THE POPULATION OF CAMBODIA 1945–1980

GEORGE S. SIAMPOS

The population of Cambodia was assessed to be 5,728,771 persons, according to the Census of April 17, 1962. It was the first population census of Cambodia.[1] The statistical compilation that followed yielded data by sex, age, marital status and number of children born as well as by other economic, social and demographic characteristics. But no post-enumeration survey was carried out to measure the degree of coverage and accuracy of the census of 1962. In this study, the instruments of the demographic analysis are used to check the accuracy of the original crude data and to correct them, to determine the present sex-age composition of the population and the level of the vital rates (of fertility and mortality), to reconstruct the demographic history of the country and to predict the probable future size and composition of the population.

GEOGRAPHIC DISTRIBUTION OF THE POPULATION

Of 5,728,771 persons of the population of Cambodia, 5,512,-997 are grouped into 1,071,101 private households (that is an average of 5.3 persons) and the remaining 205,744 persons in a number of institutional households. The houses—together with buildings for other purposes (social and economic) — are grouped into 13,518 localities by a plan near to that recommended by the international organizations, of a median size

of 698 inhabitants. Administratively, the total area of the country—181,035 square kilometers—is subdivided into 1,179 smaller administrative areas (of an average size of 4,859 inhabitants, 11.5 localities, 1,954 square kilometers. The capital city, Phnom-Penh, has a population of 393,995) that are grouped into major administrative areas. The urban/rural classification of the localities shows that 9.5 per cent of the population was urban (i.e., in localities of more than 10,000 inhabitants), 7.1 per cent was semiurban (i.e., in localities of 2,000 to 9,999 inhabitants) and the remaining 83.4 per cent was rural. The population density of the country is 31.6 inhabitants per square kilometer.[2]

SEX-AGE COMPOSITION OF THE POPULATION

The composition of the population by sex and age is one of the most important products of that census. The population was tabulated, for the first time in the history of the country, by sex and single-year age groups for the urban and rural areas (see Appendix Table A). In the first stage the accuracy of the sex-age classification is measured, the peculiarities of the age declaration are detected and corrections are made; then an analysis follows.

Accuracy of the Sex-Age Composition

A post-enumeration survey was not carried out to measure the degree of coverage and the accuracy of the age declaration. An estimate was made of the completeness of the enumeration of the infants and of the age misstatement by a complete examination of the sex-age classification in four steps.

Inspection of the data. The tabulated data of the population census by sex and single-year age groups (as they are illustrated in graphs of the sex-age pyramid of the population) and the data by sex and five-year age groups show that (see Appendix Table A and Figures 1 and 2): the numbers of the age group 0–4 are smaller than those of 5–9, the ages ending in five and

318

FIGURE I. PROFILES OF THE CLASSIFICATION OF THE POPULATION OF CAMBODIA BY AGE

319
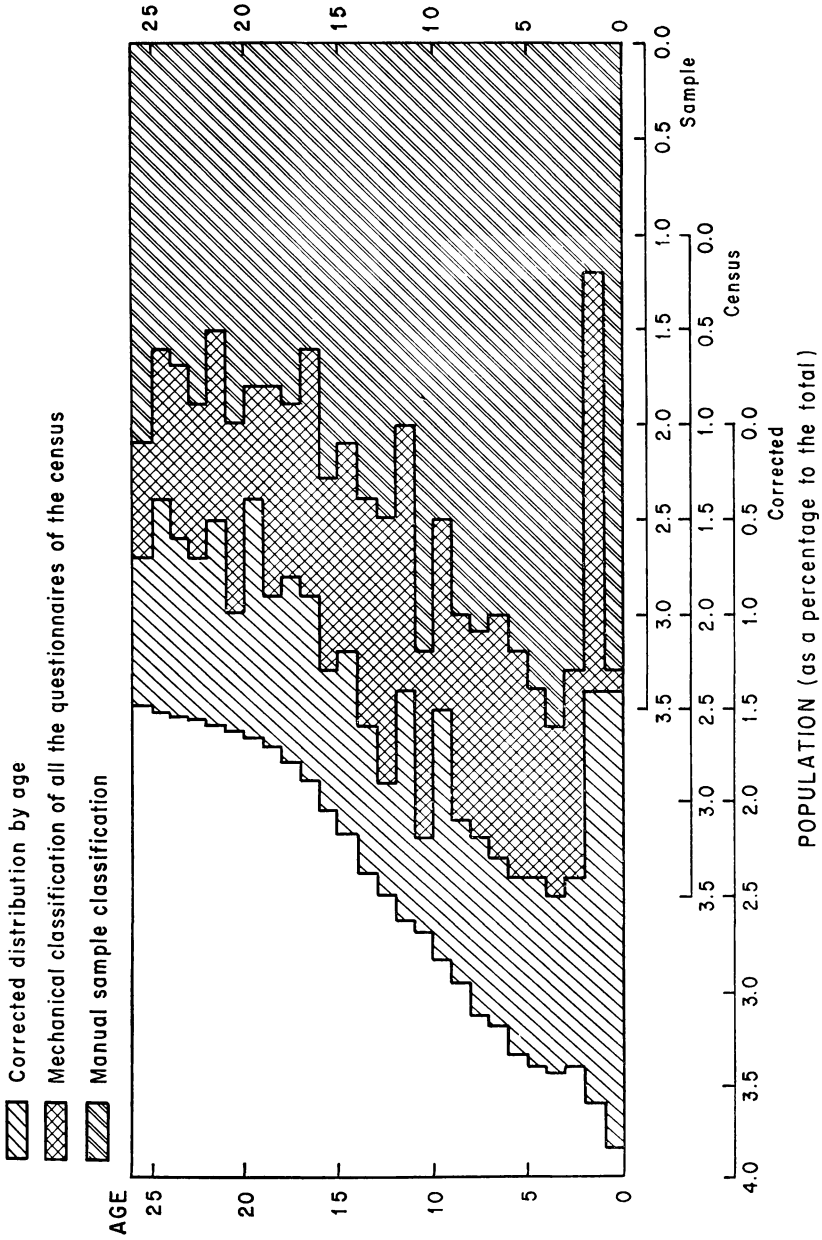
zero have attracted greater numbers of population than the other ages; and the first and the second one-year-ages of life, that is the age zero and the age one, are presented as one age group of "0 and 1," and the number of the population in this group is very small.

Measurement of the age-accuracy. The measurement of the age-accuracy in the mechanically tabulated data gives some interesting information when urban and rural populations are compared. The results are the reverse of what is usually expected in that the rural data appear to be more accurate.

The index for measurement of the preference for the digits 0 and 5 (Whipple's Index) —obtained in the age interval 23 to 62 as a percentage of the population in the ages ending with five and zero to one-fifth of the total—shows that the tabulated data are more accurate in the rural than in the urban population:

|	Males	Females
Cambodia, total	117.3	120.0
Urban	124.5	133.4
Rural	116.5	118.5

This index (which theoretically can vary from 100 to 500) may be around 105 for the more developed countries. For the less developed countries it may range in broad intervals up to 300 or more.

The index for measurement of the preferences or dislikes for each of the ten digits, from zero to nine (Myer's Index) shows also that the tabulated data are more accurate in the rural than in the urban population:

	Males	Females
Cambodia, total	7.4	8.0
Urban	12.6	15.0
Rural	6.4	7.4

Myer's Index is obtained (after complicated calculations) by means of a "blended" population in which for each digit, if

FIGURE 2. PYRAMID OF THE POPULATION OF CAMBODIA BY SEX AND AGE
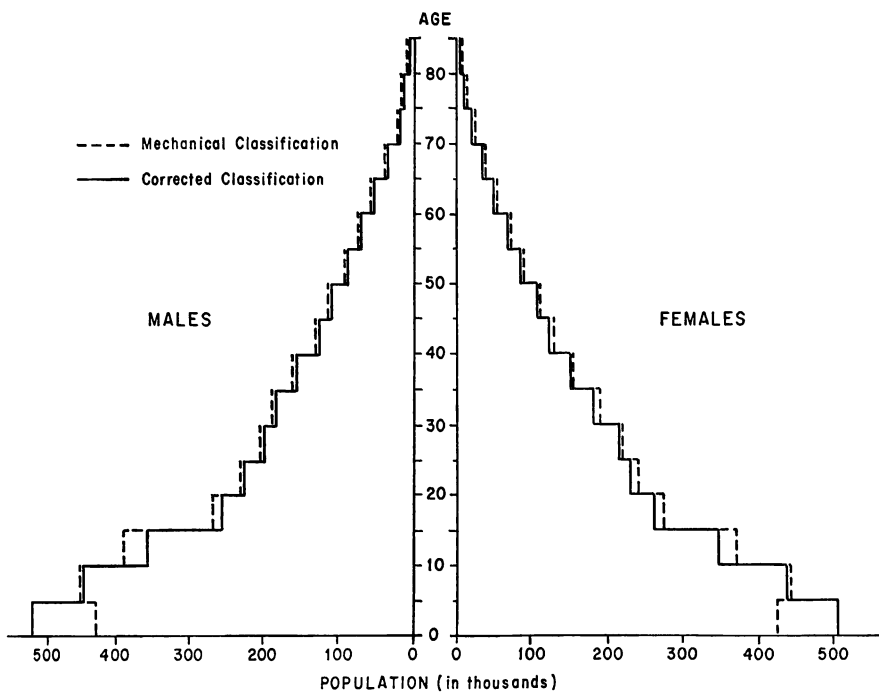
no error is made, about ten per cent of their grand total is to be expected. The deviations of the sum of each digit from ten per cent are added together. The index (which theoretically can vary from 0 to 180) may be around three for the more developed countries and around 40 or much more for the less developed countries (see Table 1).

