of the reported 1974 census (adjusted using the PES), it was decided to accept the female age distribution from the 1974 destabilized population and the total female population, ages 10 years and over, from the PES adjustment. By applying the destabilized distribution to the PES adjusted number of females 10 years and over, the final adjusted female census population, 10 years of age and over, by age, was obtained. The final adjusted male population, 10 years of age and over, by age, was obtained by applying the sex ratios, by age, from the 1974 estimated destabilized population to the final female population estimates.

In order to estimate the adjusted 1974 population under age 10 years, the adjusted 1974 female population over age 10 years was reverse survived to 1964 and projected forward to 1974 using estimated age-specific fertility rates (see fertility section) and the estimated mortality and migration for 1964 to 1974. For this projection, fertility was assumed to remain constant from 1964 to 1974. The sex ratio at birth for this projection was 1.03. This adjusted population under age 10 years, by sex, was accepted for the final census adjustment.

The estimated net (percent) underenumeration in the 1974 census (based on the adjusted population derived at the U.S. Bureau of the Census and an estimate of the enumerated population, before the PES adjustment) for the total population and the population under age 10 years, by sex, is presented below:

Sex	All ages	Under 10 years
Both Sexes . . . . .	14.2	20.7
Male . . . . .	14.1	18.6
Female . . . . .	14.3	22.8

## POPULATION PROJECTIONS

The projected population for years after 1974 were based on the adjusted census population for that year, and the assumed trends in fertility, mortality, and migration that are discussed above.

**Table A-1. Projected Midyear 1980 Population, by Age and Sex: 1981**

(Numbers in thousands. Figures may not add to totals due to rounding)

Age	Population			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages.....	1,959.8	997.8	962.0	100.0	100.0	100.0
0 to 4 years.....	348.1	175.4	172.7	17.8	17.6	18.0
5 to 9 years.....	277.8	139.9	137.9	14.2	14.0	14.3
10 to 14 years.....	235.2	118.0	117.2	12.0	11.8	12.2
15 to 19 years.....	196.0	98.4	97.7	10.0	9.9	10.2
20 to 24 years.....	166.0	84.2	81.8	8.5	8.4	8.5
25 to 29 years.....	144.1	74.4	69.7	7.4	7.5	7.2
30 to 34 years.....	125.2	65.9	59.3	6.4	6.6	6.2
35 to 39 years.....	107.2	57.1	50.0	5.5	5.7	5.2
40 to 44 years.....	89.4	47.8	41.6	4.6	4.8	4.3
45 to 49 years.....	72.6	38.5	34.0	3.7	3.9	3.5
50 to 54 years.....	57.5	30.0	27.5	2.9	3.0	2.9
55 to 59 years.....	44.3	22.6	21.7	2.3	2.3	2.3
60 to 64 years.....	33.3	16.5	16.9	1.7	1.7	1.8
65 to 69 years.....	24.6	11.7	12.8	1.3	1.2	1.3
70 to 74 years.....	17.9	8.3	9.6	0.9	0.8	1.0
75 years and over.....	20.7	9.1	11.6	1.1	0.9	1.2
FUNCTIONAL AGE GROUPS						
0 to 14 years.....	861.2	433.4	427.8	43.9	43.4	44.5
15 to 49 years.....	900.4	466.3	434.1	45.9	46.7	45.1
50 to 64 years.....	135.1	69.0	66.1	6.9	6.9	6.9
65 years and over.....	63.1	29.1	34.0	3.2	2.9	3.5

Source: See source note to table 1 and the Technical Notes.

**Table A-2. Official Estimates of the Percentage Completeness of Enumerated Census Population Based on the Post Enumeration Survey, by Age and Sex: February 1974**

(For meaning of symbols, see page IV)

Age	Both sexes	Male	Female
All ages.....	89.0	89.2	88.8
Under 1 year.....	85.8	86.0	85.6
1 to 4 years.....	86.1	88.4	83.6
5 to 9 years.....	88.3	88.8	87.8
10 to 14 years.....	89.0	88.7	89.4
15 to 19 years.....	84.6	83.8	85.4
20 to 24 years.....	88.2	86.7	89.2
25 to 29 years.....	90.2	88.8	91.3
30 to 34 years.....	90.2	89.1	91.0
35 to 39 years.....	90.9	89.8	91.8
40 to 44 years.....	92.8	92.3	93.5
45 to 49 years.....	91.4	92.4	90.2
50 to 54 years.....	92.7	93.8	91.0
55 to 59 years.....	93.9	95.7	91.5
60 to 64 years.....	89.7	92.5	85.4
65 years and over.....	92.3	93.1	91.1

Note: For description of an alternate adjustment of the census by the U.S. Bureau of the Census, see table 2 and the census evaluation section of the Technical Notes.

Source: Official estimates as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table A-1. Based on the percentage of completeness and the reported census population it was estimated that 1.34 million persons were enumerated in the 1974 census.

