ECONOMIC COMMISSION FOR LATIN AMERICA
Sub-regional Headquarters for the Caribbean

BARBADOS EXPERIMENTAL MIGRATION SURVEY –

a preliminary analysis of the results
of the first 3 rounds

CONTENTS

BARBADOS EXPERIMENTAL MIGRATION SURVEY -

a preliminary analysis of the results
of the first 3 rounds

BARBADOS EXPERIMENTAL MIGRATION SURVEY –

a preliminary analysis of the results
of the first 3 rounds

(A paper for consideration by the IUSSP
Working Group for the Study of
Migration)

1.   Background

Theory 1.1.   The theoretical ideas for the "indirect" estimation
of outmigration by asking questions about the residence of relatives have
been elaborated in various papers by members of the IUSSP Working Group
for the Study of International Migration.   The principal sources for the
methodology used in this analysis are Jorge Somoza's paper "A Proposal
for Estimating the Emigrant Population by Sex and Age in a Country's
Census", in which he discusses how to use information given by mothers on
the residence of their children, and Ken Hill's paper "A Proposal for the
Uses of Information on Residence of Siblings to Estimate Emigration by
Age".   The idea of combining and comparing the information from the
reports of mothers and the reports of siblings is due to John Blacker – it
is outlined in his report to the working group on the setting up of the
experimental migration survey.

Field Work 1.2.   The migration survey was incorporated into the
continuous household survey which Barbados Statistical Service has been
conducting on a quarterly basis since 1975.   The questionnaire (See
Appendix) was designed by John Blacker, who also helped with enumerator
training, and field trials.   As it was felt that a fairly large sample
was needed to ensure that even relatively "rare" events could be measured
reasonably accurately, the sample size of the household survey was
doubled for the duration of the migration survey (October 1980 to
December 1981).   A two-stage sample was used – enumeration districts
were sampled with probability proportional to size, and then a systematic
sample of households was taken within each district, so the number of
households was approximately the same from each district in the sample,
and the probability of any household appearing in the sample was the same.
The household sampling frame was taken from the census household count

(the census was conducted in April 1980). The sample was designed by Eric Straughn, Chief Statistician.

Editing and Coding 1.3. Rules for manual editing (See Appendix) and coding were drawn up by John Blacker, but were revised after the first round fieldwork was completed. This part of the operations was under the control of Ms. Avril Scantlebury, Senior Statistician - it is worthy of comment, that after the "breaking-in" period when the first round questionnaires were processed, the document editors reached such a level of profficiency that in the second round, the computer edit discovered only one validity error in a total of 4,725 records!

Data Processing 1.4. Coded information was punched onto diskettes, for processing at the Barbados Government Data Processing Unit, on an IBM 370-115 computer. Processing was accomplished using a purpose written set of Fortran programs which edited the data, stored all the clean data round by round on a disc file, created "mother" and "sibling" files of selected fields from each record for the two sets of tables, and compiled and printed the tables. The list of tables available so far is shown in the appendix. A copy of the complete table set for the first 3 rounds, and a listing of the programs are availa ble for inspection. (The programs are still being revised and extended with a view to incorporating more of the analysis).

2. Methodology

Assumptions re Fertility and Mortality 2.1. To enable the fullest use to be made of information collected in the Survey, it is necessary to make some assumptions about the age distributions of children of respondent mothers, and the age distribution of mothers of respondent children. It is not possible to calculate these distributions directly from information collected in the survey, but if precise data were available about the course of fertility and mortality in the years preceeding the survey, these distributions could be put on a sound empirical basis. In the case of the present "preliminary" analysis, it was not felt to be worthwhile to compute these distributions empirically, as this would have necessitated the construction of life tables and

fertility schedules spanning the whole of this century. Later in the
course of the analysis, many crude simplifying assumptions are made, so
it was felt that some simple assumptions about fertility and mortality
were also in order. The Barbados 1970 age-specific fertility and mortality
rates, as reported in the UNDY special issue (historical supplement)
were taken as constant over the relevant time period. Single-year values
were estimated from given five-year age group values by freehand graphical
interpolation. Figure (i) shows the graph of survivorship values by age,
and figure (ii) the graph of relative age specific fertility rates, used in
the subsequent calculations.

Theoretical Age Distributions of Children and Mothers 2.2. If the
number of women currently aged x is denoted by N_x, then the number of
children currently aged y with mothers aged x is given by:

$$N_x \cdot \ell_y \cdot f_{x-y}$$

where ℓ_y is the probability of surviving from birth to age y, and f_x is the
fertility rate at age x, assuming fertility and mortality are constant.

From this it can be shown that the proportion of children aged Y to $Y+5$
of mothers aged X to $X+5$ is:

$$\frac{\int_Y^{Y+5} \ell_y \int_X^{X+5} N_x f_{x-y} \cdot dx \cdot dy}{\int_\alpha^\beta \ell_y \int_X^{X+5} N_x f_{x-y} \cdot dx \cdot dy}$$

where α and β are the youngest and oldest ages respectively of children
of women aged X to $X+5$. This expression was evaluated by numerical
integration over the conventional 5-year age-groups, using the fertility
and mortality schedules illustrated above, and making the further
simplifying assumption, that the distribution of mothers within each
5-year age group was approximately rectangular. The resulting
distributions are shown in Table I.

Similarly, if N_y is the number of children currently aged y , then the number of mothers of these children who would currently be aged x if they survived from the births of those children, would be:

$$\frac{\int_{x-y} \cdot N_y}{F}$$

where $F \left(= \int_{15}^{50} \int_x \cdot dx \right)$ is the total fertility rate. From this we can see that the number of children aged Y to $Y+5$ who would have mothers aged X to $X+5$ as a proportion of all children aged Y to $Y+5$ is:

$$\frac{\int_x^{X+5} \int_Y^{Y+5} N_y \cdot \int_{x-y} \cdot dy \cdot dx}{\int_\alpha^\beta \int_Y^{Y+5} N_y \int_{x-y} \cdot dy \cdot dx}$$

where α , β are the youngest and oldest possible ages of mothers of children aged Y to $Y+5$.

Once again the above expression was evaluated numerically, again assuming that <u>within</u> a five-year age-group, the distribution of children was approximately rectangular. The results are shown in <u>Table II</u>.

<u>Obtaining the Age Distribution of Emigrant Children.2.3.</u> The theoretical age distribution in Table I, can be applied to the number of children reported by women in each age-group, to obtain the distribution of these children by age. By summing across the <u>children's</u> age-groups an overall distribution of surviving children by age, can be obtained. <u>Table III</u> shows the numbers of surviving children reported by each age-group of mother and their breakdown by sex and residence (Barbados/abroad). By assuming that the age distributions of surviving children shown in Table I hold also for each sex and residence category, it is possible to obtain the age distributions of male and female, resident and emigrant children. <u>Table IV</u> shows this procedure applied to male emigrant children, and <u>Table V</u> shows the same thing for female emigrant children, as reported by their mothers who are resident in Barbados.

The assumption about the age distributions being the same for each sex and residence category is not entirely realistic - for one thing, sex differences in the pattern of mortality would tend to make the age distribution of male children slightly younger than that of female children. Also, if migration takes place mainly in the 20 - 40 age-groups, the age distributions of emigrant surviving children would tend to be older than that of residents.

A refinement of Table I could be devised, using some theoretical model of the age-specific propensity to emigrate, but this has not been done in the present analysis - partly because of its exploratory nature, partly because it is felt that Barbadian emigration patterns may display peculiarities that a general model may just obscure - e.g. as in other West Indian societies, it is not uncommon for children to live with grandparents and other relatives, or to be sent to schools abroad; and there is a considerable amount of return migration across all age-groups.

2.4. Allowing for the Effects of Orphanhood and Maternal Migration

The age distribution of emigrant children obtained above, only accounts for those emigrants who have a mother living in Barbados who is able to report on them - i.e. those whose mother has died or herself emigrated are not reported on. All respondents in the survey were asked if their mother was alive, and if so, was she resident in Barbados. When the results of this inquiry are tabulated by age of respondent as in Table VI it is possible to find what proportion of respondents in each age-group have a mother living in Barbados. These reported proportions were smoothed graphically, yielding the values shown in the last column of Table VI . Assuming that the same proportions apply to emigrant children, and dividing the number of emigrant children in each age-group (derived from the reports of their mothers) by the proportion in that age-group who have a mother resident in Barbados, yields an estimate of the total emigrants in that age-group. This calculation is shown in Table VII .

It is likely that this procedure somewhat under-estimates the total number of emigrants, especially for the youngest age-groups, where one might expect mothers to migrate with their young children. It is a small

consolation, that the resulting bias towards older ages in the estimate.
of the age distribution of emigrants, would tend to offset the bias
towards younger ages discussed in section 2.3, caused by ignoring the
age patterns of migration.

Reports on Siblings 2.5. Each respondent in the survey was questioned
about the residence and survival of his/her siblings - i.e. how many
brothers and sisters they had living in Barbados, how many living abroad
and how many who had died. In all cases, it was made clear that the
information sought referred to brothers and sisters by the same mother,
and that the respondent was to be included in the member of resident
siblings. The responses could not be dealt with as simply as those of
the mothers about children, because of the problem of multiple reporting:
a person who has ₦ resident siblings in Barbados would be ₦ times as
likely to be reported as a person who has only one resident sibling (or
is the only resident sibling in the family). To overcome this problem,
the responses about numbers of siblings were weighted by the inverse of
the number of resident siblings. Table VIII shows the distribution of
siblings by sex and residence/survival status, and by age of respondent,
after weighting for multiple response.

Adjusting for Whole Family Emigration 2.6. The next step is to
estimate the number of emigrants who could not be reported on, because
they had no resident siblings. Information on the extent of migration
of whole family groups of siblings is available from the reports of
mothers. Table IX shows the numbers of children reported abroad by all
mothers, compared with the numbers of children reported abroad by those
mothers who have no children resident in Barbados, and this information
is broken down by age of mother. The ratio children abroad: children
abroad with resident siblings is somewhat irregular due to the small
numbers involved but suggests a ∪ shaped pattern by age of mother. To
smooth out the irregularities, the ratios were re-calculated using the
sums of 3 adjacent age-groups and then smoothed graphically. These
'smoothed" ratios are also shown in Table IX.

The (weighted) distribution of siblings abroad by age of respondent is then converted into a distribution of siblings abroad by "would-be" age of mother - i.e, by the current age of the respondent's mother, assuming she is still alive. This is done by applying the theoretical distribution shown in Table II, to the total emigrant siblings in each age-group as shown in Table VIII. The calculations are shown in <u>Tables X and XI</u> for emigrant brothers and emigrant sisters respectively.

By multiplying the totals in each "mother's age-group" by the appropriate ratio of total children abroad: children abroad with resident siblings as derived in Table IX, estimates of emigrant siblings adjusted for "whole sibling group" migration are obtained. This calculation is shown in <u>Table XII</u>.