The index for measuring the differences of the sex ratios and age ratios for five-year age groups (U.N. Secretariat method) —obtained by adding the average differences of the age ratios of males and females to three times the average sex ratio differences—shows also a more favorable sex-age distribution for the rural than for the urban population.

<div style="text-align:center">

Cambodia, total   19.3
Urban   32.0
Rural   14.1

</div>

Digit of Age	Cambodia Total	Urban	Rural
All digits	100.0	100.0	100.0
0	11.7	12.8	11.4
1	8.9	8.5	9.3
2	10.5	11.5	10.3
3	10.1	9.8	10.2
4	9.4	9.2	9.4
5	11.3	11.3	11.3
6	9.6	9.3	9.5
7	9.3	9.1	9.3
8	10.1	10.5	10.0
9	9.1	8.0	9.3
Index	7.4	12.6	6.4

This index (which shows the order or magnitude rather than the precise measurement) is affected by misstatements of age, digit preferences and differential omissions by age.

Comparison of the data with a stable population. From the first approximation of the gross reproduction rate, derived from the number of children by age of mother, it was found that a stable population with a gross reproduction rate of about 3,500 (as was estimated for Cambodia) and a level of female mortality corresponding to a life expectancy at birth from 45 years to 55 years, should have about 19 per cent of the female population in the age group 0–4 and about 47 to 48 per cent in the age group 0–14. (Accurate results will be described later.)

The age distribution of the population census showed a female population of 15 per cent in the age group 0–4 and 43 per cent in the age group 0–14. The smaller proportion of the population in the younger ages in comparison with that of the stable population raises the suspicion of an overstatement of ages.

Sample classification of the original data by age. From the inspection of the data and from the measurement of their accuracy, it seemed that the data had been corrected during processing, and the ages of the first and second years of life

were mixed. To clarify the nature of the errors in the age classification, a sample of enumeration area units was drawn up and the members included in the household questionnaires were classified by age. On the sample design and on the classification of the data some brief explanations are given: the country was divided into four strata, (1.) Phnom-Penh; (2.) rest of urban area; (3.) semiurban area, and (4.) rural area (and the P.P.S. method together with random numbers was used). The selection of the enumeration area followed and the people of each enumeration area were classified manually by age. The questions in the household census schedule (questionnaire) referred to the age in years; for children of under one year of age it was expressed in months. The sample classification by age included 18,988 persons, of which 2,809 were in Phnom-Penh and the rest of the urban area (see Appendix Table B). The sample results show the following characteristics of the age distribution:

1. The irregularities in the rural area are much larger than those of the urban area. The indices (although affected by sampling errors) are quite indicative. The index on the preference for the digits zero and five is 114 for the urban area and 126 for the rural area. The index for preference for each of the digits from zero to nine is 10.3 for the urban area and 13.1 for the rural area (see Table 2).

TABLE 2. INDEX OF DIGIT PREFERENCE, SAMPLE CLASSIFICATION

Digit of Age	Urban	Rural
All digits	100.0	100.0
0	11.9	12.8
1	9.5	10.0
2	10.4	10.3
3	9.8	11.2
4	8.9	8.9
5	12.9	10.6
6	9.2	8.3
7	9.7	8.0
8	9.5	11.7
9	8.3	8.3
Index	10.3	13.1

2. The age of one represents a very small number of the population.

3. The age zero includes a reasonable number of children; it covered 74 per cent of the population in the age group "0 and 1" (see Figure 1).

Correction of the Sex-Age Distribution

An interpretation of the discrepancies noted in the sex-age distribution is necessary before attempting corrections:

1. The accumulation of the population in the ages ending in digit zero and five is a matter of ignorance of the exact age.

2. The gap at the age of one year is a result of the way in which the age is measured in Cambodia; an infant is considered to be one year old at birth, and at the succeeding Cambodian New Year (April 13 of the Gregorian Calendar) he automatically becomes two years old, and he continues to advance one year at each New Year. As the census was taken on April 17, 1962 (the New Year started on April 13), those born in 1960 were two years old and those born in 1961 were one year old, according to the way of reckoning age by the people. But by means of the special question on the age in months they were mostly included in the group 0–12 months and only a small part in the declared age one year. In the tabulation of the census results these two age groups are presented as one group, "0 and 1." The determination of the nature of the errors in the age distribution can help in the choice of the most suitable method for corrections.

3. It is worth noting that the Cambodian circle of 12 years does not show any striking preference or dislike at the declaration of age (see Table 3). The measurement of the preference in the sample classification shows numbers with no large differences from their average 8.5 per cent. The population shows a preference or dislike for some

TABLE 3. INDEX OF YEAR PREFERENCE (CAMBODIAN YEARS), SAMPLE CLASSIFICATION

Cambodian Years (Year of Birth)		Year Preference
CHHLAUV	0	8.5
CHOUT	1	9.3
KOR	2	8.1
CHAR	3	8.4
ROKA	4	8.4
VOK	5	7.9
MOME	6	8.2
MOMI	7	7.5
MASANH	8	8.4
RONG	9	8.6
THOS	10	8.3
KHAL	11	8.4
Total		100.0

years, but some combinations between the year of birth and the year of other facts eliminate the influence of each other.

The concentration of the population in the round digits zero and five was corrected by applying a simple smoothing formula of moving averages—five-year intervals—from the age group seven and over up to 92 (with effect in the age range from nine to 90). This smoothing was carried out on the single age distributions of males and of females of the total of the country, and of the urban and rural population. (A further smoothing was not necessary.) (See Appendix Table A.)

The upward bias of the age distribution was corrected in a manner of treatment of the data as follows:

1. The population of age 0–12 months was compared with the population that might derive from the level of fertility (as it is analyzed below). It was found that the population in the age zero might be 241,300 persons of which 122,400 were males and 118,900 were females). The sample classification, on the other hand, shows 196,-600 persons in the age 0–12 months and 70,150 persons in the age of one year. In the age distribution by month

(in the age zero) a great number of children—perhaps because by some people the age of the child is counted from the time of conception—were declared as one year old. However, the number of persons declared as one year old cannot be included in the age group of 0–12 months, because in this case the population of the age zero exceeds the estimated number according to the level of fertility and mortality. And as it is not clear to what extent the low number of children in the age 0–12 months, from the sample, is the result of underenumeration and to what extent of the overstatement of the age in months it was preferred to cover the gap of age 0–12 months from the numbers of age one.

2. The age group of one year consists of 25,450 persons. A small number, therefore, declared exact age (or at any rate counted the age from the date of birth). This proportion is considered to be 14 per cent in the age of one year.

3. On the assumption that the proportion of the persons who have declared their ages accurately—a matter depending on the informant rather than on the enumerated —is in each of the succeeding age groups the same as that of the age one, the population by single years of age was redistributed downward by carrying 86 per cent of the population in each age to its previous one. Thus, the gap in the age of one was covered and at the same time the underenumeration of the infants—its extent is not known, but must be very small—was indirectly distributed throughout the span from zero to 100 years of age.

4. Error may be introduced by the fact that the age increases by one year for all persons each New Year, regardless of the actual date of birth. But in this census this habit had no effect because the census was taken near the date of the Cambodian New Year.

The corrected distributions by sex and single year age for

Cambodia (total), for urban area and for rural area were grouped by five-year groups for further use (see Appendix Table F).

The Sex Ratio of the Population

According to the Census of 1962, Cambodia has 999 males per 1,000 females. That is, females outnumbered males by only 3,000 (total males 2,862,939; total females 2,865,832). On the assumption that the sex ratio at birth was not abnormally high and that the migration and the underenumeration were not selective by sex, the observed near equality between males and females is an indication that the female mortality was not much lower than the male mortality (see Table 4).

By age, the sex ratio—males per 1,000 females in each age group—steadily decreases with the advance of age. The ratio is 1,029 in the first year of age. With some variation (perhaps because understatements or overstatements of the age of the school-age population) it balances the number of males and females at the age of 17; it then falls to 972 at the age group of 20–24, to 943 at the age 25–29 and to 988 at the age 30–34. After that it continues with small difference between males and females up to around the age of 65, when it starts declining progressively toward older ages. The low ratio of males in the age group 20–24 and 25–29 may result from the age misstatements by the women of the age interval 18–32, or the fact that the enumeration was carried out by place of residence and some of the internal emigrants from the rural areas were not

TABLE 4. POPULATION OF CAMBODIA BY SEX AND LARGE AGE GROUPS

Age	Total Number*	Percentage	Male	Female
All ages	5,728	100.0	2,863	2,865
0–14	2,621	45.7	1,325	1,296
15–64	2,961	51.7	1,468	1,493
65+	146	2.6	70	76

* Numbers in thousands.

enumerated in the place of their origin, but at the same time were excluded from the place of their new residence.