**Table A-3. Enumerated Census Population, by Age and Sex: April 1962**

(Numbers in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Age	Both sexes	Male	Female
<b>POPULATION</b>			
All ages.....	1,016.4	503.6	512.9
0 to 4 years.....	165.4	81.6	83.8
5 to 9 years.....	133.8	68.8	65.0
10 to 14 years.....	78.6	43.5	35.1
15 to 19 years.....	83.3	39.2	44.0
20 to 24 years.....	84.4	34.8	49.6
25 to 29 years.....	95.3	40.2	55.1
30 to 34 years.....	82.0	36.8	45.2
35 to 39 years.....	69.4	34.5	35.0
40 to 44 years.....	58.6	31.4	27.2
45 to 49 years.....	44.3	24.7	19.5
50 to 54 years.....	34.3	19.7	14.5
55 to 59 years.....	22.8	13.3	9.5
60 to 64 years.....	23.9	13.1	10.8
65 to 69 years.....	16.1	8.8	7.3
70 to 74 years.....	9.3	5.0	4.4
75 years and over.....	15.1	8.2	6.9
<b>PERCENT</b>			
All ages.....	100.0	100.0	100.0
0 to 4 years.....	16.3	16.2	16.3
5 to 9 years.....	13.2	13.7	12.7
10 to 14 years.....	7.7	8.6	6.8
15 to 19 years.....	8.2	7.8	8.6
20 to 24 years.....	8.3	6.9	9.7
25 to 29 years.....	9.4	8.0	10.7
30 to 34 years.....	8.1	7.3	8.8
35 to 39 years.....	6.8	6.8	6.8
40 to 44 years.....	5.8	6.2	5.3
45 to 49 years.....	4.4	4.9	3.8
50 to 54 years.....	3.4	3.9	2.8
55 to 59 years.....	2.2	2.6	1.8
60 to 64 years.....	2.3	2.6	2.1
65 to 69 years.....	1.6	1.7	1.4
70 to 74 years.....	0.9	1.0	0.8
75 years and over.....	1.5	1.6	1.3

Source: Enumerated census population as reported in Liberia Office of National Planning, 1965, table 4.

Table A-4. Projected Measures of Population Change: 1981

Measure	Upper series	Lower series
<b>FERTILITY</b>		
Total fertility rate per woman.....	6.46	6.38
Age-specific fertility rates (per woman)		
15 to 19 years.....	.218	.216
20 to 24 years.....	.268	.265
25 to 29 years.....	.275	.272
30 to 34 years.....	.240	.238
35 to 39 years.....	.177	.175
40 to 44 years.....	.084	.083
45 to 49 years.....	.030	.029
Births per 1,000 population.....	46	45
<b>MORTALITY</b>		
Life expectancy at birth (years):		
Male.....	50	50
Female.....	53	53
Deaths per 1,000 population.....	16	15
<b>NET INTERNATIONAL MIGRATION</b>		
Number (in thousands):		
Male.....	3.7	3.7
Female.....	0.4	0.4
Net migrants per 1,000 population.....	2	2
<b>RATE OF NATURAL INCREASE</b>		
Percent.....	3.0	3.0
<b>GROWTH RATE</b>		
Percent.....	3.2	3.2

Note: Estimates for earlier years are shown in tables 3, 4, 7, and 25.

Source: The total and age-specific fertility rates for the series are based on assumed trends in fertility for the period 1971 to 1981. See the fertility section of the Technical Notes for further discussion.

Life expectancy at birth, by sex, was projected from the levels estimated for the 1970-71 period. See the mortality section of the Technical Notes for discussion of these estimation and projection procedures.

Rates of natural increase were calculated from unrounded crude birth and death rates. They may not equal the difference between the crude birth and death rates shown due to rounding. Growth rates are based on unrounded crude birth and death rates, and assumed trends in international migration (see the migration section of the Technical Notes).

Projected measures of population change in the medium series are consistent with the projection series shown in table 1.

**Table A-5. Alternate Estimates of Vital Rates: 1970, 1971, and 1978**

(For meaning of symbols, see page IV)

Year	Births per 1,000 population	Deaths per 1,000 population	Rate of natural increase (percent)	Growth rate (percent)
1970.....	51	16	3.5	3.9
Urban.....	53	12	4.1	5.1
Rural.....	50	18	3.2	3.4
1971.....	50	21	2.9	2.9
Urban.....	47	15	3.2	3.5
Rural.....	51	23	2.8	2.7
1978.....	50	20	3.1	(NA)
Urban.....	51	14	3.7	(NA)
Rural.....	46	22	2.4	(NA)

Source: 1970 and 1971--Rates derived from vital events reported during the 12 months of the 1970 and 1971 Population Growth Surveys as reported in Liberia Department of Planning and Economic Affairs, 1971a, and 1971b, table (a); and Liberia Ministry of Planning and Economic Affairs, 1971, 1972a, 1972b, and 1973b, table (a). The reported births and deaths were adjusted by the Chandrasekaran-Deming technique; unadjusted rates were not reported.

1978--Preliminary rates derived from vital events occurring during the 12 months prior to the 1978 National Demographic Survey as reported in Liberia Ministry of Planning and Economic Affairs, 1979b, table B1.