<u>Obtaining the Age distribution of Emigrant Siblings 2.7.</u> Finally, the age distribution of the emigrant siblings themselves is obtained, by applying the theoretical age distributions of children for each age-group of mother shown in Table I, (just as was done with the reports of the mothers, described in section 2.3). No further adjustment is required for orphanhood and maternal migration, because the theoretical age distribution of the mothers of the respondents assumed no maternal mortality. This last calculation is shown in <u>Tables XIII and XIV</u> for male and female emigrants respectively.

3. <u>Results</u>

<u>Response Rates 3.1.</u> A total of 13,154 responses were collected from the individuals living in the sample households in the first 3 rounds. As the census count of individuals in private households was 246,082, this represents 5.35 per cent of the non-institutional population. 945 respondents (400 males and 545 females) were reported as foreign born (7.2%), and these were excluded from this analysis, as it was assumed that most of the relatives of foreign-born respondents who live abroad would not be Barbadian emigrants. Of the Barbados-born females, 4,690 were over 15, and were asked questions about their children.

Only 78 respondents (0.64%) did not provide any information about
the residence and survival of their siblings, and only 26 (.56%) of the
women over 15 did not provide complete information about their children.
These respondents were also omitted from the analysis, so that the final
number of responses analysed was 12131 (5745 males and 6386 females) on
the sibling and orphanhood questions, and 4664 females over 15 on the
children questions. Of these respondents, there were none whose age was
not known, or who could not give information about residence and survival
of their mothers. The response rate would thus appear to be very high,
and indeed enumerators did not report any reluctance to answer these
questions amongst the people interviewed. The only households in the
sample which did not yield any information were those which were found to
be unoccupied.

Estimates of Emigrants from Mother's Reports 3.2. Table III shows
that the total number of emigrant children reported by mothers is 2,216
(1136 sons and 1,080 daughters). Table VII shows that after adjusting
for the effects of maternal orphanhood and migration, a total of 4,946
emigrants is obtained (2566 males and 2380 females). This represents an
overall adjustment factor of 2.23.

The estimated age distribution of emigrants shows a similar pattern
for both sexes: the numbers rise steadily with age up to the 40 - 44
age-group, continue to rise but more gradually up to the 60-64 age-group,
and then decline at older ages. Table VII also shows the estimated
emigrants expressed as a proportion of emigrants plus residents in each
age-group and this data is displayed in Figure (iii). The pattern is
broadly similar for the sexes - rising slowly up to the 20's, sharply up
to the 40's, then more slowly again to the 60's and then coming down
again sharply. Male proportions emigrating are noticeably higher than
those for females from the mid-20's onwards. If this pattern is true,
it would indicate either a substantial amount of return migration at
older ages, or a lower life-time propensity to migrate on the part of
the cohorts currently aged over 60. (The decline at old ages could also
be an artefact, produced by omissions in reporting emigrant children by
the older women - see discussion in section 5). The proportions who have

emigrated are very high: the overall percentage for all ages and both sexes is 29 per cent; the peak for males in 55 - 59 age-group is over 60 per cent; for females the peak is in the 60 - 64 age-group at over 50 per cent.

Dividing the estimated number of emigrants by the sampling fraction (.0535) would yield a national estimate of 92,449 emigrants (47,963 males and 44,486 females).

Estimates of Emigrants from Sibling Reports 3.3. Table VIII shows that the survey respondents reported a total of 4,916 siblings abroad (after weighting to counter the effects of multiple response), composed of 2,510 brothers and 2,406 sisters. Table XII shows that after making allowances for the emigration of whole sibling groups, we have an adjusted total of 6,535 emigrants, comprising 3,352 males and 3,183 females. This represents an overall adjustment factor of 1.33.

The estimated age distribution of the emigrants is shown in Tables XIII and XIV for males and females, respectively. The age pattern is similar for the sexes - rising steadily up to the 50 - 54 age-group, and then declining steadily. Emigrants expressed as a percentage of residents plus emigrants in each age-group are shown in Table XV, and Figure (iv) displays these results graphically. At ages under 20, proportionally more females are emigrants than males (though the differences are not large), but the reverse is true for ages over 30. Proportions who have emigrated rise steeply up to the end of the 40's, level out in the 50's (at over 70% for males and over 60% for females), and drop sharply after age 60. Again, the level is very high, but the pattern ties in reasonably well with what is generally presumed about patterns of migration with age - that the bulk of migration takes place in early adulthood - the dramatic fall off at older ages could be due to return migration, or less initial out-migration for the older cohorts. The overall proportion migrating for all ages and both sexes is 35 per cent - even higher than that derived from the reports of mothers.

Dividing the sample estimate of total emigrants by the sampling fraction, gives us a national estimate of 122,150 emigrants – comprising 62,655 males and 59,495 females.

Comparison of the two sets of Results 3.4.   The sibling method yields a substantially higher estimated total number of migrants (6,535) than the children method (4,946). The estimated sex composition of the emigrant population is more or less the same for both methods – with a small excess of males – the sex ratios being 1.07 for the sibling method and 1.05 for the children method.

Figure (v) shows a comparison of the age distributions of emigrants obtained from the two methods – the differences in pattern as well as level are quite substantial. The sibling method age distributions come to a higher, sharper and earlier peak, and fall of much more rapidly with age. In the 50 – 54 age-groups, the sibling method estimates for either sex are twice the size of the children method estimates.

Current Emigration from "last year" Questions 3.5.   Questions were also asked about the numbers of siblings and children emigrating in the last year. Mother's reports yielded a total of 71 children (33 sons and 38 daughters) who left in the year before the survey. Applying the same overall adjustment factor of 2.23, which was the result of adjusting mother's reports for orphanhood and maternal migration, gives an estimated 158 current emigrants (74 males and 84 females).

Similarly, siblings reports yielded a total of 106 siblings (45 brothers and 61 sisters) who left in the year before the survey. Using the overall adjustment factor of 1.33 derived for correcting sibling reports yields a total of 141 current emigrants – comprising 60 males and 81 females.

Taking the average of the two estimates (150) and expressing this as a fraction of the total respondents, gives a current migration rate of 1.24 per cent per annum. Dividing it by the sampling fraction gives a national estimate of 2,804 emigrants in the year before the survey (roughly speaking – 1980).

Both methods indicate an excess of females over males amongst
current migrants, with the sex ratios averaging out at about .81 - i.e.
out of the 150 current emigrants 67 would be male and 83 female.

Current Emigration from Proportions Emigrated by Age 3.6.   The
numbers of current emigrants reported directly are too small to warrant
any attempts at finding their age-structure by methods such as those
outlined in section 2. However, by taking the results of the calculations
shown in Tables VII and XV - the percentages of emigrants in each age-
group, it is possible to calculate the expected annual rate of out-
migration for each age-group.

As a first step, the percentages of emigrants in each age-group
calculated by the two methods were averaged, and then these averages were
smoothed graphically. The resulting smoothed percentages are shown for
each sex in Table XVI. Next, the between age-group increments in the
percentages of emigrants were found, divided by 5 to obtain annual,
rather than 5-year increments, and divided by the percentage of remaining
residents in the age-group, to give the annual emigration rates. These
are also shown in Table XVI. The expected numbers of current emigrants
were then found by applying these rates to the respondents in each
age-group.

The resulting totals of current emigrants are 75 males and 64 females
(total 139). The orders of magnitude are similar to those obtained
directly from the reports on current emigrants in section 3.5, but the sex
ratio is reversed. This is not surprising, as both the estimates of
total migrants imply heavier migration amongst men than women. It might
well be, however, that recently the sex balance of migration has
undergone a change, and this would account for the differences in the two
sets of results.

4.   Consistency Checks

Comparison of Mothers and Siblings Reports 4.1.   Section 3 dealt
exclusively with the estimation of emigrants, and revealed some quite
large differences between the estimates from the two sources. Before
looking in detail at possible causes of these discrepancies, it is

useful to make some other comparisons, which might shed some light on the
reliability of the data, and to some extent, of the methodology used.

Table XVIII shows some comparisons between reports of different sets
of respondents which should give the same results - e.g. the reports of
mothers with resident sons should tally with the reports of sons with
resident mothers, after the latter have been weighted for multiple
response. In general, the agreements are pretty close, except in the
case of reports about dead children/siblings, where the mother's reports
exceed those of siblings by anywhere between 15 per cent and 50 per cent.
It is not surprising to find that reporting of dead siblings is less
complete than the reporting of dead children, as deaths of siblings could
have taken place before the respondent was born, and he/she might grow
up in ignorance of the death of an elder sibling.

Apart from the category of dead children/siblings, the reports of
mothers with resident children and of mothers with resident daughters are
lower than those of siblings with resident mothers and sisters with resident
mothers. However, the reports of mothers with resident sons are in most
cases higher than the reports of brothers with resident mothers.

"Reliable" Values 4.2. There are some pairs of reports in this
table, where one would a priori place more trust in one value than the
other, because of the way in which the two values are derived. For
example, the number of mothers with resident children reported by the
mothers themselves is more likely to be correct than the number of such
mothers derived from the reports of siblings with resident mothers, since
the former depend only on whether the mother was correctly identified as
having or not having had one or more children, whereas the latter depend
both on the correctness of the response to the question on mother's
residence and on the correct statement of total number of resident
siblings, since the responses are weighted by the inverse of this
quantity. Similarly, one would put more trust in the number of resident
siblings with resident mother reported by the siblings themselves, than in
the number reported by the mothers, since the former depends simply on
the correctness of the response about mother's residence, whereas the
latter involves the correct statement of the actual number of resident

children by each mother. Where one value is more "believable" than its pair, in Table XVIII it has been ringed.

Comparisons of Reports by Males and Females 4.3.   The number of families with one or more brothers derived from the weighted reports of females should be the same as the number of families with one or more sisters derived from the weighted reports of males. The actual numbers of such families reported is shown in Table XIX, for the respondents classified by residence/survival of mother. Female reports of the number of such families exceed male reports in all cases. In the case of respondents with resident mother, the mother's reports lie between the values reported by either sex, but much closer to the male value.

Distributions of Families by Size 4.4.   As well as agreement in absolute numbers, one would expect agreement in the distributions of families by number and sex of children between reports of mothers with resident children and siblings with resident mothers. The agreement should be particularly strong as regards the composition of families in terms of resident children, as one would expect omissions here to be least significant. Table XX shows the percentage distributions of such families, by number and sex of resident children based on the reports of mothers and siblings.

The general agreement between the distributions is pretty good, but the small deviations present are systematic: siblings report higher proportions of families in the categories zero sons, zero daughters, one son, one daughter, one child, and two children, than do mothers in the corresponding categories; to balance this, mothers consistently report higher proportions of families in the higher size categories.

Brothers Reports on Sisters and Sisters Reports on Brothers 4.5.   One further comparison of family structure is made possible by the theoretical relationships:

$$E(m_b) = r \cdot F_{b-1}$$
$$E(F_s) = m_{s-1}/r$$

where m_b is the number of male respondents with b brothers, m_s the number of male respondents with s sisters; F_b and f_s the numbers of female respondents with b brothers and s sisters respectively, and v is the sex ratio(male: female) of respondents in the sample. Table XXI shows the observed and expected numbers of male and female respondents distributed by numbers of sisters and brothers.