In urban areas, the sex ratio was 1,002; in rural areas it was 995, as a result of internal migration most probably. The male participation is greater than the female for the time period under consideration, as can be guessed from several indications.

The Sex-Age Composition

The composition of the population by sex and age (as it is presented in the corrected figures) is very informative from many points of view. In the first stage the composition of the population is examined as a stage of the demographic transition in the country. The population in the large age groups of the young, the old and the working ages is examined in comparison with other countries also.

The phenomenon of the demographic transition from the population pyramid. The sex-age composition of the population of Cambodia (as illustrated in Figure 2) is a result of births and deaths of about a hundred years preceding the census of 1962. The shape of the population pyramid is normal from the age 15 and over; and it presents a gradual expansion of the population augmentation in the ages from 15 down to zero.

The interpretation of the phenomenon of the sex-age composition of the population in terms of fertility and mortality indicates that: (1) a long period of high fertility and high mortality occurred in the country; (2) some two or three years before 1950, a drastic reduction of the mortality level began; and (3) the fertility level continued to be high, although at present it appears to be dropping slowly. This phenomenon of the reduction of both the mortality level and the fertility level can be called "demographic transition" in Cambodia, and it seems that it will last for a long time before both become low.

The large age groups of the population pyramid. The graduated distribution of the population by single years of age had multiple uses. The mean age of the population was found to be 22.1 years for males and 22.4 for females. From the grouping

by five-year age groups a more convenient distribution was formed. The distribution of the population by sex and by five-year age groups was further grouped into broad age groups of the young population (ages 0–14), of the working population (15–64) and of the old population (ages 65 and over). From this grouping some interesting information derives.

The population under 15 years of age numbered 2,621,000 and covered 45.7 per cent of the total population. It consisted of 1,325,000 males and 1,296,000 females (the surplus of males over females being a result of the higher sex ratio at birth). The proportion of the young population is high, and in comparison with other countries it is among those of high proportion of young population. In the more developed countries it is 29 per cent and in the less developed countries it is 40 per cent; in South-East Asia particularly it is 40.7 per cent.

The population of 65 years and over numbered only 146,000 persons (70,000 males and 76,000 females) and covered 2.6 per cent of the total population. The small surplus of females over males indicates that mortality is—more accurately, it was in the past—not very much higher for males than for females. In comparison, the older population composes about eight per cent of the population of the developed countries and three per cent of the less-developed countries; in South-East Asia it is 2.8 per cent.

The population of the working ages was 2,961,000, or 51.7 per cent of the total population. There were 25,000 more women than men (but in reality the difference may be smaller).

The ratio of the young and old populations (0–14 and 65 and over) to the population of the working ages is 0.93. In the group of developed countries it is 57 per cent, and in the group of the less-developed countries it is 75 per cent; in South-East Asia especially it is 77 per cent.

The school-age population. The school-age population covers the three stages of education from the age of six to 23. Children in primary school range in age from six to 11 years and in secondary school from 12 to 17; the ages corresponding to high

school are from 18 to 23. The results show for 1962—given that the school year had started in September—the following figures (in thousands) :

Age	Total	Males	Females
7–12	957	483	474
13–18	687	344	343
19–24	373	183	190

The analysis of these groups by single year of age may be found in the graduated distribution.

FERTILITY OF THE POPULATION

Statistics of births have not yet been compiled in the country through a vital statistics system based on the civil registration.[3] The only existing source of information is the Population Census of 1962, in which women are classified by age and number of children born alive, and again by age of women who gave birth during the 12 months preceding the census.[4] The accuracy control, correction of the existing data and measurement of the level of fertility is carried out in the following paragraphs.

Accuracy and Corrections of Data on Number of Children Born

The tabulated results of the Census of 1962 show the number of women from the age of 14 up to 65 and over by five-year age groups (the age 14 being a single group) and by the number of children born alive from zero to ten children and over; and the number of children born alive during the 12 months preceding the census by age of women in five-year age groups from 15 to 54 years and the age 14 as a single group; but the children born were not classified by sex.

Accuracy of data on number of children. The questions with regard to fertility in column-like questionnaires of the Census covered a section of columns as shown below.

330

Children born alive

Write below by sex the number of children born alive to each woman. (Do not count the children who were not born alive)		The number of children surviving to date by sex (Include the children who do not stay at the place of their parents)		The number of children born alive in the twelve-month period preceding the moment of the census (Do not count the children who were not born alive)	
M	F	M	F	M	F
Column No. 12		Column No. 13		Column No. 14	

The instructions to the enumerators explained that the fact that the child "cried" soon after his birth was evidence of life (thus those children who "cried" one minute or one second after their delivery and then died are classified as "children born alive").

The fact that the "cry" of the child at birth was taken in the instructions as the only indication, and other "evidences of life" were not mentioned, means that some of the children born alive and who died shortly after their birth, but showed other evidence of life, were not included in the number of children born alive by age of mother. Irrespective of this, it seems that in the mind of the women it was not clear that those children who died shortly after their birth should also be included in the number of live births (or perhaps there was a preference not to declare them). It seems, also, that the aged women—in spite of the clear instructions to the enumerators—have excluded children who were not living with them (see Appendix Tables C, D and E).

Corrections on number of children born alive. The following points are to be corrected: (1) the nondeclared age; (2) the nondeclared parity (number of children); (3) the peculiarity of the declared age; (4) the overstatement or the understatement of the reference 12-month period; and (5) the fact that the births in the 12 months preceding the census were classified according to the age of the mothers at the end of the

12-month period. The corrections in the distribution of the women per number of children born alive were carried out first, and then the corrections in the distribution of births in the year preceding the census followed.

The "not declared age" category of the age distribution of women by (parity) number of children ever born alive was distributed proportionally to the number of women by declared age. The same treatment was applied to the distribution of women by age and number of children born alive in the 12 months preceding the census.

The category of "not declared (parity) number of children" by age was not distributed proportionally to the number of those having declared parity. Experience has shown that this category of nonresponses includes, for the most part, childless women (of zero parity) and real numbers of nonresponses. For the determination of the true number of the nonrespondents the following technique was applied:

1. A scatter diagram was made showing for each age interval the proportion of nonresponses on one axis and the proportion of childless women on the other axis.

2. The resultant points could be rather closely fitted by a straight line drawn and extended to the zero value of the proportion childless.

3. The proportion of the nonrespondents on the straight line at the zero point was taken as an estimate of the true proportion of the nonrespondents (it was only 0.007 and a much larger proportion was considered childless women).

4. This true proportion of nonrespondents was further used for the adjustment of the average number of children ever born. The same proportion was used for the nonrespondents of birth in the year preceding the census as the absolute numbers were nearly the same in the two distributions (see Table 5 and Figure 3).

The peculiarity of the age declaration was corrected by the

TABLE 5. AVERAGE NUMBER OF CHILDREN EVER BORN ALIVE AND
AVERAGE NUMBER OF CHILDREN SURVIVING, BY AGE OF MOTHER

Age of Woman	Average Number of Children Ever Born	Average Number of Children Surviving	Estimated Average Cumulative Fertility
14	0.025	0.017	0.025
15–19	0.205	0.176	0.161
20–24	1.239	1.096	1.117
25–29	2.746	2.318	2.519
30–34	4.133	3.395	3.889
35–39	5.028	4.010	5.056
40–44	5.515	4.280	5.819
45–49	5.362	4.062	6.111
50–54	5.134	3.822	
55–59	4.933	3.612	
60–64	4.792	3.455	
65 and over	4.583	3.175	

FIGURE 3. AVERAGE NUMBER OF CHILDREN EVER BORN ALIVE AND AVER-
AGE NUMBER OF CHILDREN SURVIVING, BY AGE OF MOTHER

333
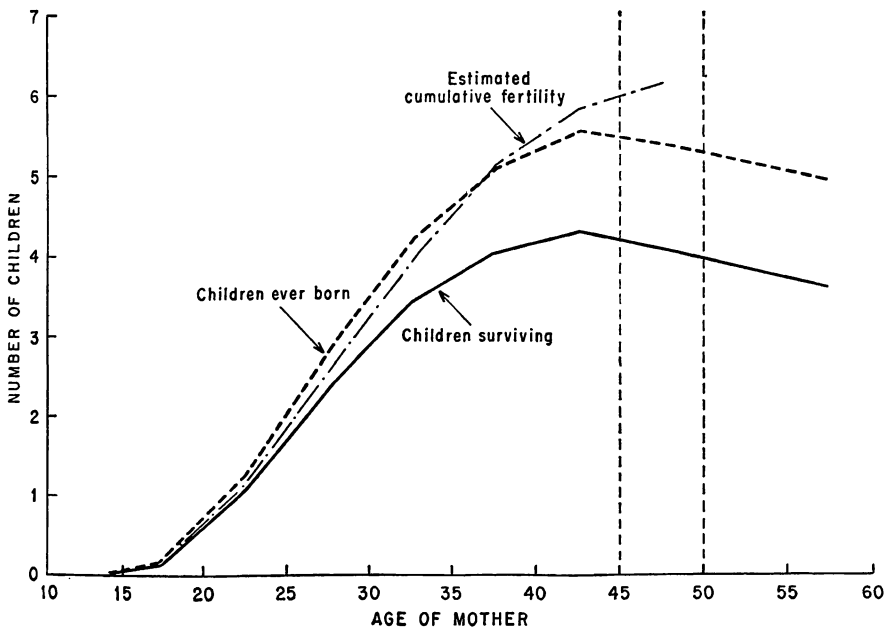
graphical method. The number of children ever born, by five-year age groups of mother, was carried to younger ages, according to the general correction of the age. The same was done with the distribution of the number of children born alive in the year preceding the census by age of mother (five-year age groups).