**Table A-6. Alternate Estimates of Total and Age-Specific Fertility Rates:  
Selected Periods, 1970 to 1978**

Age	Population Growth Survey <sup>1</sup>					1974 Census			
	Adjusted by Chandrasekaran-Deming technique			1970-71		Unadjusted	Adjusted by Brass technique		
	1970	1971	Average of 1970 and 1971	Adjusted by Brass technique <sup>2</sup>			P <sub>2</sub> /F <sub>2</sub> ratio	P <sub>3</sub> /F <sub>3</sub> ratio	Average of P <sub>2</sub> /F <sub>2</sub> and P <sub>3</sub> /F <sub>3</sub> ratio
				P <sub>2</sub> /F <sub>2</sub> ratio	P <sub>3</sub> /F <sub>3</sub> ratio				
Age-specific fertility rates (per 1,000 women)									
15 to 19 years.....	217	188	202	230	202	63	220	177	199
20 to 24 years.....	256	241	249	282	248	114	338	272	306
25 to 29 years.....	237	273	255	289	254	119	348	279	314
30 to 34 years.....	245	201	223	253	222	98	284	228	256
35 to 39 years.....	162	167	164	186	164	78	223	179	201
40 to 44 years.....	106	49	78	88	77	48	138	110	124
45 to 49 years.....	30	25	28	31	28	33	88	71	80
Total fertility rate (per woman)	6.27	5.72	5.99	6.80	5.97	2.76	8.20	6.58	7.39
Age	Arriaga technique, 1970-71 PGS and 1974 census data							1978 National Demographic Survey	
	1970-71			1974					
	20 to 24 years	25 to 29 years	30 to 34 years	20 to 24 years	25 to 29 years	30 to 34 years			
Age-specific fertility rates (per 1,000 women)									
15 to 19 years.....	245	219	203	213	185	173	112		
20 to 24 years.....	302	269	250	337	293	274	171		
25 to 29 years.....	309	275	256	346	301	281	134		
30 to 34 years.....	270	241	224	280	243	227	80		
35 to 39 years.....	199	177	165	222	193	180	59		
40 to 44 years.....	94	84	78	126	110	102	37		
45 to 49 years.....	34	30	28	89	78	72	13		
Total fertility rate (per woman)	7.26	6.47	6.01	8.06	7.02	6.54	3.03		

<sup>1</sup>The rate for ages 15 to 19 includes "births to women under ages 15", while the rate for ages 45 to 49 includes "births to women ages 45 and over".

<sup>2</sup>An average of the P<sub>2</sub>/F<sub>2</sub> and P<sub>3</sub>/F<sub>3</sub> rates are shown in table 7.

Source: Population Growth Survey (PGS) - Chandrasekaran-Deming technique (C-D) - Based on births for 12-month periods reported in the 1970 and 1971 PGS. The total number of births in the monthly and bi-annual enumerations were adjusted using the C-D technique as reported in Liberia Department of Planning and Economic Affairs, 197b, table 1A; and 1970, table 1A; and Liberia Ministry of Planning and Economic Affairs, 1972b, table 1A; and 1972c, table 1. Rates for 1970-71 were calculated at the U.S. Bureau of the Census based on an average of 1970 and 1971 adjusted rates. Unadjusted rates based on the reported survey data were not available.

Brass technique - Rates for 1970-71 based on births adjusted by the C-D technique were further adjusted at the U.S. Bureau of the Census by the application of the Brass fertility technique.

1974 census: Unadjusted - Based on births occurring in the 12 months preceding the 1974 census as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 21.

Brass technique - Rates adjusted at the U.S. Bureau of the Census from the application of the Brass fertility technique to 1974 census data.

Arriaga technique - Based on children ever born and births for a 12-month period, by age of the mother, from the 1970-71 PGS (births adjusted by C-D technique) and the 1974 census. The rates for ages 20 to 24, 25 to 29, and 30 to 34 years are based on births to mothers in the same age groups, respectively.

1978 National Demographic Survey (NDS) - Based on births occurring in the 12 months preceding the 1978 NDS from preliminary results as reported in Liberia Ministry of Planning and Economic Affairs, 1979b, table B2.

**Table A-7. Survey Estimates of Infant Mortality Rates and Life Expectancies at Birth, by Sex: 1970, 1971, and 1978**

(For meaning of symbols, see page IV)

Year	Infant deaths per 1,000 live births			Life expectancy at birth		
	Both sexes	Male	Female	Both sexes	Male	Female
1970.....	137	145	130	53.7	50.8	57.4
Urban.....	82	85	79	53.7	52.7	54.8
Rural.....	158	170	148	53.3	48.8	57.9
1971.....	159	137	183	45.1	45.8	44.0
Urban.....	126	76	180	48.0	51.5	44.6
Rural.....	171	159	184	44.4	43.3	43.3
1978.....	144	(NA)	(NA)	44.3	(NA)	(NA)

Source: 1970 and 1971--Rates derived from vital events occurring during the 12 months of the 1970 and 1971 Population Growth Surveys as reported in Liberia Department of Planning and Economic Affairs, 1971a, tables a and 2; and Liberia Ministry of Planning and Economic Affairs, 1972a, tables f and 2. The reported vital events were adjusted by the Chandrasekaran-Deming technique; unadjusted rates were not reported. The rates for 1971 were probably "abnormally" high due to a cholera outbreak in late 1970 and early 1971. The year "1970" refers to the period from May 1969 to April 1970, while "1971" refers to May 1970 to April 1971.

1978--Preliminary rates derived from empirical life table calculated at the U.S. Bureau of the Census based on vital events occurring during the 12 months prior to the 1978 National Demographic Survey as reported in Liberia Ministry of Planning and Economic Affairs, 1979b, table 2 (see appendix table A-8).