The importance of this comparison lies in the fact that the "expected" distributions are derived from the (unweighted) distributions of respondents by number of siblings of the opposite sex - hence there can be no question of bias arising from the exclusion of the respondent from the number of resident siblings of the same sex. A study of Table XXI shows only one major discrepancy between the observed and expected values - a large excess of females respondents in the "only sister" category.

5.   Possible Sources of Error

Possible Over-estimation 5.1.   The methods discussed in Chapter 2, were designed to measure the numbers of persons born in Barbados, currently living abroad - but inevitably some people must be wrongfully included in the reported emigrants - e.g., children and siblings born abroad to Barbados-born persons currently residing in Barbados. Similarly, the adjustment factors used for maternal orphanhood/migration and emigration of whole sibling groups might be slightly too high, as some of the children born to mothers who have migrated could have been born abroad, and some of the siblings of those sibling groups currently all residing abroad, could in fact have been born abroad. No attempt has been made here to quantify these biases - but it is presumed they are small.

Children of Foreign Born Mothers 5.2.   The reverse kind of bias is caused by omitting from the reported emigrants Barbados-born children and siblings of foreign-born persons. It is felt that due to the non-negligible numbers of persons from other East Caribbean Islands settling and marrying in Barbados, it might be particularly important to take account of the children of foreign-born women. Full tables have not been produced for foreign-born women, our 271 of these women reported a total of 679 children resident in Barbados - adding these to the reports of Barbados-born

women with resident children would more than account for the discrepancies among resident children shown in the first two columns of Table XVIII.

Omission of Children by Older Mothers 5.3. Another potential source of downward bias in the mother's reports on children lies in omissions in the reports of older women. The penultimate column of Table III shows the reported mean parities by age - these begin to decline after age 50, and this cannot be explained by lower fertility in the past, as a check against the mean parities of these same women at younger ages, as reported in the 1960 and 1970 censuses rules this out. Proportions childless (not shown here) increase after age 50 - further evidence of omissions. It has often been stated that it is the dead children in particular, who are liable to be omitted from the older women's reports - but a quick examination of reported proportions surviving by age of mother (last column of Table III) shows that despite a few irregularities, they generally decline in a manner consistent with the life table used for this population. It is, therefore, likely that omissions have been made in the reports of older women both in living and dead children. Even if there were no tendency to omit emigrant rather than resident children, this could account for the larger discrepancies in the reports of emigrant as opposed to resident children/siblings, as the oldest women, for whom omissions would be the largest, account for the largest numbers of reported emigrant children.

"Weighting" Errors in Sibling Reports 5.4. The enumerators were clearly instructed that the respondent was to be included in the count of resident siblings of the same sex. Omission of the respondent from this count would lead to over-estimates based on the weighted sibling data, as the numbers of siblings reported by the respondent would be divided by one less than the correct number. There is evidence that some such omissions occurred - the computer edit revealed a total of 197 persons (88 males and 109 females) who were recorded as having zero resident siblings of the same sex - (An error rate of 1.6%) - it is not known how many errors of this kind were detected and corrected during manual editing.

The correction of this error results in a heaping of respondents in the category "only resident brother" and "only resident sister", since persons who are really one of a pair of resident same-sex siblings, but are reported as "only" resident brothers or sisters cannot be detected during editing, and so do not get corrected. Evidence of such heaping is present in the comparison of distributions of families by number and sex of siblings from the reports of mothers and siblings, shown in Table XX, but Table XXI would appear to show that this heaping is only present in the case of females but not males. Why such a reporting error should be sex-specific is not at all clear!

6.   Conclusions

Internal Discrepancies. 6.1.   The estimated number of emigrants based on the two methods differ by some 25 per cent and it is pretty certain that the sibling method over-estimates the number somewhat, whilst the children method probably under-estimates it. It would, therefore, be reasonable to regard the two estimates as upper and lower limits for the true number. It is difficult to arrive at such a firm conclusion regarding the age distributions of emigrants produced by the two methods, since these are generated by rather elaborate methods which involve many untested assumptions - more work would need to be done on the age models involved.

External Checks 6.2.   To date, no data on Barbados-born persons living abroad has become available from other countrys' censuses, so that no truly independent verification of these results has been possible. The figures are undoubtedly high - averaging the two totals scaled up to the national level gives 107,300 emigrants, or about 32 per cent of all persons born in Barbados. However, some recent work [1] on intercensal population change in the 1960 to 1970 interval, shows that out-migration for that decade amounted to about 44,500 persons, so the order of magnitude arrived at is quite plausible.

---

[1] ZABA, B 1980 Caribbean Census - suggestions for an Analytical commentary - a model based on the Barbados 1970 Census.

Estimates of current net migration based on entry and departure statistics run at about 2,000 per annum outwards, and this is generally felt to be a quite severe under-estimate. Thus, the figure of 2,800 derived above for current out-migration would appear to be pretty reasonable also.

Feasibility of Using this Method Elsewhere 6.3.   On the whole, this approach to measuring out migration has been pretty successful in Barbados, but before assuming that it would work elsewhere, two considerations must be borne in mind:

i.   it was a cheap option here, because a continuous household survey was already underway and highly skilled staff were readily available; and

ii. the heavy rate of out-migration and the small total size of the population meant that meaningful results could be derived from a relatively small sample.

As regards employing this approach in a cencus - the "children" method would seem particularly suitable, as in many countries questions about numbers of surviving and dead children are already asked, as is the question on orphanhood, so the only amendments required would be the subdivision of surviving children into resident in the country or abroad, and the classification of resident, emigrant and dead children by sex.

TABLES

TABLE I

Percentage age-distribution of Children for each
age-group of Mother

	Age of Mother												
Age of Children	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
0- 4	100	86.3	53.3	30.6	16.2	7.5	2.5	.2					
5- 9		13.7	40.2	36.7	26.1	14.8	7.2	2.4	.2				
10-14			6.5	28.1	30.3	24.0	14.4	7.2	2.4	.2			
15-19				4.6	23.5	28.1	23.4	14.3	7.2	2.4	.2		
20-24					3.9	21.8	27.6	23.4	14.4	7.2	2.4	.2	
25-29						3.6	21.4	27.6	23.4	14.4	7.3	2.4	.1
30-34							3.5	21.4	27.6	23.5	14.5	7.3	1.2
35-39								3.5	21.3	27.7	23.6	14.6	4.1
40-44									3.5	21.2	27.5	23.7	9.1
45-49										3.4	21.1	27.5	16.5
50-54											3.4	21.0	22.7
55-59												3.3	23.1
60-64													14.7
65-69													6.6
70-74													1.8
75+													.1

TABLE II

Percentage age-distribution of Mothers
(in absence of mortality) for each
age-group of Child

"Would be" Mothers age	Age of Child												
	0- 4	5- 9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+
15-19	3.7												
20-24	21.5	3.7											
25-29	27.3	21.5	3.7										
30-34	23.3	27.3	21.5	3.7									
35-39	14.5	23.3	27.3	21.5	3.7								
40-44	7.1	14.5	23.3	27.3	21.5	3.7							
45-49	2.4	2.1	14.5	23.3	27.3	21.5	3.7						
50-54	.2	2.4	7.1	14.5	23.3	27.3	21.5	3.7					
55-59		.2	2.4	7.1	14.5	23.3	27.3	21.5	3.7				
60-64			.2	2.4	7.1	14.5	23.3	27.3	21.5	3.7			
65-69				.2	2.4	7.1	14.5	23.3	27.3	21.5	3.7		
70-24					.2	2.4	7.1	14.5	23.3	27.3	21.5	3.7	
75+						.2	2.6	9.7	24.2	47.5	74.8	96.3	100.0

TABLE III

Barbados-born females by age-group, with numbers
of Children by their Sex, Survival and Residence

Age-Group	Number of Women	Sons				Daughters				Children				Mean Children Ever Born	Proportion of Children Surviving
		Living in Barbados	Living Abroad	Who have Died	Total Sons	Living in Barbados	Living Abroad	Who have Died	Total Daughters	Living in Barbados	Living Abroad	Who have Died	Total Children		
15-19	639	54	0	0	54	31	0	0	31	85	0	0	85	.13	1.0
20-24	673	212	4	3	219	178	2	1	181	390	6	4	400	.59	.990
25-29	522	381	10	4	395	346	4	1	351	727	14	5	746	1.43	.993
30-34	410	404	23	8	435	442	16	9	467	846	39	17	902	2.20	.981
35-39	266	388	13	8	409	379	17	7	403	767	30	15	812	3.05	.982
40-44	265	463	28	18	509	445	39	17	501	908	67	35	1010	3.81	.965
45-49	276	544	67	30	641	498	71	27	596	1042	138	57	1237	4.48	.954
50-54.	297	490	93	37	620	502	105	27	634	992	198	64	1254	4.22	.949
55-59	273	381	135	58	574	334	114	42	490	715	249	100	1064	3.90	.906
60-64	236	256	156	76	488	277	165	58	500	533	321	134	988	4.20	.864
65-69	263	225	194	62	481	241	176	51	468	466	370	113	949	3.61	.881
70-74	221	157	180	74	411	193	168	58	419	350	348	132	830	3.76	.841
75+	323	245	233	122	600	243	203	93	539	488	436	215	1139	3.53	.811
TOTAL	4664	4200	1136	500	5836	4109	1080	391	5580	8309	2216	891	11416	2.45	

TABLE IV

Distribution of Emigrant Sons by age, derived from total Emigrant Sons reported by Mothers

Age of Sons	Age of Mother													
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total
0- 4	0	3	5	7	2	2	2	0						21
5- 9		1	4	8	3	4	5	2	0					27
10-14			1	7	4	7	10	7	3	0				39
15-19				1	3	9	16	13	10	4	0			56
20-24					1	6	18	22	19	11	5	0		82
25-29						1	14	26	32	22	14	4	0	113
30-34							2	20	37	37	28	13	3	140
35-39								3	29	44	46	26	10	158
40-44									5	33	53	42	21	154
45-49							o			5	41	51	38	135
50-54											7	38	53	98
55-59												6	55	61
60-64													34	34
65-69													15	15
70-74													4	4
75+													0	0
Reported Totals	0	4	10	23	13	28	67	93	135	156	194	180	233	1136

TABLE V

Distribution of Emigrant Daughters by age derived from total Emigrant Daughters reported by Mothers

Age of Daughters	Age of Mother													
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total
0- 4	0	2	2	5	3	3	2	0						17
5- 9		0	2	6	4	6	5	3	0					26
10-14			0	4	5	9	10	8	3	0				39
15-19				1	4	11	17	15	8	4	0			60
20-24					1	9	19	25	16	12	4	0		86
25-29						1	15	28	27	24	13	4	0	112
30-34							3	22	32	39	26	12	2	136
35-39								4	24	45	42	25	8	148
40-44									4	35	48	40	19	146
45-49										6	37	46	34	123
50-54											6	35	46	87
55-59												6	47	53
60-64													30	30
65-69													13	13
70-74													4	4
75+													0	0
Reported Totals	0	2	4	16	17	39	71	105	114	165	176	168	203	1080