The ages of mothers having children in the 12 months preceding the census were recorded at the end of the yearly period. Accordingly, the age of mother when she gave birth was about one-half year younger than it was at the time of the census. The correction of this point is carried out in the following paragraph by virtue of the corrections for the reference period error.

The 12-month reference period preceding the census is not properly identified in length by the respondents, and the tendency for women to report births that occurred in a period of less than a year was much larger than the tendency to report births in a period more than the preceding year. The age-specific fertility rates (after the corrections described above) were calculated and the derived total fertility was found to be 6.170. The adjustment of these fertility rates for possible error in the reference period was carried out as follows:

1. From the five-year age-specific fertility rates—which pertain to women one-half year younger—the average cumulative fertility was obtained by multiplying factors. They were selected from special tables, using as a key for the interpolation the rapidity with which the reported fertility rates increase from the age group 15–19 to 20–24.

2. The ratio of the average number of children ever born alive to the estimated average cumulative fertility by five-year age groups was calculated. Among them the ratio in the age group 20–24 is considered to be a correction factor, as the reported number of children in the age group is assumed to be approximately correct (see Tables 5 and 6).

3. By means of the correction factor the age-specific reported

fertility rates became consistent with the average number of children ever born. A slight correction for errors in the original tabulations had been done also (see Table 6).

The results of the corrections on the original data of Cambodia on the number of children born in the year preceding the census by age of mother, were: (1) an adjusted distribution of the age-specific fertility rates, and (2) a total fertility rate of 7.074 children (instead of 6.170 of the unadjusted distribution) (see Table 6).

Inasmuch as the corresponding data of Phnom-Penh are affected by internal migration, a special correction factor was not estimated. The general correction factor was used on the assumption that the nature and magnitude of the reference period error is the same. The results showed the total fertility equal to 5.348, and an age-specific fertility rates distribution (see Table 8).

Determination of Level of Fertility

The level of fertility of the population of Cambodia in 1961–1962 derives from the preceding calculations. The total fer-

TABLE 6. AGE-SPECIFIC FERTILITY RATES IN THE TWELVE-MONTH PERIOD PRECEDING CENSUS IN CAMBODIA

Age of Woman	Data Referring to the Age of Woman at the Census Date*		Age Specific Fertility Rates (Adjusted for Reference Period and for Age at Birth of Child)
	Average Number of Births per Woman in Preceding Year	Age Specific Fertility Rates (Adjusted for Reference Period)	
14	0.025	0.029	0.029
15–19	0.074	0.085	0.102
20–24	0.256	0.294	0.306
25–29	0.281	0.322	0.323
30–34	0.260	0.298	0.295
35–39	0.209	0.240	0.233
40–44	0.113	0.129	0.118
45–49	0.028	0.032	0.025
50–54	0.008	0.009	0.007

* Data corrected for errors at age declaration.

FIGURE 4. AGE-SPECIFIC FERTILITY RATES*
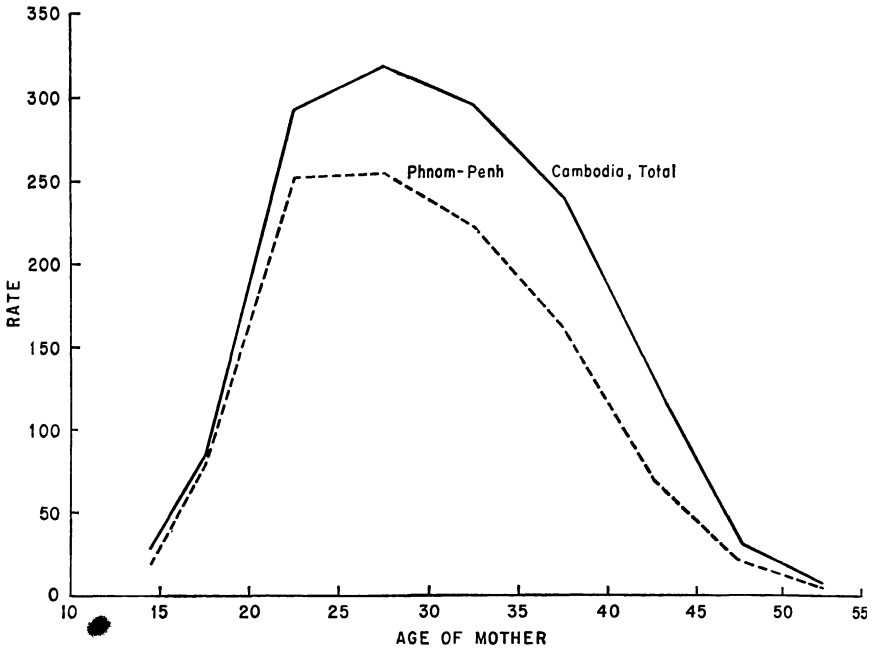
* Births per 1,000 women in each age (corrected for reference period).

tility rate is 7.074 children per woman throughout her lifetime. At a sex ratio at birth of 1,050 males per 1,000 females the gross reproduction rate becomes 3.45 daughters per woman. If the correction factor is applied on corrected distribution for age, by one-half year younger women, the deriving total number of births gives a crude birth rate around the date of Census of 1962 of 46.8 live births per 1,000 population. For the period 1957–1962 preceding the census, estimates on the basis of corrected data show an average crude birth rate of 45.9.

The age-specific fertility rates show a curve rising quickly, remaining at high levels for a long range of age of the reproductive life of women and, only after the age of 35–39, decreasing quickly (see Table 6 and Figure 4). The number of children by age of mother, corrected for errors because of the peculiarity of age declaration, and for reference period and

adjusted for age of women when they gave birth, was estimated to be 266,181 for an annual period around the date of the census (see age distribution in Table 7).

The average age of the mother at the birth of the child calculated as an arithmetic mean—and taking into account the fact that women were one-half year younger at the time of the birth —was 28.5 years; and the median age—the age that 50 per cent of mothers were above—was 27.8 years.

A comparison by area shows that in Phnom-Penh (the most urbanized area in the country), the gross reproduction rate

TABLE 7. LIVE BIRTHS IN CAMBODIA BY AGE OF MOTHER

Age of Mother	Number of Live Births
14	1,697
15–19	24,848
20–24	69,382
25–29	65,423
30–34	52,899
35–39	34,308
40–44	14,381
45–49	2,657
50–54	586
Total	266,181

Data corrected for age declaration and for reference period, and adjusted for age at birth.

TABLE 8. AGE-SPECIFIC FERTILITY RATES IN CAMBODIA

Age	Live Births per 1,000 Women* Cambodia Total	Phnom-Penh
14	29	19
15–19	85	80
20–24	294	252
25–29	322	256
30–34	298	222
35–39	240	161
40–44	129	70
45–49	32	21
50–54	9	4
Total fertility rate	7,074	5,348

* Data corrected for age declaration and for reference period, but not adjusted for age at birth.

was 2.621; the total for the country was 3.452. This differential level of fertility indicates that a fertility decline has begun in Cambodia, starting from the capital city.

A comparison of the age-specific fertility rates of Phnom-Penh with those of the total of the country shows that the age-specific rates of fertility are lower in the former, and that the difference between the rates of the capital city and the rest of the country is changing progressively with the advance of age (see Table 8 and Figure 4). The interpretation of this phenomenon is that in Phnom-Penh women have begun practicing birth control on a larger scale than has the rest of the country and this control has been exercised on the number of children they might have at higher ages.

Factors associated with the differential level of fertility, or the decline of the level of fertility, in Phnom-Penh are the following: urban nature of the capital city, the higher level of literate women at the most fertile age group of 20 to 29 years and the nonagricultural economic activities.

MORTALITY OF THE POPULATION

Statistics of deaths have not been compiled in the country through a vital statistics system.[5] In the population Census of 1962, information was collected on the number of deaths during the preceding yearly period, but the results were not considered successful and are not available. Thus, the only existing information related to mortality is the number of surviving children and the sex-age composition of the population.[6]

Estimate of Mortality from Child Survival

The tabulated results of the census of 1962 present the number of women from the age of 14 up to 65 and over, by five-year age groups and by the number of surviving children from zero to ten children and over, but without classification of child by sex. The question at the census—put at the same time with the question on the number of children born alive—was on

338

"the number of children surviving to date," and it was explained to "include (also) the children who do not stay at the place of their parents" (see Appendix Table D).