**Table A-8. Estimates of Infant Mortality Rates Derived by Indirect Mortality Techniques Using 1970-71 Population Growth Survey and 1974 Census Data: Selected Periods, 1952 to 1974**

(For meaning of symbols, see page IV)

Source and age of woman	Age of child (x)	Proportion dead by age x ( $q_x$ )			Approximate reference date	Corresponding infant mortality rate <sup>1</sup> (per 1,000 live births)					
		Brass	Sullivan	Trussell		Brass		Sullivan		Trussell	
						North	South	North	South	North	South
<b>1970-71 Population Growth Survey</b>											
15 to 19 years.....	1	0.212	(NA)	0.209	1970-71	212	212	(NA)	(NA)	209	201
20 to 24 years.....	2	0.241	0.221	0.224	1966-67	188	172	172	167	174	169
25 to 29 years.....	3	0.261	0.228	0.235	1964-65	179	166	156	159	161	163
30 to 34 years.....	5	0.287	0.257	0.266	1962-63	170	167	152	160	157	164
35 to 39 years.....	10	0.309	(NA)	0.303	1959-60	159	167	(NA)	(NA)	156	165
40 to 44 years.....	15	0.322	(NA)	0.321	1955-56	156	167	(NA)	(NA)	155	167
45 to 49 years.....	20	0.364	(NA)	0.359	1952-53	166	177	(NA)	(NA)	163	175
<b>1974 Census</b>											
15 to 19 years.....	1	0.101	(NA)	0.096	1973-74	101	101	(NA)	(NA)	96	98
20 to 24 years.....	2	0.158	0.145	0.144	1969-70	123	121	113	117	113	119
25 to 29 years.....	3	0.165	0.143	0.148	1967-68	114	116	100	111	104	114
30 to 34 years.....	5	0.229	0.204	0.214	1966-67	135	140	121	135	127	139
35 to 39 years.....	10	0.246	(NA)	0.245	1963-64	126	140	(NA)	(NA)	125	140
40 to 44 years.....	15	0.275	(NA)	0.279	1959-60	132	148	(NA)	(NA)	134	149
45 to 49 years.....	20	0.296	(NA)	0.297	1955-56	133	150	(NA)	(NA)	133	150

<sup>1</sup>The infant mortality rates are the  $1q_0$  values from the Coale-Demeny (1966) model life tables, for the region indicated, having the  $xq_0$  value shown in the table.

Source: 1970-71 - Based on the application of the Brass, Sullivan, and Trussell I mortality techniques to children-ever-born and children-surviving data for reporting women from the 1970-1971 Population Growth Surveys as reported in Liberia Department of Planning and Economic Affairs, 1970, tables 1A, 7A, and 8A; and Liberia Ministry of Planning and Economic Affairs, 1972c, tables 1, 10A, and 12A.

1974 - Based on the application of the Brass, Sullivan, and Trussell I mortality techniques to children-ever-born and children-surviving data for reporting women from the 1974 census as reported in Liberia Ministry of Planning and Economic Affairs, 1977, table 20.

Table A-9. Alternate Estimate of Life Table Values for Both Sexes: 1978

Age interval (x to x+n)	$1,000 \frac{q}{n} x$	$l_x$	$\frac{d}{n} x$	$\frac{L}{n} x$	$1,000 \frac{m}{n} x$	${}^o e_x$
0 to 1 year.....	144.3	100,000	14,431	90,476	159.5	44.3
1 to 5 years.....	103.8	85,569	8,882	320,640	27.7	50.7
5 to 10 years.....	11.9	76,687	915	381,150	2.4	52.4
10 to 15 years.....	25.2	75,773	1,908	374,093	5.1	48.0
15 to 20 years.....	30.0	73,865	2,219	363,776	6.1	44.2
20 to 25 years.....	38.2	71,646	2,741	351,376	7.8	40.5
25 to 30 years.....	21.8	68,905	1,499	340,776	4.4	37.0
30 to 35 years.....	43.0	67,405	2,902	329,772	8.8	32.8
35 to 40 years.....	54.0	64,503	3,483	313,809	11.1	29.1
40 to 45 years.....	58.2	61,020	3,555	296,214	12.0	25.6
45 to 50 years.....	73.7	57,466	4,234	276,743	15.3	22.1
50 to 55 years.....	124.3	53,231	6,615	249,620	26.5	18.6
55 to 60 years.....	103.4	46,617	4,819	221,036	21.8	15.9
60 to 65 years.....	293.9	41,798	12,284	178,281	68.9	12.5
65 to 70 years.....	194.1	29,514	5,730	133,248	43.0	11.6
70 to 75 years.....	387.8	23,785	9,222	95,868	96.2	8.8
75 to 80 years.....	233.6	14,562	3,402	64,307	52.9	7.8
80 years and over.....	1,000.0	11,160	11,160	49,357	226.1	4.4

Note:  $x$  = Exact age at beginning of age interval, in years.  
 $n$  = Length of age interval, in years.  
 $1,000 \frac{q}{n} x$  = Number of deaths occurring between age  $x$  and age  $x+n$  per 1,000 persons alive at age  $x$ ; calculated as  $\frac{\frac{d}{n} x}{l_x} \times 1,000$ .  
 $l_x$  = Number of persons living at age  $x$ .  
 $\frac{d}{n} x$  = Number of deaths occurring between age  $x$  and age  $x+n$ .  
 $\frac{L}{n} x$  = Number of persons living between age  $x$  and age  $x+n$ .  
 $1,000 \frac{m}{n} x$  = Number of deaths occurring between age  $x$  and age  $x+n$  per 1,000 persons living between age  $x$  and age  $x+n$ ; calculated as  $\frac{\frac{d}{n} x}{\frac{L}{n} x} \times 1,000$ .  
 ${}^o e_x$  = Average number of years of life remaining for those alive at age  $x$ .

Source: This life table was calculated at the U.S. Bureau of the Census based on unadjusted  $\frac{m}{n} x$  values from a preliminary report on the 1978 National Demographic Survey (Liberia Ministry of Planning and Economic Affairs, 1979b, table C1). The data were not evaluated due to insufficient information on the 1978 National Demographic Survey (see the Technical Notes in the appendix for additional information).