TABLE VI

Barbados-born Respondents by age-group
and Survival/Residence of Mother

Age Group	Mother living in Barbados	Mother living abroad	Mother dead	Total	Proportion with Mother Resident	Smoothed Proportions
0- 4	990	4	7	1001	.989	.985
5- 9	1170	38	14	1222	.957	.967
10-14	1169	39	28	1236	.946	.946
15-19	1235	56	48	1339	.922	.910
20-24	1152	97	75	1324	.870	.878
25-29	841	87	68	996	.844	.831
30-34	593	54	106	753	.788	.784
35-39	369	23	135	527	.700	.720
40-44	329	23	132	486	.677	.645
45-49	250	7	209	466	.536	.536
50-54	190	7	310	507	.375	.375
55-59	101	7	349	457	.221	.210
60-64	53	4	404	461	.115	.115
65-69	17	1	441	459	.037	.060
70-74	7	1	381	389	} .021	.020
75+	12	3	493	508	}	
Total	8478	451	3202	12131		

TABLE VII

Adjustment of Emigrants reported by Mothers
for Orphanhood and Maternal Migration

Age Group	...	Emigrants total percentage of Total
0-4		3.7
5-9		4.3
10-14		6.2
15-19		8.7
20-24		12.6
25-29		21.4
30-34		31.8
35-39		44.6
40-44		48.9
45-49		50.8
50-54		49.3
55-59		54.3
60-64		54.7
65-69		50.4
		30.8
Total		29.0

TABLE VIII

Barbados-born Respondents by age-group, with Weighted[1]/
Numbers of Siblings by their Sex, Residence and Survival

Age Group	Number of Respondents	Brothers living in Barbados	Brothers living abroad	Brothers who have died	Total Brothers	Sisters living in Barbados	Sisters living abroad	Sisters who have died	Total Sisters
0- 4	1001	521	16	6	543	483	12	4	499
5- 9	1222	624	28	9	661	607	16	5	628
10-14	1236	621	40	16	676	632	43	15	690
15-19	1339	702	94	29	825	657	111	27	795
20-24	1324	687	151	48	886	655	181	44	879
25-29	996	505	202	47	754	503	220	45	769
30-34	753	375	200	46	621	384	197	35	615
35-39	527	266	147	25	438	264	148	25	437
40-44	486	229	154	45	427	260	155	24	438
45-49	466	216	153	41	409	251	134	38	423
50-54	507	236	191	71	498	272	176	69	517
55-59	457	202	159	81	442	256	135	62	452
60-64	461	217	184	121	522	245	139	84	468
65-69	459	204	179	134	517	255	162	113	530
70-74	389	169	199	154	522	320	191	144	555
75+	508	195	414	381	989	313	386	358	1057
Total	12131	5967	2510	1253	9730	6258	2406	1091	9754

1/ Any discrepancies in marginal totals are due to rounding to nearest integer values.

TABLE IX

Children living abroad by age-group of Mothers, reported by all Mothers and Mothers with Resident Children

Mother's Age-Group	Children living abroad		Ratio (a/b)	Smoothed ratios
	Total (a)	With Resident Siblings (b)		
15-19	0	0	–	1.68
20-24	6	2	3.0	1.57
25-29	14	11	1.27	1.44
30-34	39	26	1.5	1.31
35-39	30	25	1.2	1.17
40-44	67	65	1.03	1.08
45-49	138	133	1.04	1.09
50-54	198	174	1.14	1.11
55-59	249	201	1.24	1.14
60-64	321	282	1.14	1.19
65-69	370	310	1.19	1.26
70-74	348	233	1.49	1.34
75+	436	317	1.38	1.45
Total	2217	1779	1.25	

TABLE X

Distributions of Emigrant Brothers by "would be" Age of Mother, derived from Emigrant Brothers Classified by age of Respondent

"Would be" age of Mother	Age of Respondent Sibling													
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	Total
15-19	1													1
20-24	3	1												4
25-29	5	6	1											12
30-34	4	8	9	3										24
35-39	2	6	11	20	6									45
40-44	1	4	9	26	32	7								79
45-49	0	2	6	22	41	44	7							122
50-54	0	1	3	14	35	55	43	5						156
55-59		0	1	7	22	47	55	32	6					170
60-64			0	2	11	29	47	41	33	6				169
65-69				0	4	14	29	34	42	33	7			163
70-74					0	5	14	21	36	42	41	6		165
75+						1	5	14	37	72	143	153	976	1401
Reported Totals	16	28	40	94	151	202	200	147	154	153	191	159	976	2510

TABLE XI

Distribution of Emigrant Sisters by "would be" Age of Mother,
derived from Emigrant Sisters classified by age of
Respondent Sibling

"Would be" age of Mother	Age of Respondent Sibling													
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	Total
15-19	0													0
20-24	3	1												4
25-29	3	3	2											8
30-34	3	5	9	4										21
35-39	2	4	12	24	7									49
40-44	1	2	10	30	39	8								90
45-49	0	1	6	26	50	47	7							137
50-54	0	0	3	16	42	60	42	5						168
55-59		0	1	8	26	51	54	32	6					178
60-64			0	3	13	32	46	41	33	5				173
65-69				0	4	16	29	35	42	29	7			162
70-74					0	6	14	21	36	37	38	5		157
75+						0	5	14	38	63	131	130	878	1259
Reported Totals	12	16	43	111	181	220	197	148	155	134	176	135	878	2406

TABLE XII

Adjustment of Emigrant Siblings by "would be" age of Mother for whole Family Emigration

"Would be" age of Mother	(Siblings abroad) / (Siblings abroad with Resident Sibling)	Reported Emigrants		Adjusted Emigrants	
		Brothers	Sisters	Brothers	Sisters
15-19	1.68	1	0	2	0
20-24	1.57	4	4	6	6
25-29	1.44	12	8	17	11
30-34	1.31	24	21	31	28
35-39	1.17	45	49	53	57
40-44	1.08	79	90	85	97
45-49	1.09	122	137	133	149
50-54	1.11	156	168	173	186
55-59	1.14	170	178	194	203
60-64	1.19	169	173	201	206
65-69	1.26	163	162	205	204
70-74	1.34	165	157	221	210
75+	1.45	1401	1259	2031	1826
Total		2510	2406	3352	3183

TABLE XIII

Distribution of Emigrant Brothers by age, derived from Adjusted Emigrant Brothers classified by "would be" age of Mother

Age of Emigrant Brothers	"Would be" age of Mother													Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	
0- 4	2	5	9	10	9	6	3	0						44
5- 9		1	7	11	14	12	10	4	0					59
10-14			1	9	16	21	19	12	5	0				83
15-19				1	12	25	31	25	14	5	0			113
20-24					2	18	37	40	28	14	5	0		144
25-29						3	28	49	45	29	15	5	2	176
30-34							5	37	54	47	30	16	24	213
35-39								6	41	56	48	32	83	266
40-44									7	43	57	53	185	345
45-49										7	43	62	335	447
50-54											7	46	461	514
55-59												7	469	476
60-64													299	299
65-69													134	134
70+													39	39
Adjusted Totals (from Table XII)	2	6	17	31	53	85	133	173	194	201	205	221	2031	3352

TABLE XIV

Distribution of Emigrant Sisters by age,
derived from adjusted Emigrant Sisters,
classified by "would be" age of Mother

Age of Emigrant	"would be" age of Mother													Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	
0- 4	0	5	6	9	9	7	4	0						40
5- 9		1	4	10	15	14	11	4	0					59
10-14			1	8	18	24	21	13	5	0				90
15-19				1	13	28	35	27	15	5	0			124
20-24					2	21	41	44	29	15	5	0		157
25-29						3	32	51	48	30	15	5	2	186
30-34							5	40	56	48	30	15	22	216
35-39								7	43	57	48	31	75	261
40-44									7	44	56	50	166	323
45-49										7	43	58	301	409
50-54											7	44	415	466
55-59												7	421	428
60-64													268	268
65-69													121	121
70+													35	35
Adjusted Totals (from Table XII)	0	6	11	28	57	97	149	186	203	206	204	210	1826	3183

TABLE XV

Emigrants estimated from Sibling reports as a
Percentage of (Emigrant and Resident)
Population by age

Age Group	Males			Females			Both Sexes		
	Residents	Emigrants	$\frac{e}{v+e}$	Residents	Emigrants	$\frac{e}{v+e}$	Residents	Emigrants	$\frac{e}{v+e}$
0- 4	508	44	8.0	493	40	7.5	1001	84	7.7
5- 9	606	59	8.9	616	59	8.7	1222	118	8.8
10-14	620	83	11.8	616	90	12.7	1236	173	12.3
15-19	701	113	13.9	638	124	16.3	1339	237	15.0
20-24	651	144	18.1	673	157	18.9	1324	301	18.5
25-29	474	176	27.1	522	186	26.3	996	362	26.7
30-34	344	213	38.2	409	216	34.6	753	429	36.3
35-39	261	266	50.5	266	261	49.5	527	527	50.0
40-44	221	345	61.0	265	3233	54.9	486	668	57.9
45-49	191	447	70.1	275	409	59.8	466	856	64.8
50-54	210	514	71.0	297	466	61.1	507	980	65.9
55-59	185	476	72.0	272	428	61.1	457	904	66.4
60-64	225	299	57.1	236	268	53.2	461	567	55.2
65-69	196	134	40.6	263	121	31.5	459	255	35.7
70+	352	39	10.0	545	35	6 0	897	74	7.6
Total	5745	3352	38.2	6386	3183	33.3	12131	6535	35.0

TABLE XVI

Estimating the Age Distribution of Current Emigrants

Age Group	MALES			FEMALES		
	Smoothed % Emigrants	Implied Annual Migration rate (%)	Expected Current Emigrants	Smoothed % Emigrants	Implied Annual Migration rate (%)	Expected Current Emigrants
0- 4	5.9	.11	1	5.4	.10	1
5- 9	6.6	.32	2	6.9	.43	3
10-14	8.4	.44	3	9.0	.55	3
15-19	11.0	.79	6	12.4	.91	6
20-24	15.3	1.65	11	17.1	1.33	9
25-29	24.7	2.65	13	23.4	1.96	10
30-34	36.2	3.38	12	32.2	2.79	11
35-39	48.0	4.04	11	41.1	2.54	7
40-44	57.3	3.53	8	47.4	2.10	6
45-49	63.5	2.47	5	52.3	1.68	5
50-54	66.4	1.19	3	55.0	.89	3
Total			75			64