Accuracy and corrections of data on the surviving children. The declaration of the number of children alive at the enumeration can be considered as an easy answer. Nevertheless, from the average number of children by age of mother it can be noted that women over the age of 45 have understated the number of their surviving children (perhaps because they have omitted children who have grown up and left home).

The following points are to be corrected: (1) the nondeclared age, (2) the nondeclared parity (number of children), and (3) the peculiarity of the declared age.

The treatment of the original data on the number of surviving children by age of mother at the time of the enumeration was similar to that applied to the data of the number of children born alive by age of mother. The category of the nondeclared age was distributed proportionally; the nondeclared parity was separated into "zero" parity and true number of nonresponses; and the peculiarity in the age declaration was corrected by the graphical method.

Estimates of mortality of children. From the average number of surviving children and the average number of children born alive (see Table 5) the proportion of the nonsurvivors by age of mother was calculated. These proportions were converted into conventional measures of mortality by means of multiplying factors determined according to the ratio of the average number of children in the first to the second five-year age group of women (given that fertility by age in Cambodia cannot be considered as a very early or as a very late one).

The technique is based on the close approximation that exists between the proportion of children dying before their first, second, third, fifth, tenth and so on, birthday, and the proportion dead among those born to women of age 15–19, 20–24, 25–29, 30–34, 35–39 and so on, respectively. This approximation exists on the condition that fertility and infant mortality are

constant, and the proportion of omissions of dead children and surviving children is about the same.

The necessary conditions do not exist exactly in the Cambodia because:

1. Infant mortality has been reduced considerably, as can be seen from the analysis of the population pyramid.

2. Fertility has also started a gradual slow reduction.

3. The proportion of omissions of children dead was larger than the proportion of omissions of children surviving, as women avoid even discussing children who are dead.

However, the data are considered valid for estimating the proportion dead before the second birthday, representing the average mortality experience over the preceding period 1957–1962, and of the proportion dead before the third birthday, representing the average mortality of the preceding period 1954–1962. For the fifth birthday the period covered by the mortality experience is 1950–1962, and for the tenth birthday the period covered is 1946–1962. The proportions dead before the fifteenth and twentieth birthdays have experienced the infant mortality of the preceding five-year period, 1946–1950.

The date of a drastic reduction of mortality in Cambodia can be placed somewhere in the period of 1946–1950. Before that date a high constant or slightly decreasing mortality prevailed (of life expectancy at birth—$°e_o$—tending toward 35 years). On the assumption that the diminishing trend of infant mortality (and the reduction of the childhood mortality) can be represented by a nearly straight line the level of intermediate dates was estimated. It is well understood that the proportion surviving at ages older than zero has been under the influence of different levels of mortality at the successive ages (see Table 9).

The determination of the level of mortality in Cambodia, according to the derived proportions of children dead, by age (converted from the proportion of children dead by age of women), shows a level of mortality increasing by age. The esti-

TABLE 9. PROPORTION OF DEAD CHILDREN IN CAMBODIA BY AGE OF CHILDREN, DERIVED FROM THE PROPORTION OF DEAD CHILDREN BY AGE OF WOMEN

Age of Women	Age of Children (x)	Proportion Dead by Age x (x^{q0})
15–19	1	0.120
20–24	2	0.139
25–29	3	0.157
30–34	5	0.181
35–39	10	0.206
40–44	15	0.224
45–49	20	0.241
50–54	25	0.259
55–59	30	0.272
60–64	35	0.232

TABLE 10. DETERMINATION OF THE LEVEL OF MORTALITY IN CAMBODIA* ON THE BASIS OF SURVIVING CHILDREN BY AGE

Age of Children (x)	Number of Survivors at Age x (1_x) (Original Cohort 100,000)		Life Expectancy at Birth ($^0e_0$)	
	Males	Females	Males	Females
1	88,211	88,694	53.9	54.8
2	85,218	85,983	54.1	56.8
3	84,912	83,636	55.2	55.0
5	82,555	81,226	53.7	53.7
10	80,046	78,706	52.2	52.4
15	78,239	76,943	51.1	51.5
20	76,513	75,228	50.1	51.1
25	74,847	73,286	50.7	50.9
30	73,626	71,967	52.2	51.3
35	72,734	70,821	51.9	51.9

* As reflected in life expectancy at birth.

mates were carried out by means of model life tables. This phenomenon reflects the higher mortality of earlier periods and shows that the omission of children by women of older ages must be very large (see Table 10).

Stable Populations Analysis

An estimate of the level of mortality in childhood had previously been made from the data on the surviving children. For the determination of the level of mortality in the other

ages a stable population could be selected, the mortality characteristics of which could be attributed to the population under examination. The selection becomes difficult because only a single count has been made; many indications are seen of gradual reduction in the fertility and mortality indexes.

For 1962, the composition of the population by age and sex and the gross reproduction rate, together with the average age of the women at birth have been done. The derived indices show that the gross reproduction rate was 3.452 and the average age of mother 28.5 years. The cumulative proportion of the female population under five years, under 15 years and under 35 years was 17.69, 45.23 and 76.30 respectively; the sex ratio was 999 males per 1,000 females.

The selection of the appropriate stable population for the measurement of the level of mortality was not a mechanical interpolation. First, the more suitable model stable population should be determined, and second, the effects caused by non-stability should be corrected; then the analysis has to proceed for the determination of the level of mortality.

Among several groups of homogeneous stable populations that set of "south" was preferred, first because the demographic features of the population of Cambodia appear to be more close to that. The model "west" was used afterwards as a model also related to Cambodia, and the results were considered.[7]

In reality, the population of Cambodia is not an ideally stable population because mortality has considerably declined and fertility has shown signs of declining. Accordingly, the quasi-stable population analysis was applied, and the parameters used for the selection should be adjusted before use. Fertility can be considered essentially constant, but it was necessary to make an adjustment for the downward trend of mortality.

The parameter of the gross reproduction rate was that of the reality, which means that it had been affected by the change of mortality and a modification was necessary before it could be used. For this purpose:

342

1. Inspection of the population pyramid (given that fertility in the near past was high and almost constant) showed that the downward course of mortality started some 15 years before the Census of 1962. Preliminary estimates indicated that the crude death rate might be about 0.020 or less in the five-year period preceding the census.

2. From the proportion of surviving children at the age of two years (as was shown above) and on the assumption that at the beginning of the drastic mortality decline the expectation of life at birth was about 35 years, the increase in the proportion of surviving at age two was used in tables to determine the rate of the mortality change.

3. The assumed period of decline and the preliminary mortality rate were used in tables to determine the correction factor for the gross reproduction rate.

The selection of the stable population for females was based on a gross reproduction rate of 3.285; an average age of women of 28.52 years at birth of the child; an accumulative proportion of the population of 17.69 under the age of five, of 45.23 under the age of 15, and of 76.30 under the age of 35.

Then a stable population for males was also selected. The selected stable population (from the model "south") is not of

TABLE II. ESTIMATE OF LIFE EXPECTANCY AT BIRTH ACCORDING TO AGE COMPOSITION OF FEMALE POPULATION AND LEVEL OF GROSS RE-PRODUCTION RATES

Age x	Proportion of Population Up to Age x	Selected Value of $^0e_0$ in Each Age
5	4.15	43.3
10	17.69	51.9
15	33.02	51.3
20	45.23	45.6
25	54.38	42.7
30	62.44	43.1
35	69.87	44.1
40	76.31	45.2
45	81.72	

the same level of mortality in each age group (as expressed in ^ve_o). It is worth nothing that the level of mortality in the ages 10 and 15, determined by means of the stable populations, is nearly the same as that determined through the child survival (see Tables 10 and 11).

The results show the level of each vital rate for the period just before the census of 1962 (from the stable populations). For females, the birth rate was 47.11 and the death rate was 15.24. For males the birth rate was 48.46 and the death rate was 16.50. However, if death parameters related to child mortality are estimated and if death parameters related to adult mortality are estimated from the age composition, the overall mortality rate is about the same level as was estimated above.

POPULATION PROJECTIONS

In the previous chapters the sex-age composition of the population and the determinants of the population change—that is, fertility and mortality—were analyzed. The sex-age distribution was smoothed and corrected (according to the sample classification). The level of fertility and the level of mortality were determined for the preenumeration period. However, from the census of 1962, the size and the sex-age composition derives for one moment only. An attempt has been made to cover the gap since 1945 on the one hand, and to predict the future size and composition of the population on the other.

Estimated Population 1945–1960

It is interesting to know the history of the population pyramid of the country. Cambodia has been independent since 1953 and its borders have remained the same since 1946.

Assumptions on the mortality trend in the past. As was mentioned above, it is very probable that mortality started declining after 1945 in the country and the assumption is made that, before its drastic reduction, mortality was of a level corresponding to about 35 years at birth. Moreover, the hypothesis is made

344

TABLE 12. ESTIMATED POPULATION OF CAMBODIA BY LARGE AGE GROUPS, 1945–1960, REVERSE PROJECTIONS

Age	1945	1950	1955	1960
All ages	3,606*	4,041	4,654	5,415
0–14	1,488	1,676	2,008	2,445
15–64	1,998	2,245	2,523	2,831
65+	120	120	123	139

* All figures in thousands.

that the reducing trend of mortality was a nearly straight line connecting the level of 1945 with that of 1962. The assumption made, when compared, was in accordance with the noted trend—estimated as a weighted average trend—in South and Southeast Asia.