**Table A-10. Population Ages 10 Years and Over, by Marital Status, Age, and Sex: 1971**

(Population in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Sex and age	Population					Percent				
	Total	Single	Married	Widowed	Divorced or separated	Total	Single	Married	Widowed	Divorced or separated
<b>Male</b>										
Total, 10 years and over.....	523.7	235.8	257.8	11.7	18.5	100.0	45.0	49.2	2.2	3.5
10 to 14 years.....	88.2	88.2	(Z)	(Z)	(Z)	100.0	100.0	-	-	-
15 to 19 years.....	65.5	64.5	1.0	(Z)	(Z)	100.0	98.4	1.5	-	0.1
20 to 24 years.....	48.0	36.7	10.3	0.2	0.7	100.0	76.6	21.6	0.3	1.5
25 to 29 years.....	57.7	23.0	32.4	0.4	2.0	100.0	39.8	56.1	0.6	3.5
30 to 34 years.....	50.5	10.1	37.7	0.5	2.2	100.0	20.0	74.7	0.9	4.4
35 to 39 years.....	50.9	5.9	41.8	0.8	2.3	100.0	11.7	82.2	1.5	4.6
40 to 44 years.....	39.7	3.0	33.7	1.0	2.1	100.0	7.6	84.7	2.4	5.2
45 to 49 years.....	33.3	1.5	28.5	1.2	2.1	100.0	4.6	85.6	3.6	6.2
50 to 54 years.....	26.7	1.0	23.0	1.0	1.8	100.0	3.7	86.1	3.6	6.1
55 to 59 years.....	18.0	0.5	15.0	1.1	1.4	100.0	3.0	83.4	5.9	7.7
60 years and over.....	45.1	1.3	34.4	5.7	3.8	100.0	2.8	76.1	12.6	8.5
<b>Female</b>										
Total, 10 years and over.....	553.9	133.2	361.2	39.2	20.3	100.0	24.0	65.2	7.1	3.7
10 to 14 years.....	72.2	71.4	0.7	(Z)	0.1	100.0	98.9	1.0	-	0.1
15 to 19 years.....	70.0	37.8	31.1	0.2	0.9	100.0	54.0	44.4	0.3	1.3
20 to 24 years.....	74.4	12.0	59.7	0.4	2.3	100.0	16.1	80.3	0.5	3.1
25 to 29 years.....	85.6	6.0	75.8	1.1	2.7	100.0	7.0	88.5	1.3	3.2
30 to 34 years.....	62.3	2.3	56.7	1.4	2.0	100.0	3.8	90.9	2.2	3.1
35 to 39 years.....	53.2	1.3	48.3	1.7	1.9	100.0	2.4	90.8	3.2	3.6
40 to 44 years.....	36.6	0.6	31.9	2.0	2.1	100.0	1.7	87.1	5.5	5.8
45 to 49 years.....	26.3	0.4	21.1	3.0	1.8	100.0	1.7	80.3	11.3	6.7
50 to 54 years.....	22.3	0.2	15.5	4.6	1.9	100.0	0.7	69.8	20.9	8.6
55 to 59 years.....	12.6	0.2	7.6	3.8	1.1	100.0	1.4	59.8	30.0	8.8
60 years and over.....	38.3	1.0	12.8	21.0	3.5	100.0	2.5	33.5	54.7	9.2

Note: The 1971 Population Growth Survey (PGS) population of 1,571,477 persons appears to be overestimated when compared with the 1974 census population.

Source: Based on the results of the 1971 PGS as reported in Liberia Ministry of Planning and Economic Affairs, 1972c, table 3A.

**Table A-11. Economically Active Population, by Age and Sex: 1962**

(Population in thousands. Figures may not add to totals due to rounding)

Year and age	Male			Female		
	Total population	Economically active		Total population	Economically active	
		Number	Percent of total		Number	Percent of total
Total, 10 years and over...	353.2	263.6	74.6	364.1	148.2	40.7
10 to 14 years.....	43.5	9.7	22.4	35.1	7.1	20.1
15 to 19 years.....	39.2	18.2	46.5	44.0	15.4	34.9
20 to 24 years.....	34.8	26.0	74.8	49.6	20.4	41.2
25 to 29 years.....	40.2	35.1	87.3	55.1	24.4	44.3
30 to 34 years.....	36.8	34.2	93.0	45.2	21.7	47.9
35 to 39 years.....	34.5	32.5	94.4	35.0	17.4	49.8
40 to 44 years.....	31.4	29.5	93.9	27.2	13.9	51.0
45 to 49 years.....	24.7	23.2	93.8	19.5	9.7	49.9
50 to 54 years.....	19.7	18.2	92.1	14.5	6.8	46.9
55 to 59 years.....	13.3	12.1	91.1	9.5	4.2	44.4
60 to 64 years.....	13.1	10.7	81.5	10.8	3.4	32.0
65 years and over.....	22.0	14.1	64.3	18.5	3.8	20.4

Note: Economically active population is defined as those persons working for pay or profit during the 12 months preceding the census. It was not necessary for a person to have received money if the person worked in an establishment, farm or business operated by another family member, or was a servant working for food, clothing, schooling, etc. The data for 1974 (see table 15) are probably not comparable to 1962 data. It is suspected that the decline in the economically active population between the two dates may be a statistical artifact rather than reflecting actual change in the level of participation in economic activity.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 17.