TABLE XVIII

Comparison of Reporting by Mothers and Siblings

Categories being Compared		Reports of:			Reports of:			Reports of:		
		a	b	Ratio a/b	c	d	Ratio c/d	e	f	Ratio e/f
		Mothers with Resident Children	Siblings with Resident Mothers		Mothers with Resident Sons	Brothers with Resident Mothers		Mothers with Resident Daughters	Sisters with Resident Mothers	
Resident	Total Mothers	(2693)	2935	.92	(2061)	2139	.96	(2089)	2307	.91
	(Sons/ (Brothers	4200	4286	.98	4200	(4132)	1.02	3217	3366	.96
	(Daughters/ (Sisters	4109	4277	.96	3134	2995	1.05	4109	(4346)	.95
	(Children/ (Siblings	8309	(8478)	.98	7334	7127	1.03	7326	7712	.95
Abroad	(Sons/ (Brothers	890	916	.97	679	602	1.13	759	810	.94
	(Daughters/ (Sisters	889	898	.99	692	619	1.12	733	764	.96
	(Children/ (Siblings	1779	1814	.99	1371	1221	1.12	1492	1574	.96
Dead	(Sons/ (Brothers	385	309	1.26	296	194	1.53	345	300	1.15
	(Daughters/ (Sisters	317	262	1.21	248	170	1.46	280	241	1.16
	(Children/ (Siblings	702	571	1.23	544	364	1.49	625	541	1.15
Total	(Sons/ (Brothers	5475	5510	.99	5175	4928	1.05	4321	4476	.97
	(Daughters/ (Sisters	5315	5436	.98	4074	3783	1.08	5122	5351	.96
	(Children/ (Siblings	10790	10946	.99	9249	8711	1.06	9443	9827	.96

-34-

TABLE XIX

Comparison of Reports on Number of Families
with at least One Resident Sibling of each Sex

Respondent's Mother	Derived from Reports of:			
	Males	Females	Both Sexes	(Mothers)
Living in Barbados	1439	1566	1498	1457
Abroad or Dead	569	657	607	—
All Respondents	2007	2221	2105	—

TABLE XX

Percentage distribution of Families by Number and
Sex of Resident Siblings, from Reports of
Mothers and Siblings

Families with:	Distribution by Number of Resident:	Reported by:	0	1	2	3	4	5	6	7	8	9+	Total Number of Families
Resident Mother and Children	Sons	Mothers	23.5	35.2	21.0	10.2	5.5	2.8	1.0	0.5	0.2	0.1	2693
		Siblings	25.2	37.2	19.7	9.2	4.7	2.5	0.8	0.4	0.1	0.1	2935
	Daughters	Mothers	22.4	37.3	21.3	9.8	5.3	2.2	1.0	0.4	0.2	0.1	2693
		Siblings	23.9	38.9	19.6	9.7	4.6	2.0	0.8	0.3	0.1	0.1	2935
	Children	Mothers	–	28.1	23.7	15.2	11.4	7.4	5.2	3.8	2.2	3.0	2693
		Siblings	–	31.8	24.2	14.8	10.3	6.8	4.4	3.3	1.9	2.5	2935
Resident Mother and Sons	Sons	Mothers	–	45.9	27.4	13.4	7.2	3.7	1.3	0.6	0.3	0.1	2061
		Brothers	–	49.8	26.5	12.3	6.3	3.2	1.2	0.4	0.2	0.1	2139
	Daughters	Mothers	29.3	29.4	19.9	10.9	5.8	2.8	1.2	0.4	0.2	0.1	2061
		Brothers	32.7	29.3	18.6	10.7	4.7	2.2	0.9	0.5	0.2	0.1	2139
	Children	Mothers	–	17.4	23.0	17.9	13.8	9.6	6.7	4.9	2.8	3.9	2061
		Brothers	–	20.2	24.5	17.8	12.4	8.6	5.8	4.7	2.7	3.2	2139
Resident Mother and Daughters	Sons	Mothers	30.3	28.2	19.3	10.6	6.3	3.2	1.2	0.6	0.2	0.1	2089
		Sisters	32.1	28.8	18.4	9.3	6.4	3.2	0.9	0.7	0.1	0.1	2307
	Daughters	Mothers	–	48.1	27.5	12.6	6.8	2.9	1.2	0.5	0.2	0.1	2089
		Sisters	–	51.7	25.4	12.6	6.0	2.5	1.1	0.4	0.2	0.1	2307
	Children	Mothers	–	19.1	22.8	16.9	13.9	9.1	6.7	4.9	2.7	3.8	2089
		Sisters	–	21.2	23.9	16.7	13.1	9.1	5.8	4.3	2.6	3.3	2307

TABLE XXI

Observed and Expected Numbers of Respondents by
Sex and by Number of Resident, Same - Sex
Siblings, Derived from Reports of Number
of Resident, Opposite - Sex Siblings

	Number of Resident Brothers										Total Respondents
	0	1	2	3	4	5	6	7	8	9+	
Observed distribution of Females	2055	1769	1155	644	421	231	62	36	10	3	6386
Expected distribution of Males	–	1849	1591	1039	579	379	208	56	32	12	(5745)
Observed distribution of Males	–	1824	1574	1006	626	387	180	87	35	26	5745

	Number of Resident Sisters										Total Respondents
	0	1	2	3	4	5	6	7	8	9+	
Observed distribution of Males	1774	1577	1137	656	325	154	67	32	11	12	5745
Expected distribution of Females	–	1972	1753	1264	729	361	171	74	36	26	(6386)
Observed distribution of Females	–	2116	1742	1176	702	349	174	75	26	26	6386

FIGURES
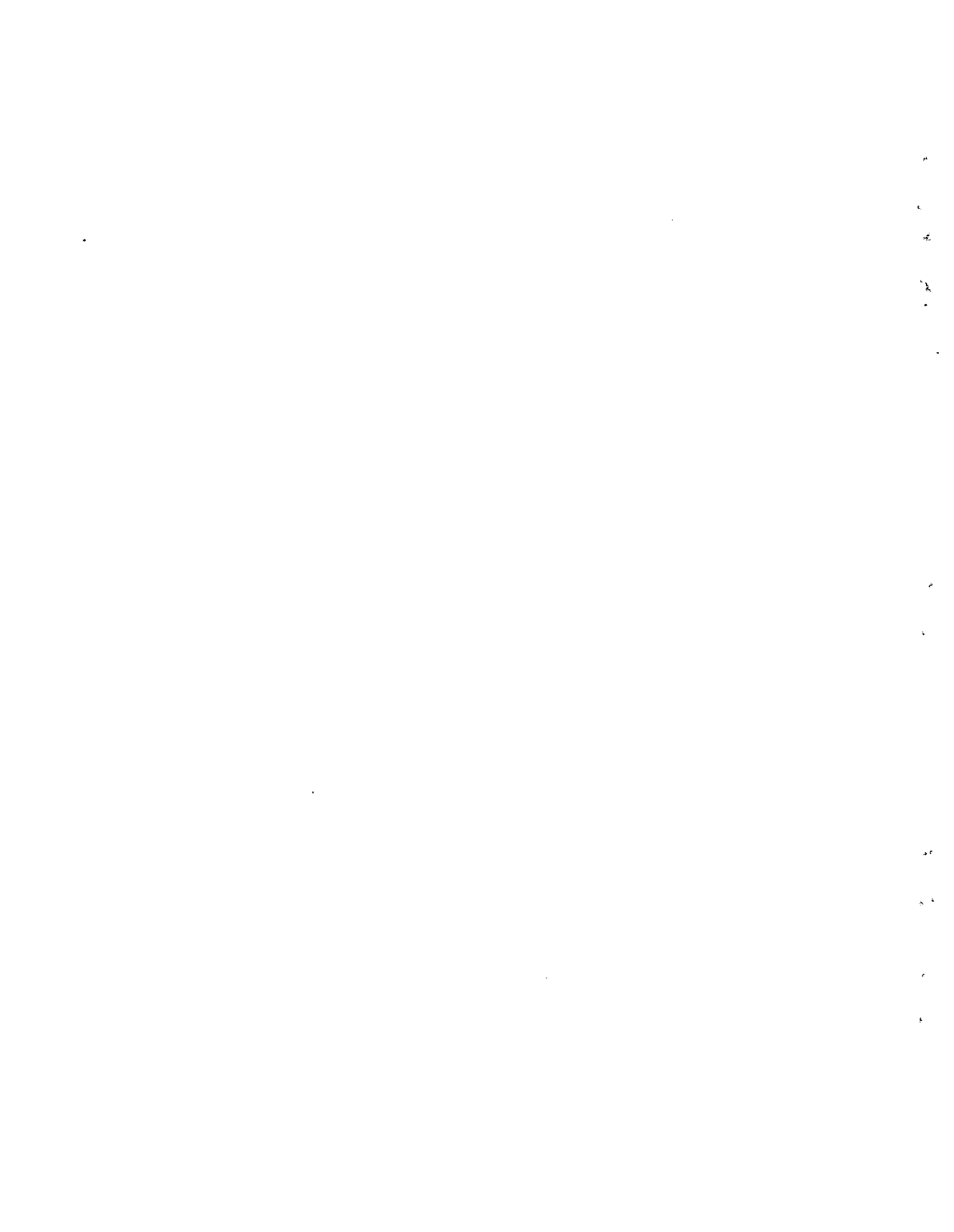
FIGURE (i)

Life table survivorship values by age

(used to derive age distributions of children
shown in table I.)
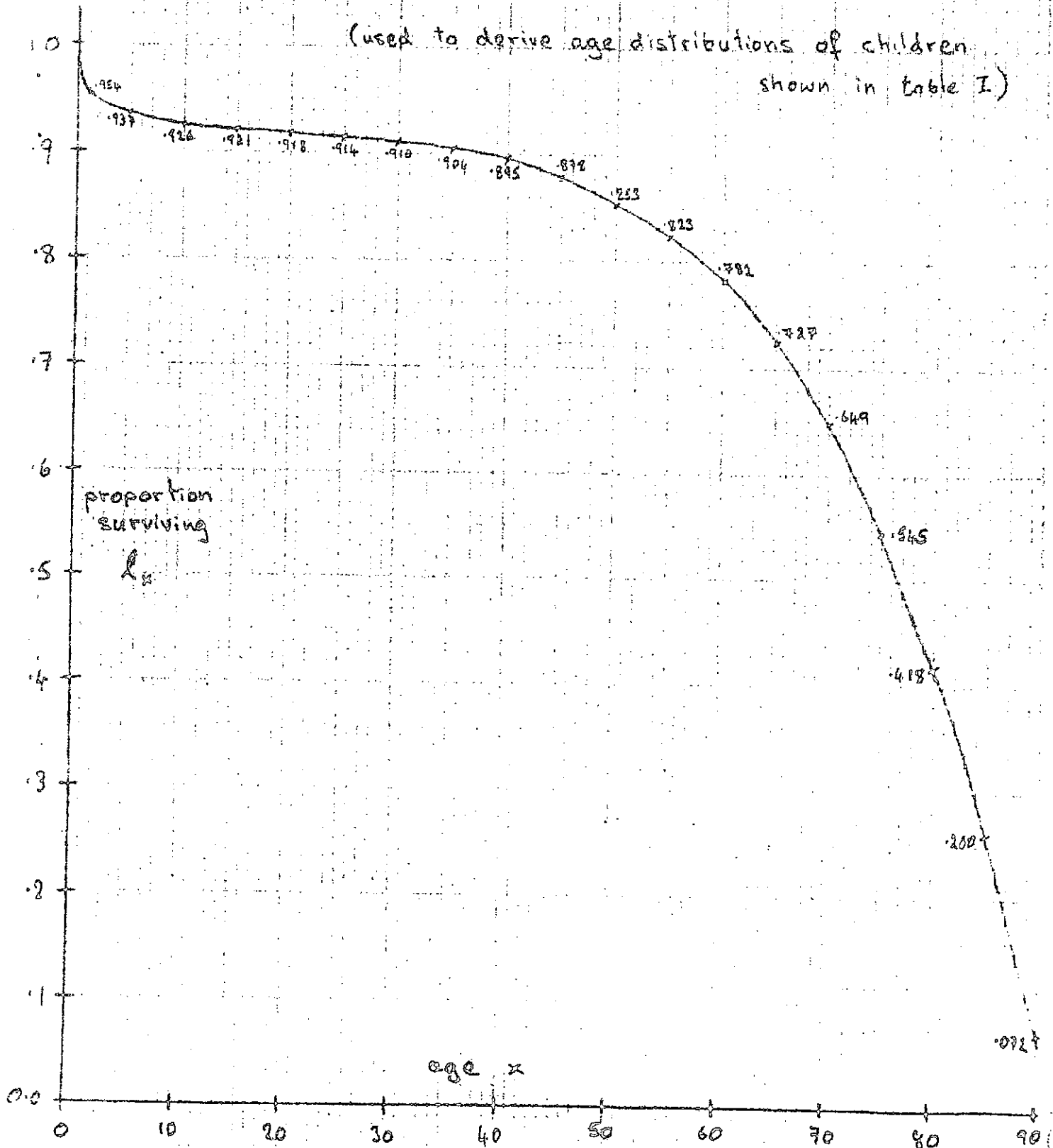
FIGURE (ii)