Results of Estimates for the Past Population. On the basis of the results of the Census of 1962, the population of Cambodia was estimated for 1960 (mid-year). With 1960 as a starting point the population by sex and age was estimated retrospectively for the years 1955, 1950 and 1945 (by means of the reverse projections method) (see Table 12). On the basis of reverse-projected population an estimate was made for the population at the date of independence, November 9, 1953. The findings show a population of 4,438,000 persons distributed by age, as below:

Age	Population (thousands)
0–14	1,892
16–64	2,426
65 +	120
All ages	4,438

Projections of the Population in the Future

The mid-year population of 1960 was projected by sex and five-year age groups in future dates: 1965, 1970, 1975 and 1980. These projections were carried out by means of the component method. The starting point was the middle of 1960, and the

population was projected by five-year intervals and five-year age groups on the basis of the future trends of mortality and fertility.

Assumptions on Future Trends of Fertility and Mortality. Mortality has been reduced considerably in Cambodia, and it is expected to decline steadily. The general assumption made is that mortality will be reduced and the pattern of its sex-age composition will be between those of the "south" and "west" models. The reduction, expressed in years of increase of life expectancy at birth, was arranged in time:

1. 1960–65: The levelt of mortality as determined from the census analysis was accepted to be in effect from the next five-year period. No reduction was accepted because it was considered that mortality was somehow underestimated concerning results deriving from child survival.

2. 1965–1970: A reduction in mortality was accepted, based on an increased life expectancy at birth of about two and a half years; the improvement was accepted to be higher for females than for males.

3. 1970–1975: A reduction in mortality of another two and a half years increase of life expectancy at birth was accepted.

4. 1975–1980: A further reduction of mortality expressed as an increase in life expectancy at birth by about two years was accepted. The improvement in survival in childhood was accepted to be faster than that in the ages of the adults.

However, from the trends of the expectations of life at birth —taken as weighted averages—it derives that the gains in the length of life are more rapid in the geographic regions of the less-developed countries than was noted in the regions of the developed countries when the latter were at the same levels of mortality as are the less-developed countries at present. Accordingly, the assumptions made here may prove, in the future, to be somewhat low.

346

The general assumptions made on the future trend of fertility is that it will decline. It was accepted that the decline would start after 1960, and the percentage decrease would be as follows:

Assumption (a): The level of fertility is to remain constant at the level of the sex-age adjusted birth rate of the period 1961–1962.

Assumption (b): The level of fertility is to decline each quinquennial period after 1960 by five per cent of the sex-age adjusted birth rate;

Assumption (c): The decline would be ten per cent of the sex-age adjusted birth rate each quinquennial period after 1965; (for 1960–1965 being five per cent).

These assumptions of the decline in the fertility trend were in connection with the associated factors: the increase of the proportion of literate women in the age group 20–29, the increase of the proportion of the urban population and the increase of the proportion in nonagricultural economic activities.

The Projected Population by Sex and Age. The results of calculations show the probable future size and the sex-age composition of the population of Cambodia for the future dates of the period 1960–1980. According to assumption (b), from 5,415,000 in 1960, the population is expected to become 7,143,000 in 1970, and 9,355,000 in 1980 (see Table 13). Under the assumption of constant high fertility the population may

TABLE 13. PROJECTED POPULATION OF CAMBODIA, 1960–1980

Age	1960	1965	1970	1975	1980
All ages	5,415*	6,244	7,143	8,165	9,355
0–14	2,445	2,832	3,136	3,462	3,894
15–64	2,831	3,246	3,804	4,457	5,163
65+	139	166	203	246	298

* All numbers in thousands.

increase up to 10,118,000 persons in 1980; under the assumption of rapidly declining fertility it may become 8,970,000 persons. All three versions on the future fertility level, having their effect primarily on the young population, result in a continuous increase of the young (of age 0–14) and, of course, of the school-age population. The population of the working ages (15–64), which virtually is not affected by the fertility variations, presents a continually increasing annual rate from 22 to 36. This means a steadily increasing labor force on one hand, given that experience has shown that 83 per cent of the change in the labor force is the result of the demographic change, and an expansion of the female population in the reproductive ages.

CONCLUDING REMARKS

In the present study the technique of the demographic analysis was applied on the data of the 1962 population census of Cambodia. The intervals of confidence of the estimated demographic indices and the summary of the main results are of interest to be considered.

Intervals of Confidence

As the analysis was based on a single census the difficulties of estimations were greater, but it is believed that the results are good approximations. The topics evaluated and the intervals in which most probably the true values are included are as follows:

1. The size of the population: No postenumeration survey was made to determine the degree of over- or under-enumeration in 1962, but the coverage was believed to be satisfactory. The size of the reverse-projected population in the past dates comprises errors stemming from variations on the assumed mortality trend; and this error may range from ± 0.3 per cent to ± 1.2 per cent of the total number of the population, increasing from 1960 back-

wards to 1945. The projected population in future dates is to be affected by the variations of the assumed trends both in mortality and in fertility; and the error for those born before 1960 may range from ± 0.3 per cent to ± 1.0 per cent of this section of the population; for those born after 1960, it may range widely, but the most probable trend of this section of the population may pass between that of constant fertility and that of slightly declining fertility. The net effect of migration is negligible.

2. The sex-age composition (proportional) : After the error control and the corrections, the sex-age composition is considered satisfactory for 1962. For the past it is affected by errors of the assumed mortality trend, which amount to about ± 0.2 per cent in each age group. For the future it is affected by both errors in mortality (estimated about ± 0.3 per cent in each age group) and variation in fertility assumptions (the variation ranging from 3 per cent in 1965, up to 16 per cent or 25 per cent in 1980). However, in the next census checking the errors will not be possible without migration statistics.

3. The mortality: Taking into account the existing trends of the mortality decline in South and Southeast Asia, it is considered that for 1962 the interval of confidence is about one year above or below the life expectancy at birth, which is equal to ± 5 per cent of the crude death rate. The same interval is taken for the past trend of mortality. For the future it is hoped that the assumed trend of the level of mortality will prove to be higher than the trend of the reality.

4. The fertility: The crude birth rate estimated from the number of children born in the 12-month period preceding the census of 1962 is higher than that estimated by the reverse projection for the period 1957–1962 (estimated 46.8 and 45.9). The difference is caused perhaps by the method used for the adjustment of the 12-month

reference period. The average cumulative fertility, on the other hand, cannot be used to correct the average number of children ever born to women of older ages, because the fecundity may have changed as a result of the improvements in the health conditions and in the level of living. The attitudes for nuptiality and marital fertility may have changed also. It is considered that the variation of the mortality has a bearing on the derived crude birth rate by means of reverse projections in the past estimated at ± two per cent. For the future, of the three assumptions, the most probable is between that of "constant" and that of "declining slowly by five per cent;" the third one, "declining by ten per cent," is unrealistic, as the country has no family planning program.

Summary of the Results

The main results of the analysis of the 1962 population census of Cambodia are as follows (see Table 14):

1. The total population increased from 3,606,000 in 1945 to 5,415,000 in 1960, and (under three versions of fertility assumption) is to range from about 9,000,000 to about 10,100,000 inhabitants by 1980. The density is to increase from 20 in 1946, and 30 in 1960 to 45 (or 36) persons per square kilometer in 1980.

2. The age composition shows a large proportion of young population: from 41 per cent in 1945, to 45 per cent in 1960, and a range from 46 per cent to 39 per cent in 1980 (depending on the fertility reduction). The dependency ratio—young and old population versus the population of working ages (15–64)—increased from 0.80 in 1945 to 0.91 in 1960 and further changes range between 0.74 to 0.94 in 1980. The ratio of replacement—population in the age group 10–14 years to the population in the age group 60–64—was about 6.5 throughout the period 1945–1960 and may increase up to 7.5 in 1980.