**Table A-12. Distribution of Labor Force, by Sex and Industry: 1962**

(Population in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Year and industry	Population			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
Total classified workers.....	408.7	261.1	147.6	100.0	100.0	100.0
Agriculture, forestry, hunting, and fishing.....	333.1	194.6	138.5	81.5	74.5	93.9
Mining and quarrying.....	14.4	14.1	0.4	3.5	5.4	0.3
Manufacturing.....	8.5	7.7	0.7	2.1	3.0	0.5
Construction.....	12.0	11.9	0.2	2.9	4.5	0.1
Electricity, gas, and water.....	0.4	0.4	(Z)	0.1	0.1	(Z)
Transport, storage, and communication	3.8	3.7	0.1	0.9	1.4	0.1
Commerce.....	11.5	7.6	4.0	2.8	2.9	2.7
Services.....	24.9	21.2	3.7	6.1	8.1	2.5

Note: Figures exclude 2,443 male and 659 female workers with economic activities not classified by industry. See appendix table A-11 for the definition of economically active and table 16 for 1974 data.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 25.

**Table A-13. Distribution of Labor Force, by Sex and Occupation: 1962**

(Population in thousands. Figures may not add to totals due to rounding)

Year and occupation	Population			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
Total classified workers.....	404.9	257.4	147.5	100.0	100.0	100.0
Professional, technical, and related workers.....	7.6	5.6	2.0	1.9	2.2	1.4
Administrative, executive, and managerial workers.....	2.1	1.9	0.2	0.5	0.7	0.1
Clerical workers.....	4.5	4.0	0.6	1.1	1.5	0.4
Sales workers.....	11.1	7.2	3.9	2.7	2.8	2.6
Service and recreation workers.....	8.0	7.0	1.0	2.0	2.7	0.7
Farmers, lumber workers, fishers, and hunters.....	324.3	186.0	138.3	80.1	72.3	93.7
Production process and related workers.....	21.8	21.0	0.7	5.4	8.2	0.5
Transportation and communication workers.....	6.1	6.0	0.1	1.5	2.3	0.1
Miners and quarry workers.....	7.0	6.8	0.2	1.7	2.6	0.1
Other craft workers, operatives and laborers, not elsewhere classified.....	12.4	11.9	0.4	3.1	4.6	0.3

Note: Figures exclude 6,162 male and 746 female workers not classified by occupation. See appendix table A-11 for the definition of economically active and table 17 for 1974 data.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 23.

**Table A-14. Agricultural and Nonagricultural Workers, by Status and Sex: 1962**

(Population in thousands. Figures may not add to totals due to rounding. For meaning of symbols, see page IV)

Sex and status	Agricultural <sup>1</sup>		Nonagricultural	
	Population	Percent	Population	Percent
<b>BOTH SEXES</b>				
Total classified workers.....	347.6	100.0	64.2	100.0
Employers.....	0.6	0.2	0.5	0.8
Workers on own account.....	155.4	44.7	17.1	26.6
Salaried employees and wage earners.....	47.9	13.8	43.8	68.3
Unpaid family workers.....	143.6	41.3	2.8	4.4
<b>MALE</b>				
Total classified workers.....	208.7	100.0	54.9	100.0
Employers.....	0.6	0.3	0.1	0.8
Workers on own account.....	127.9	61.3	13.0	23.7
Salaried employees and wage earners.....	46.5	22.3	40.0	72.9
Unpaid family workers.....	33.7	16.1	1.4	2.6
<b>FEMALE</b>				
Total classified workers.....	138.9	100.0	9.3	100.0
Employers.....	(2)	(2)	0.1	0.6
Workers on own account.....	27.5	19.8	4.1	43.5
Salaried employees and wage earners.....	1.5	1.1	3.8	41.3
Unpaid family workers.....	110.0	79.1	1.4	14.7

<sup>1</sup>Data include workers in animal husbandry, forestry, fishing, and hunting industry.

Note: Figures exclude 2,443 male and 659 female workers with economic activities not adequately defined. See appendix table A-11 for the definition of economically active and table 18 for 1974 data.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 25.

**Table A-15. Population, by Size of Locality: 1962 and 1974**

(For meaning of symbols, see page IV)

Subject	1962			1974 <sup>1</sup>		
	Number	Population	Percent of total country	Number	Population	Percent of total country
Total country.....	(X)	1,016,443	100.0	(X)	1,503,368	100.0
Localities with 50,000 or more inhabitants.....	1	80,992	8.0	-	-	-
Localities with 20,000 to 49,000 inhabitants.....	1	31,730	3.1	4	114,615	7.6
Localities with 10,000 to 19,999 inhabitants.....	1	11,909	1.2	9	123,852	8.2
Localities with 5,000 to 9,999 inhabitants.....	3	20,323	2.0	20	143,318	9.5
Localities with 2,000 to 4,999 inhabitants.....	17	55,849	5.5	62	183,828	12.2
Localities with 1,000 to 1,999 inhabitants.....	33	43,422	4.3	192	260,251	17.3
Localities with 500 to 999 inhabitants.....	149	97,058	9.5	350	238,589	15.9
Localities with 200 to 499 inhabitants.....	632	189,823	18.7	830	265,595	17.7
Localities with 100 to 199 inhabitants.....	864	122,111	12.0	826	118,121	7.9
Localities with less 100 inhabitants.....	(NA)	363,226	35.7	1,002	55,199	3.7

<sup>1</sup>Data for 1974 are not comparable with 1962 data because of changes in the coding structure designed for the 1974 census, whereby large localities (e.g. Monrovia Proper with a population of 166,507 persons) were divided into communities and each community was treated as a separate locality.