Relative age-specific fertility rates

(used to derive age distributions of children shown in table I
and of mothers shown in table II)
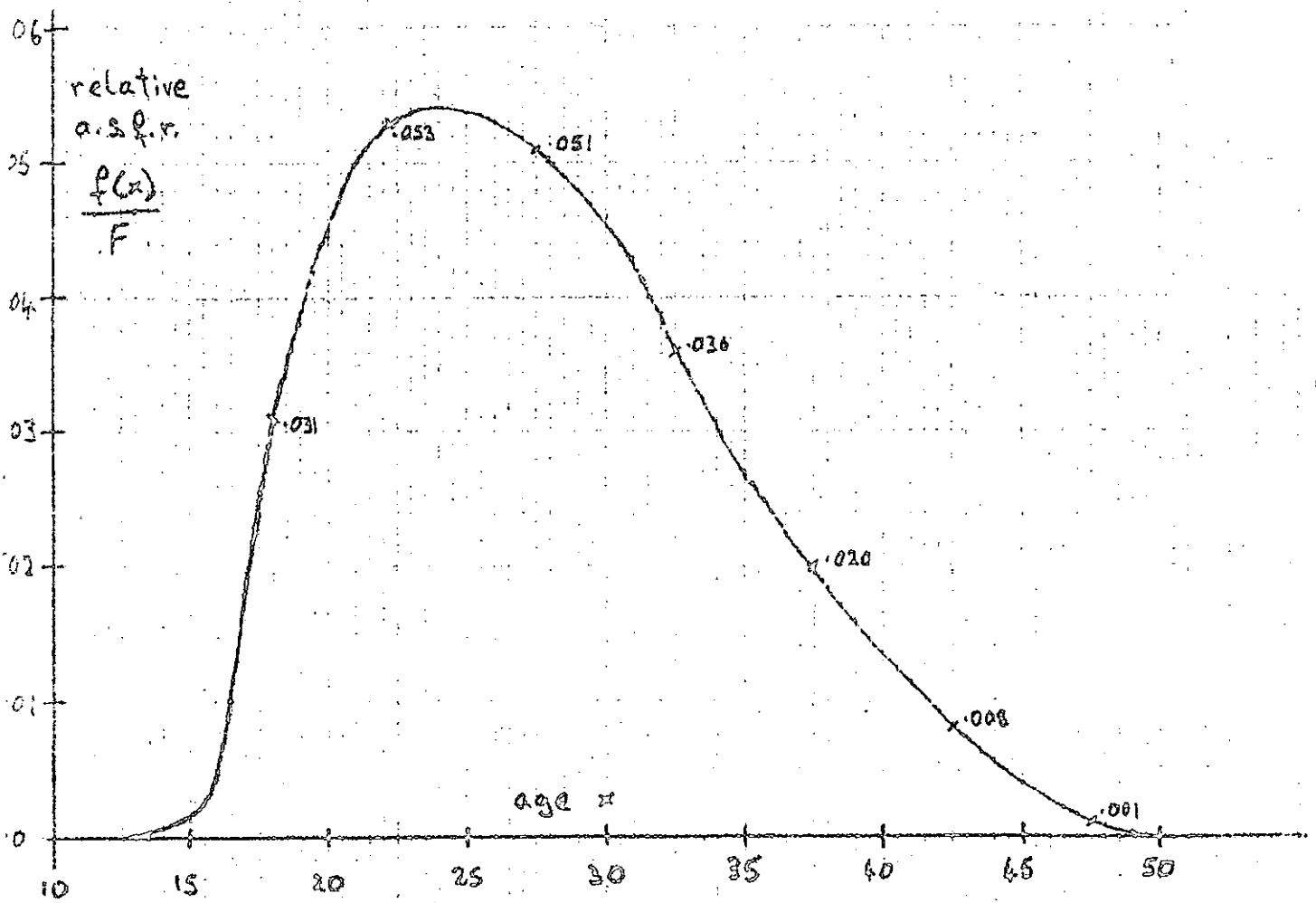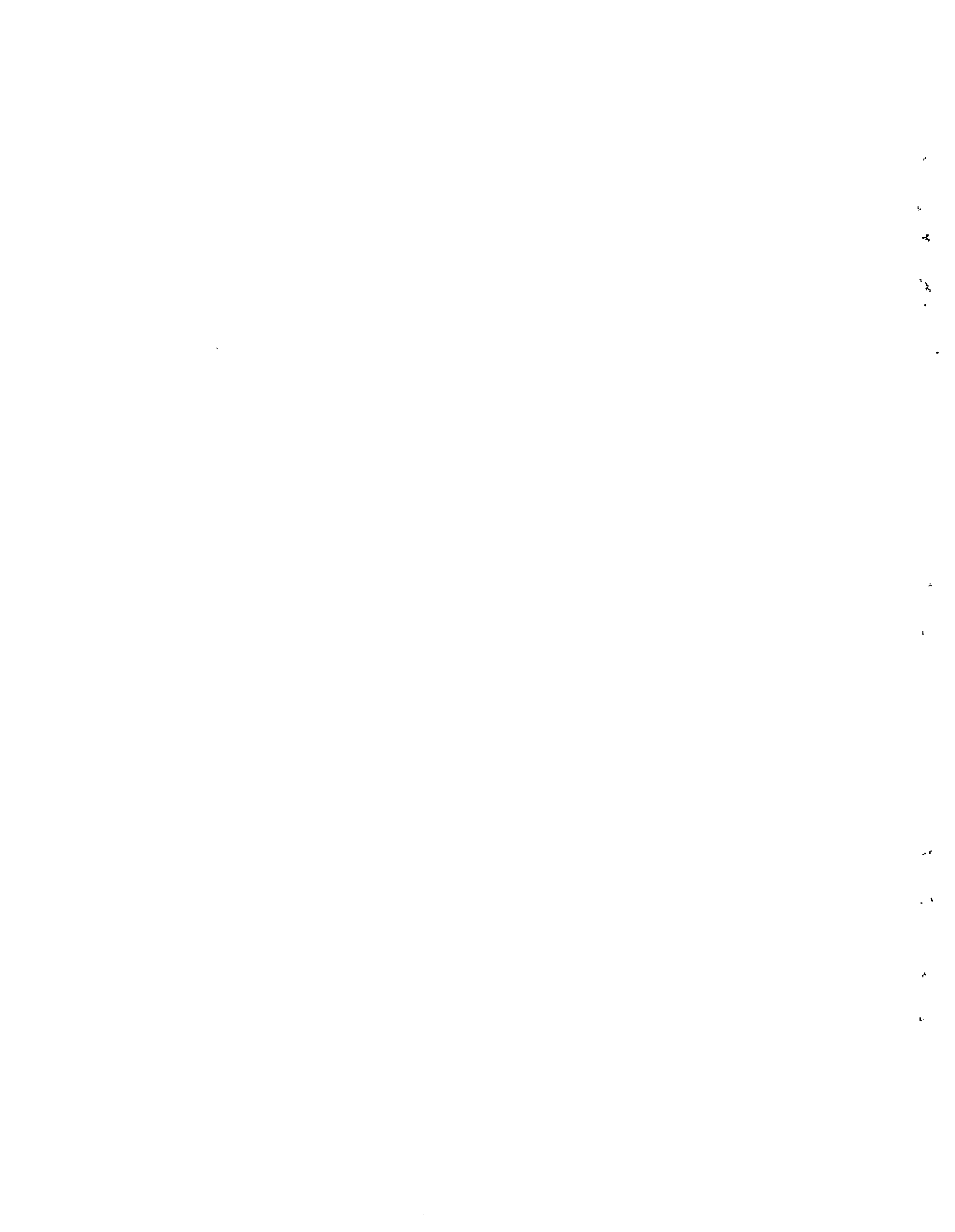
FIGURE (iii)