Year	Estimated Population (in thousands)	Density (Inhabitants per Km²)	Estimated Crude Vital Rates (per 1,000 Population) Average per Quinquennial Period			Sex-Age Adjusted Birth Rate (per 1,000 Population)	Rate of Annual Increase of Women	Proportion of Population (0–14) to Total Population	Dependency Ratio*	Replacement Ratio**
			Birth Rate	Death Rate	Rate of Annual Increase					
1940								(42.2)	(0.852)	(5.71)
1945	3,606	19.9	45.6	30.0	15.6	48.0	24.8	41.3	0.805	6.35
1950	4,041	22.3	46.8	23.7	23.1	47.7	25.3	41.5	0.799	6.71
1955	4,654	25.7	47.7	19.1	28.6	48.9	24.0	43.1	0.845	6.33
1960	5,415	29.9	45.4	14.9	30.6	48.0	21.7	45.1	0.912	6.33
(a) Fertility constant at the level of 1961–1962										
1965	6,299	34.8	44.6	13.9	30.7	49.2	22.4	45.8	0.942	7.12
1970	7,326	40.5	43.5	12.8	30.7	49.2	29.3	45.3	0.927	7.15
1975	8,571	47.3	43.9	12.0	31.9	49.2	36.6	45.1	0.923	7.25
1980	10,118	55.9	44.7	11.0	33.7	49.2	36.8	45.5	0.938	7.54
(b) Fertility declining by five per cent per quinquennium										
1965	6,244	34.5	42.6	13.7	28.9	46.8	22.4	45.3	0.923	7.12
1970	7,143	39.5	40.1	12.8	27.3	44.5	29.3	43.9	0.876	7.15
1975	8,165	45.1	39.2	12.1	27.1	42.3	36.6	42.4	0.832	6.86
1980	9,355	51.7	39.0	11.4	27.6	40.2	36.2	41.6	0.812	6.70
(c) Fertility declining by ten per cent per quinquennium (after 1965)										
1965	6,244	34.5	42.6	13.7	28.9	46.8	22.4	45.4	0.923	7.12
1970	7,086	39.1	38.1	12.5	25.6	42.1	29.3	43.5	0.862	7.15
1975	7,984	44.1	35.7	11.5	24.2	37.9	36.6	41.1	0.792	6.89
1980	8,970	49.5	34.1	10.5	23.6	34.1	36.2	39.1	0.736	6.15

* $\dfrac{P(0-14) + P(65+)}{P(15-64)}$

** $\dfrac{P(60-64)}{P(10-14)}$

3. The fertility is high: The sex-age adjusted birth rate was between 48 and 49 (per 1,000 population) in the period 1945–1960; in 1980, it will range from 49 (under the constant assumption) to 40 (under the second assumption) and to 34 (third assumption). The trend of the crude birth rate follows a somewhat lower level. The female population in the fertile ages (15–44) (weighted) presents an annual rate of increase of 25 (per 1,000) in 1940–1945 to 22 in 1960–1965 and to about 36 in 1975–1980. Further, it is to continue increasing to 25 by 1990. This means that even under fertility decline the number of births is to become larger in the future.

4. The mortality is following a downward trend. The crude death rate—estimated as the residual of the crude birth rate over the rate of annual increase—fell from 30 in 1945 to 13 in 1960, and is expected to reach 11 in 1980. The expectation of life at birth was about 51 years in 1961, and it is estimated that it was about 35 some 20 years before that.

5. The rate of annual increase of the total population was about 16 (per 1,000) in 1940–1945; it increased up to 31 in 1960. For the future it will remain high, ranging from 34 to 24 in 1980, according to the assumptions on the future fertility trend. However, the most probable level of the annual increase is about 30 persons per 1,000 population in the next two decades. This rate of the real increase is equal to the rate of natural increase, as the net effect of migration is assumed to be zero.

In conclusion, the results of the present study will be useful to the planning of the social and economic development of the country as well as to other economic and social studies. The main demographic characteristic in Cambodia is the high rate of growth as a result of the declining mortality and high fertility. The aging process of enlarged cohorts is to build into the population the conditions for large subsequent birth groups

352

(even if fertility has fallen to some extent). It seems that the task of the planners would become less difficult in the long run under the operation of a family planning program in the country.

REFERENCES

[1] A population survey, carried out in 1958–1959, gave data with a high underestimation of the size of the population (because of the lack of frames). It presented some rather good approximations of the classification of population by several characteristics. However, its data were not broadly utilized and not published.

[2] In some previous social, economic and geographic studies for Cambodia, the population is also examined. But the main characteristic of these studies is the lack of demographic data. One recent study is by Migozzi, J., Le Facteurs de l'Accroissement Demographique au Camboge, Phnom-Penh, 1967.

[3] It is hoped that vital statistics will be produced through the Civil Registration in the near future. In connection with this, see technical report, Siampos, G., A Plan for the Establishment of a Vital Statistics System in Cambodia, Phnom-Penh, 1968.

[4] In the Statistical Bulletin of the INSERE for Phnom-Penh some data on the aggregate number of births and deaths are published. But these data have some serious inconsistencies; (1) they include events of residents of the provinces; (2) they include events of late registration, and (3) the definitions used for the events are not those intended for vital statistics.

[5] See also Reference 3.

[6] The *Statistical Bulletin* published some data on deaths in the Municipality of Phnom-Penh, but see reservations in reference 4.

[7] If the model "west" is taken for Cambodia (as that model is suitable for some countries of East and Southeast Asia), the deriving vital rates are somehow higher and are not in close connection with those deriving from the data on the number of children born alive and on the number of children dead.

ACKNOWLEDGMENTS

APPENDIX TABLE A. POPULATION OF CAMBODIA BY SEX AND SINGLE YEAR AGES, ORIGINAL MECHANICAL TABULATION

Age	Total	Males	Females	Age	Total	Males	Females
All ages	5,728,771	2,862,939	2,865,832	52	37,053	18,790	18,263
0–1	266,750	133,344	133,406	53	34,541	17,444	17,097
2	192,702	97,081	95,621	54	30,328	14,966	15,362
3	199,202	100,528	98,674	55	35,910	17,861	18,049
4	196,786	98,705	98,081	56	30,710	15,481	15,229
(0–4)	(855,440)	(429,658)	(425,782)	57	26,900	13,425	13,475
5	196,509	98,095	98,414	58	28,570	14,066	14,504
6	191,151	96,661	94,490	59	23,302	11,584	11,718
7	181,614	91,938	89,676	60	32,525	16,308	16,217
8	179,724	90,330	89,394	61	20,744	10,371	10,373
9	144,143	72,805	71,338	62	21,748	11,356	10,392
10	185,887	94,620	91,267	63	21,241	10,756	10,485
11	134,820	69,022	65,798	64	18,545	9,279	9,266
12	163,512	84,685	78,827	65	19,441	9,567	9,874
13	150,425	77,320	73,105	66	15,282	7,758	7,524
14	126,390	63,192	63,198	67	14,829	7,372	7,457
15	133,167	67,275	65,892	68	13,317	6,558	6,759
16	111,440	55,934	55,506	69	10,049	4,910	5,139
17	100,471	50,228	50,243	70	15,207	7,226	7,981
18	108,731	54,652	54,079	71	8,200	3,918	4,282
19	80,111	39,803	40,308	72	8,779	4,194	4,585
20	112,506	52,633	59,873	73	7,683	3,769	3,914
21	84,300	41,618	42,682	74	6,445	3,118	3,327
22	96,351	47,464	48,887	75	7,538	3,551	3,987
23	92,669	45,807	46,862	76	4,943	2,359	2,584
24	82,959	40,456	42,503	77	4,653	2,190	2,463
25	98,136	47,435	50,701	78	4,731	2,205	2,526
26	81,601	40,272	41,329	79	2,794	1,293	1,501
27	79,670	38,734	40,936	80	4,247	1,764	2,483
28	83,594	40,451	43,143	81	2,034	875	1,159
29	74,975	36,961	38,014	82	2,122	873	1,249
30	97,028	46,260	50,768	83	1,618	755	863
31	70,233	34,715	35,518	84	1,490	651	839
32	75,176	37,469	37,707	85	1,213	531	682
33	71,808	35,970	35,838	86	744	325	419
34	67,230	33,644	33,586	87	615	263	352
35	79,928	39,829	40,099	88	648	274	374
36	62,861	31,699	31,162	89	407	177	230
37	61,979	30,934	31,045	90	413	147	266
38	60,731	30,347	30,384	91	139	56	83
39	53,183	26,942	26,241	92	133	40	93
40	69,971	34,121	35,850	93	99	40	59
41	48,455	24,584	23,871	94	68	27	41
42	54,102	27,661	26,441	95	107	36	71
43	44,339	21,854	22,485	96	49	20	29
44	43,885	21,633	22,252	97	50	12	38
45	55,236	27,977	27,259	98	53	19	34
46	43,729	22,008	21,721	99	54	28	26
47	41,837	20,798	21,039	100 and over	22	8	14
48	46,338	23,141	23,197	Not declared	3,252	2,316	936
49	38,951	19,630	19,321				
50	50,733	25,018	25,715				
51	35,157	17,744	17,413				

APPENDIX TABLE B. POPULATION OF CAMBODIA BY SINGLE YEARS OF AGE, PERCENTAGE DISTRIBUTION, ME-
CHANICAL TABULATION OF THE TOTAL OF QUESTIONNAIRES, MANUAL TABULATION OF SAMPLE OF QUESTION-
NAIRES