Note: Locality was defined as a nucleated settlement such as a town or village having a distinct name regardless of urban or rural classification. See table 21 for 1974 urban and rural data.

Source: Census data as reported in Liberia Office of National Planning, 1965, table 2; and Liberia Ministry of Planning and Economic Affairs, 1977, table 2.

**Table A-16. County, Province, and Territory Population and Population Born Outside Area: 1962**

Counties, provinces, and territories <sup>1</sup>	Population (in thousands)	Population born outside area (percent)
<b>COUNTIES and TERRITORIES<sup>1</sup></b>		
Grand Bassa.....	99.6	13.1
Rivercess (T).....	28.8	5.8
Grand Cape Mount.....	32.2	18.1
Maryland.....	39.3	36.5
Kru Coast (T).....	21.3	3.6
Montserrado.....	166.8	67.4
Marshall (T).....	14.4	53.4
Sinoe.....	44.6	7.3
Sasstown (T).....	9.5	10.9
<b>PROVINCES</b>		
Central.....	325.2	9.5
Eastern.....	63.7	4.5
Western.....	170.9	11.3

<sup>1</sup>Territories (T) form part of the county under which they are listed.

Source: Based on the 1962 census figures as reported in Liberia Office of National Planning, 1965, tables 4 and 5.

**Table A-17. Estimated Net International Migration, by Age and Sex: 1974**

(Numbers in thousands. Figures may not add to total due to rounding. For meaning of symbols, see page IV)

Age	1974	
	Male	Female
All ages.....	+3.0	+0.3
0 to 4 years.....	-	-
5 to 9 years.....	-	-
10 to 14 years.....	(Z)	(Z)
15 to 19 years.....	+0.4	+0.1
20 to 24 years.....	+0.7	+0.2
25 to 29 years.....	+0.7	+0.1
30 to 34 years.....	+0.6	+0.1
35 to 39 years.....	+0.4	(Z)
40 to 44 years.....	+0.2	(Z)
45 to 49 years.....	+0.1	-0.1
50 to 54 years.....	(Z)	-0.1
55 to 59 years.....	(Z)	(Z)
60 to 64 years.....	(Z)	(Z)
65 years and over.....	(Z)	(Z)

Note: A plus (+) sign denotes net immigration, a minus (-) sign denotes net emigration.

Source: Estimates obtained at the U.S. Bureau of the Census based on the adjusted age-sex-specific migration rates from the 1970-71 PGS, assumed trends in migration and the 1974 census. For further details, see the international migration section of the Technical Notes.

## Glossary

(Following are definitions of terms as used in the tables and the notes of the reports in the profile series)

- Age pattern of fertility.** The percent distribution of a set of age-specific fertility rates. It expresses the relative contribution of each age group to total fertility.
- Age-sex-specific death rate.** The average annual number of deaths to a given sex in a given age group during a specified period of time per 1,000 persons in the same sex and age group (based on midperiod population).
- Age-specific fertility rate.** The average annual number of births to women in a given age group during a specified period of time per 1,000 women in the same age group (based on midperiod population).
- Arriaga fertility technique.** A method of estimating age-specific fertility rates based on the observed change in the number of children ever born by age of mother, for two or more points in time, and the pattern of fertility if available.
- Birth rate.** The average annual number of births during a specified period of time per 1,000 persons (based on midperiod population). Also called crude birth rate.
- Brass fertility technique.** A method of adjusting age-specific fertility rates based on an assumed relationship between these rates and the average number of children ever born per woman in 5-year age groups.
- Brass mortality technique.** A method of estimating the level of infant and child mortality based on information on children ever born and children surviving provided by women in 5-year age groups, and on an assumed relationship between certain life table values and the proportion of children ever born who are still surviving.
- Chandrasekaran-Deming technique.** A statistical procedure used to estimate the number of vital events missed by the two independent data gathering operations of a dual record system.
- Child(hood) mortality.** Mortality during the early childhood years, sometimes up to age 10 or 15.
- Child survivorship techniques.** Various techniques used to estimate the level of infant and child mortality based on data on children ever born and children surviving (e.g., see mortality techniques developed by Brass, Feeney, Sullivan, and Trussell).
- Children ever born.** The number of live births to a woman, regardless of whether the children are now living or dead, or living with or away from the mother. At times, data may be collected or reported only for women of a specific group, e.g., ever-married women.
- Children surviving.** The number of children ever born to a woman who are still alive at the time of the inquiry, regardless of whether the children are now living with or away from the mother. At times, data may be collected or reported only for women of a specific group, e.g., ever-married women.
- Coale-Demeny regional model life tables.** See model life table.
- Coale-Trussell model fertility schedules.** A set of model age-specific fertility schedules that can be used to estimate patterns of fertility.
- Cohort.** A group of individuals who experience the same event in the same time period, such as birth or marriage in the same year.
- Component method.** A method of estimating or projecting a population in which separate components of population change (fertility, mortality, and migration) are used. This method may be used to derive the total population or population by specific characteristics (e.g., age and sex).
- Crude birth rate.** See birth rate.
- Crude death rate.** See death rate.
- Death rate.** The average annual number of deaths during a specified period of time per 1,000 persons (based on midperiod population). Also called crude death rate.
- De facto population.** A concept under which individuals are attributed to the geographic area where they were actually located at the time of the enumeration.

**De jure population.** A concept under which individuals are attributed to a geographic area by virtue of their usual place of residence, whether or not they were actually located in that area at the time of the enumeration.

**Dual record system.** A method of obtaining estimates of vital statistics which employs the simultaneous collection of reports of vital events by two independent data gathering operations.