Emigrants by age-group, as a percentage of (residents + emigrants) - based on mother's reports
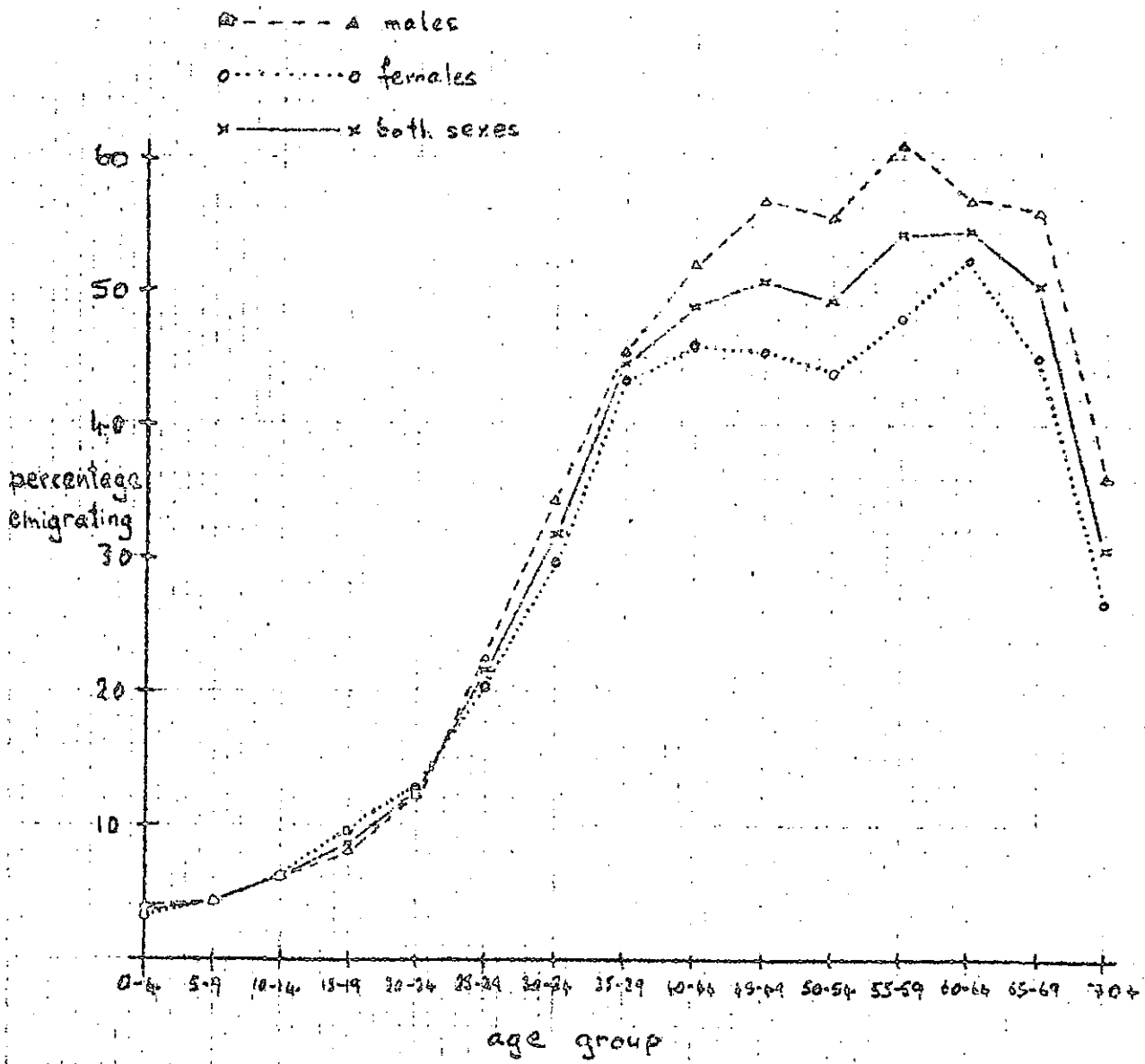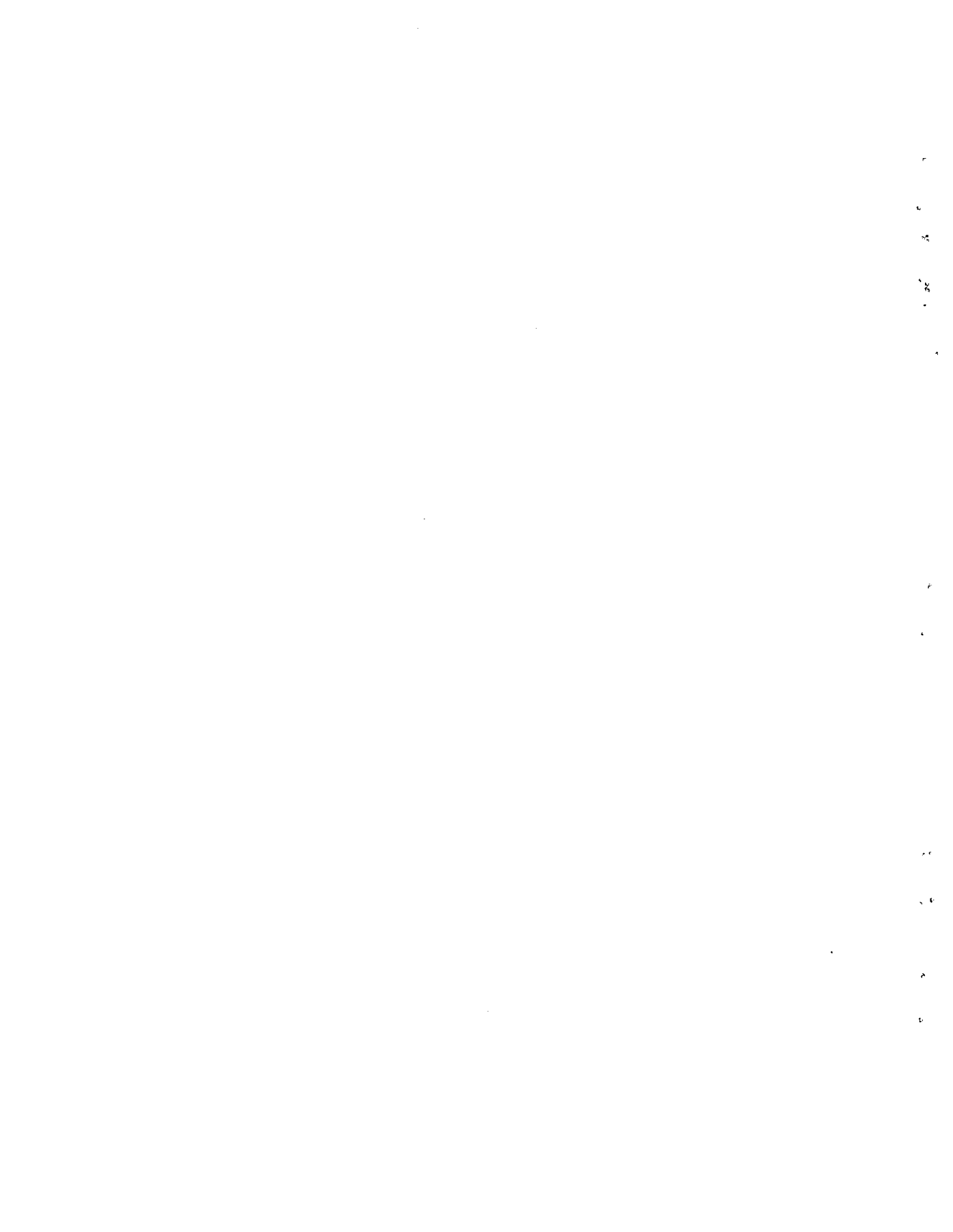
FIGURE (iv)

Emigrants by age group, as a percentage of (residents + emigrants)

– based on sibling reports
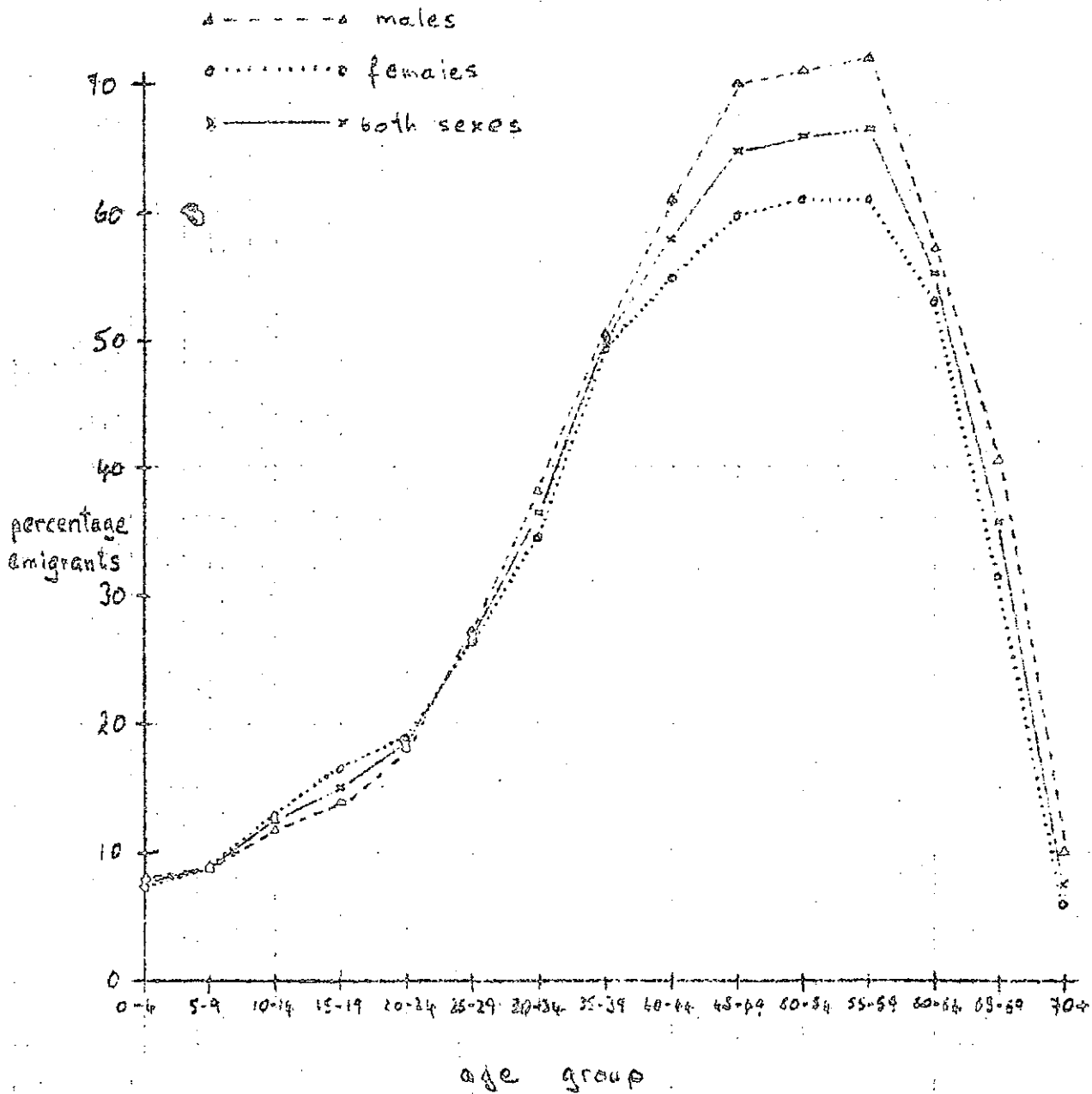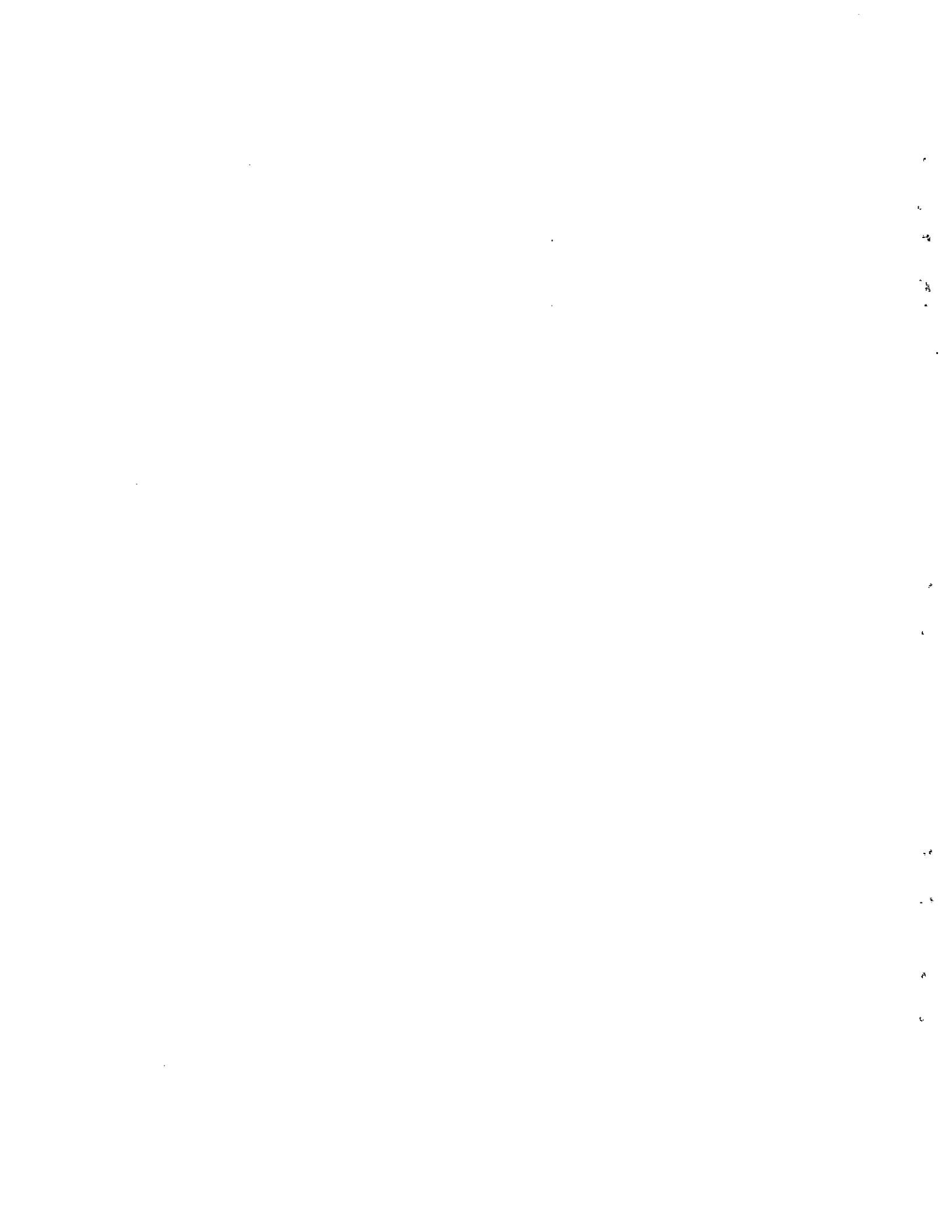
FIGURE (V)