Age	Total Sample	Total Census	Urban Sample	Urban Census	Rural Sample	Rural Census
Total	1,000	1,000	1,000	1,000	1,000	1,000
1–12 {	33 { 12	47	38 { 11	49	32 { 12	46
1	33	34	40	36	31	33
2	36	35	37	37	35	34
3	34	34	38	37	33	34
4	32	34	37	37	31	34
5	30	33	28	36	30	33
6	31	32	35	33	30	32
7	30	31	26	31	30	31
8	25	25	28	23	24	25
9	32	32	32	30	31	33
10	21	24	17	22	21	24
11	25	29	29	27	24	29
12	24	26	21	24	25	27
13	21	22	19	21	21	22
14	23	23	19	22	24	23
15	16	19	16	18	16	20
16	19	18	16	17	19	18
17	18	19	21	22	17	19
18	18	14	16	14	13	14
19	20	20	25	22	19	19
20	15	15	20	16	14	15
21	19	17	23	20	18	16
22	17	16	30	18	15	16
23	16	14	20	17	15	14
24	16	14	20	17	15	17
25	21	17	17	20	22	17
26	14	14	16	17	13	14
27	15	14	17	16	14	14
28	14	15	21	17	13	14
29	14	13	15	13	13	13
30	17	17	21	22	16	16
31	13	12	16	12	12	12
32	14	13	16	15	14	13
33	13	13	12	13	13	13
34	11	12	13	11	10	12
35	16	14	17	15	15	14
36	12	11	12	11	12	11
37	12	11	10	10	13	11
38	11	11	15	11	10	11
39	10	9	9	8	10	9
40	13	12	13	14	13	12
41	9	8	7	7	9	9
42	9	9	6	10	9	9
43	8	8	7	7	9	9
44	7	8	4	7	8	8
45	11	10	9	9	12	10
46	8	8	7	6	8	8
47	6	7	4	6	6	7
48	9	8	7	7	9	8
49	7	7	6	5	6	7

TABLE B (CONTINUED)

50	9	9	8	9	9	9
51	8	6	6	5	8	6
52	7	6	4	6	7	7
53	6	6	5	4	6	6
54	4	5	2	4	5	5
55	7	6	4	5	7	6
56	5	5	2	4	6	6
57	4	5	1	3	5	5
58	5	5	4	4	5	5
59	5	4	2	3	5	4
60	7	6	2	4	6	6
61	5	4	2	2	5	4
62	4	4	1	3	4	4
63	4	4	1	2	4	4
64	3	3	2	2	3	3
65	4	3	3	2	4	4
66	3	3	0	2	3	3
67	3	3	1	2	3	3
68	3	2	1	2	3	2
69	1	2	—	1	2	2

70	3	3	1	2	3	3
71	1	1	1	1	1	1
72	2	2	1	1	2	2
73	1	1	2	1	1	1
74	1	1	1	1	1	1
75	1	1	0	1	2	1
76	1	0	—	1	1	1
77	1	0	1	1	1	1
78	0	0	1	1	1	1
79	1	0	—	0	0	1
80	3	0	1	1	1	0
81	0	0	3	0	3	0
82	—	0	—	0	0	—
S3						
84						
85						

APPENDIX TABLE C. FEMALE POPULATION IN CAMBODIA BY AGE AND NUMBER OF CHILDREN BORN ALIVE

| Age Group | Total | *Females by number of children born alive* | | | | | | | | | | 10 and plus | Not declared |
		00	01	02	03	04	05	06	07	08	09		
Total	1,687,742	488,344	170,868	163,159	157,925	150,471	136,179	110,297	87,105	63,318	41,554	60,986	57,536
14	63,198	58,802	34	12				50					4,350
15–19	266,028	231,155	14,027	2,671	556	191	99						17,279
20–24	240,807	101,292	61,036	42,126	17,645	5,714	1,719	590	231	103	38	90	10,223
25–29	214,123	31,783	31,263	43,695	46,339	32,881	15,658	5,448	1,741	604	201	183	4,327
30–34	193,417	15,185	14,722	20,513	29,408	36,009	34,041	19,722	11,301	4,732	1,745	1,229	2,335
35–39	158,933	9,750	9,691	11,976	15,750	20,733	23,925	22,933	18,653	12,124	6,273	5,351	1,774
40–44	130,899	7,633	8,115	9,141	10,884	13,267	15,493	15,655	15,025	12,511	8,924	12,475	1,776
45–49	112,537	7,091	7,660	8,579	9,775	11,279	12,297	12,505	11,537	9,742	7,472	12,889	1,711
50–54	93,850	6,772	7,230	7,684	8,790	9,445	10,147	9,568	8,962	7,672	5,681	9,610	2,289
55–59	72,974	5,804	5,749	5,968	6,544	7,231	7,774	7,456	7,043	5,809	4,175	7,015	2,406
60–64	56,733	4,986	4,630	4,510	5,022	5,552	6,021	5,776	5,241	4,254	2,958	5,074	2,709
65 and over	83,307	7,992	6,665	6,246	7,171	8,114	8,967	8,090	7,347	5,750	4,074	7,040	5,851
Not declared	936	99	46	38	41	55	38	29	24	17	13	30	506

APPENDIX TABLE D. FEMALE POPULATION IN CAMBODIA BY AGE AND NUMBER OF SURVIVING CHILDREN

Age Group	Total	Females by number of children alive											Not Declared
		00	01	02	03	04	05	06	07	08	09	10+	
Total	1,687,742	509,287	206,844	203,820	195,911	174,053	137,315	94,598	56,397	29,486	13,150	7,981	58,900
14	63,198	58,846	32	5									4,315
15-19	266,028	232,105	13,477	2,179	404	142	72	32	1				17,616
20-24	240,807	106,333	65,475	39,890	13,680	3,682	959	295	86	37	13	43	10,314
25-29	214,123	35,324	39,399	52,101	45,970	24,913	8,768	2,321	587	185	46	43	4,466
30-34	193,417	17,338	19,674	29,257	39,407	39,464	27,301	12,360	4,197	1,328	392	199	2,500
35-39	158,933	11,278	12,969	17,246	23,294	28,196	26,980	19,721	10,643	4,522	1,448	730	1,906
40-44	130,899	8,879	10,782	13,186	16,297	19,297	19,824	17,099	11,923	6,700	3,116	1,916	1,880
45-49	112,537	8,359	10,361	12,366	14,752	16,180	15,635	13,370	9,372	5,629	2,829	1,903	1,781
50-54	93,850	7,986	9,909	11,290	13,181	13,246	12,165	9,610	6,791	4,048	1,998	1,242	2,384
55-59	72,974	6,853	8,063	9,102	9,798	10,173	9,221	7,341	4,987	2,772	1,405	788	2,471
60-64	56,733	5,945	6,560	6,827	7,760	7,628	6,874	5,401	3,566	1,974	918	516	2,764
65 and +	83,307	9,927	10,089	10,319	11,321	11,086	9,488	7,031	4,226	2,278	980	596	5,966
Not declared	936	114	54	52	47	46	28	17	18	13	5	5	537

APPENDIX TABLE E. FEMALE POPULATION IN CAMBODIA BY AGE AND
NUMBER OF CHILDREN BORN ALIVE IN THE PRECEDING 12 MONTHS

Age Group	Total	Females by Number of Children Born Alive in Preceding 12 Months			
		0	1	2	Not Declared
Total	1,473,792	1,195,759	225,116	1,677	51,240
14	63,198	58,777	24	4	4,393
15–19	266,028	237,987	10,058	63	17,920
20–24	240,807	175,795	54,092	279	10,641
25–29	214,123	151,009	57,789	416	4,909
30–34	193,417	140,938	49,060	390	3,029
35–39	158,933	122,282	33,939	308	2,404
40–44	130,899	112,434	16,053	152	2,260
45–49	112,537	106,700	3,538	41	2,258
50–54	93,850	89,837	563	24	3,426

APPENDIX TABLE F. POPULATION OF CAMBODIA BY SEX AND AGE*

Age	Absolute Numbers			Percentage Distribution		
	Total	Males	Females	Total	Males	Females
11-ages	5,728,771	2,862,939	2,865,832	100.00	100.00	100.00
0	241,309	122,398	118,911	4.21	4.28	4.15
1–4	787,541	399,354	388,187	13.64	13.74	13.54
(0–4)	(1,028,850)	(521,752)	(507,098)	(17.85)	(18.02)	(17.69)
5–9	885,220	445,900	439,320	15.43	15.54	15.33
10–14	706,798	356,880	349,918	12.46	12.71	12.21
15–19	522,013	259,727	262,286	9.11	9.07	9.15
20–24	455,440	224,455	230,985	7.95	7.84	8.06
25–29–	414,051	200,979	213,072	7.23	7.02	7.43
30–34	367,015	182,369	184,646	6.41	6.37	6.44
35–39–	309,494	154,312	155,182	5.40	5.39	5.41
40–44	250,489	124,825	125,664	4.37	4.36	4.38
45–49	219,700	109,652	110,048	3.83	3.83	3.84
50–54	178,162	89,036	89,126	3.11	3.11	3.11
55–59	141,055	70,556	70,499	2.45	2.44	2.46
60–64	104,121	51,964	52,157	1.83	1.85	1.82
65–69	69,334	34,370	34,964	1.21	1.19	1.23
70–74	40,962	19,755	21,207	0.72	0.69	0.74
75–79	21,768	10,305	11,463	0.38	0.36	0.40
80–84	9,453	4,009	5,444	0.17	0.14	0.19
85+	4,846	2,093	2,753	0.08	0.07	0.10

* Age distribution smoothed and adjusted for age declaration.