**Empirical life table.** A life table derived from the observed frequency of death in an actual population.

**Ever-married women.** All women who are now, or who have been, married. The category includes the currently married, those living in consensual unions, and the widowed, divorced, or separated.

**Feeney mortality technique.** A method of estimating the trend in infant mortality based on information on children ever born and children surviving provided by women in 5-year age groups, and on assumed relationships between certain life table values and the proportion of children ever born who are still surviving.

**Gross reproduction rate.** The average number of daughters born per woman in a group of women passing through the childbearing years and experiencing a given set of age-specific fertility rates. This rate implicitly assumes that all the women live to the end of the childbearing years. (See also net reproduction rate.)

**Growth rate.** The average annual percent change in the population calculated assuming exponential growth. This change results from a surplus (or deficit) of births over deaths and the balance of migrants entering and leaving the country.

**Incomplete registration.** A term used to indicate that the coverage of registered data is less than 90 percent of all vital events.

**Infant mortality rate.** A measure of the frequency of death between birth and age 1, during a specified period of time. Usually calculated as the number of deaths to infants under 1 year of age per 1,000 live births occurring in the same calendar year.

**Life expectancy at birth.** The average number of years lived by a birth cohort, exposed to a given pattern of age-specific death rates.

**Life table.** A statistical table representing the life history of a hypothetical cohort exposed to a given pattern of age-specific death rates.

**Life table central death rates.** Age-specific death rates based on a life table population.

**Longitudinal survey.** A survey which follows the same group of individuals (or households) over time by means of repeated visits.

**Matched and unmatched events.** The total number of vital events recorded in a dual record system derived as the sum of events recorded by both systems (matched events), plus events recorded only by the first system and those recorded only by the second system (unmatched events).

**Median age of childbearing.** The midpoint age that separates the younger half of all women giving birth in a given year from the older half.

**Model life table.** A life table not derived from the observed mortality of an actual population. Well-known sets of model life tables include United Nations model life tables and Coale-Demeny regional model life tables.

**Net census error.** The combination of net underenumeration (or net overenumeration -- see net coverage error) and net age misreporting.

**Net coverage error.** The balance between the number of persons not counted in a census or survey and those improperly counted, expressed as a percentage of the adjusted population. An excess of persons not counted is referred to as net underenumeration, an excess of persons improperly counted as net overenumeration.

**Net emigration rate.** See net migration rate.

**Net immigration rate.** See net migration rate.

**Net migration rate.** The balance between the number of persons entering and leaving a country during a specified period of time per 1,000 persons (based on midperiod population). An excess of persons entering the country is referred to as net immigration, an excess of persons leaving the country as net emigration.

**Net reproduction rate.** A refinement of the gross reproduction rate that allows for mortality of women from birth to the end of their reproductive years.

**New acceptors.** Persons accepting methods of contraception from family planning systems, including clients accepting contraceptive services for the first time; clients changing to another service organization; clients changing to a different contraceptive method; and clients resuming acceptance of contraceptive services after a lapse of 1 year or more.

**Overenumeration.** An enumeration of the population which erroneously counts more persons than actually belong to it.

**Own-children method.** A reverse survival technique for estimating age-specific fertility rates based on a procedure for matching or allocating children under certain ages to their mothers.

**Post enumeration survey.** A survey used for checking the coverage and accuracy of a population census by independently reenumerating a sample of the population after the census.

**Projections.** A term used to describe population data and vital rates for years since the latest reliable population census figures, complete vital registration data, or sample survey data.

**Quasi-stable population analysis.** A method of demographic analysis based on a model population which has not been subjected to migration, where fertility has remained constant over a long period of time, and where mortality has been declining (cf. stable population analysis).

**Rate of natural increase.** The average annual percent change in the population during a specified period of time resulting from a surplus (or deficit) of births over deaths. The natural increase of the population does not include an allowance for net migration (see growth rate).

**Registration.** A method of continuously recording information on vital events as they occur, through either a civil or a special recording system.

**Retrospective question.** A question asked in a census or survey which attempts to obtain information about past actions or events rather than about the present status of the respondent or his/her family.

**Reverse survival technique.** A backward projection (sometimes called "rejuvenation") of the population by age and sex in order to estimate the size and distribution of the population in the past, using age-sex-specific survival ratios for the projection period. Reverse survival may also be used to estimate the number of births in the past.

**Sex ratio at birth.** The number of male births for each female birth during a specified period of time.

**Stable population analysis.** A method of demographic analysis based on a model population which has not been subject to migration, and where fertility and mortality have remained constant over a long period of time.

**Sullivan mortality technique.** A modification of the Brass mortality technique for estimating the level of infant and child mortality. Results from a regression analysis of empirically based fertility and mortality schedules are incorporated into the procedure of converting the proportion of children ever born who are still surviving per woman in given 5-year age groups into precise life table measures.

**Survival ratios.** The proportion of persons in a given age group who will be alive a specified number of years later.

**Total fertility rate.** The average number of children that would be born per woman if all women lived to the end of their childbearing years and bore children according to a given set of age-specific fertility rates.

**Trussell mortality technique.** A modification of the Brass and Sullivan mortality techniques for estimating the level of infant and child mortality. Additional independent variables are included in the regression analysis and Coale-Trussell model fertility schedules are substituted in place of empirical fertility schedules.

**Underenumeration.** An enumeration of the population which erroneously counts fewer persons than actually belong to it.

**Underregistration.** The failure to record all vital events which occur during a specified time period in a given population.

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