Number of emigrants by age group, estimated from reports of mothers & siblings
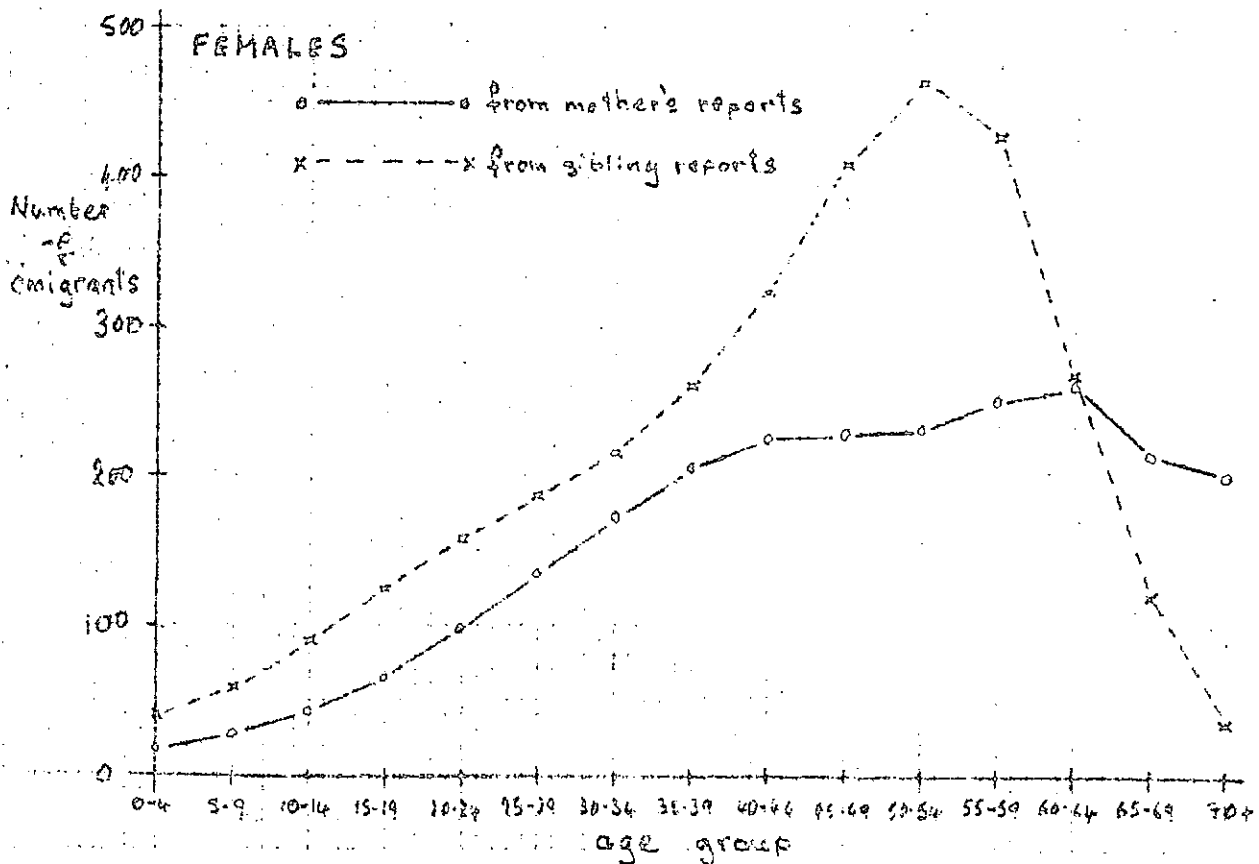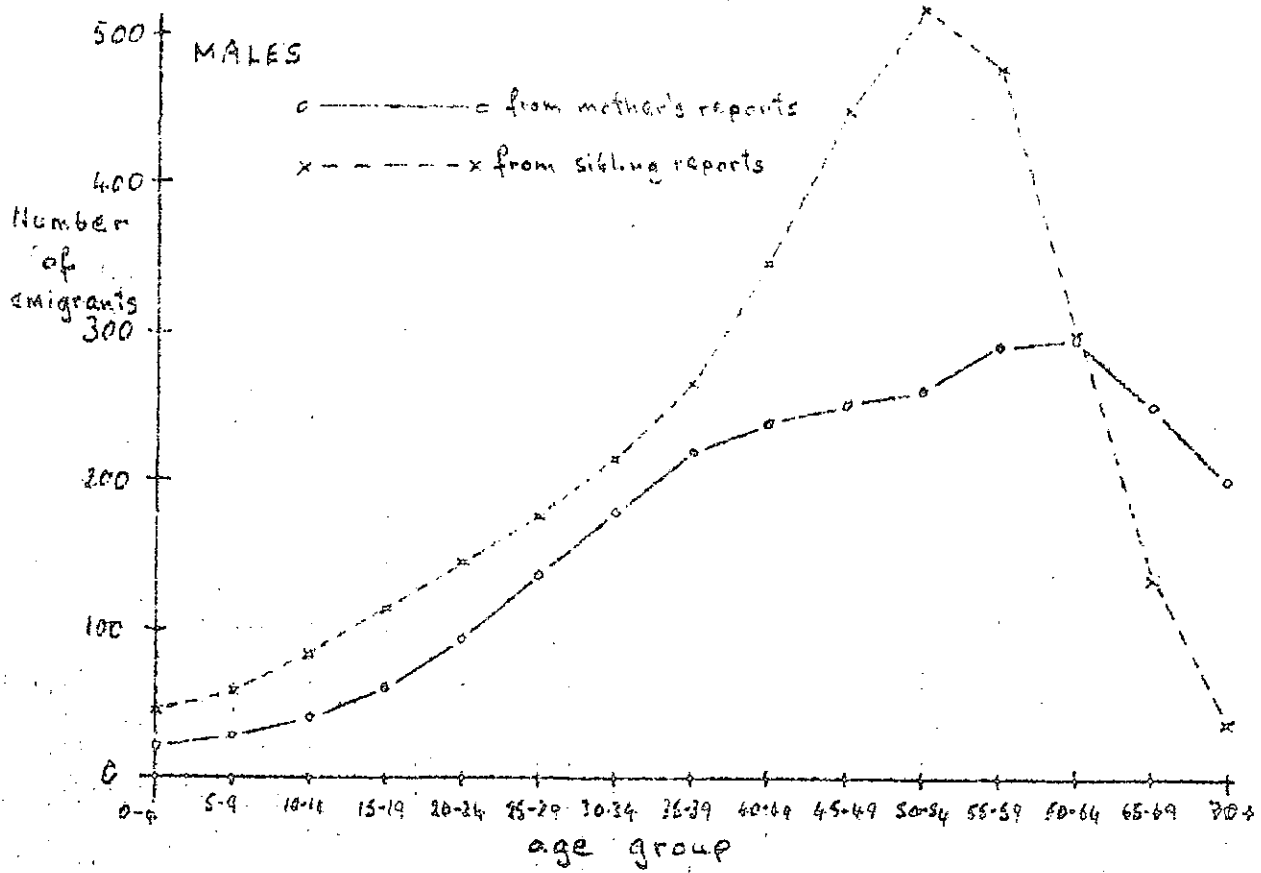
APPENDIX

PARISH

E.D. No.

HOUSEHOLD No.

DATE _____

ENUMERATOR _____

NAME	RELATIONSHIP	RESI-DENCE	SEX	AGE	MARITAL STATUS	EDUCATION	BIRTHPLACE	MOTHER		BROTHERS AND SISTERS								CHILDREN								LABOUR FORCE SURVEY		
Write The Names Of All Usual Members Of The Household And Of All Persons Who Stayed In The House Last Night.	What Is The Relationship To The Head And/Or Other Members Of The Household ?	Usual Resi-dent? Yes or No	M or F	At Last Birth-day	Is This Person Now SI(ngle), M(arried), W(idowed), D(ivorced), Or SE(parated)	State High-est Level Completed, If Never Been To School, Write "None"	If Born In Barbados, State Parish If Born Out-side Barbados, State Coun-try	Is Mother Alive ? Yes or No	If Yes Is She Now In Barba-dos? Yes Or No	Of This Person's Brothers And Sisters (Same Mother) How Many Are There Who-								For Females Aged 15+ Only: Of The Children Borne Alive By This Woman, How Many -								Eligibility	Sch. 2 Completed	Activity Status
										Are Now In Barbados (Incl. Resp.)		Are Now Outside Barbados ?		Have Died ?		Have Left Barbados In Last 12 Months ?		Are Now In Barbados ?		Are Now Outside Barbados ?		Have Died ?		Have Left Barbados In Last 12 Months ?				
										M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												

(30) (a) Are There Any Other Persons, Such As Small Children Or Babies, That We Have Not Listed?   Yes (Enter In Table)   No

(b) Are There Any Other Persons Who May Not Be Members Of Your Family, Such As Domestic Servants, Friends Who Usually Live Here?   Yes (Enter in Table)   No

(c) Do You Have Any Guest Or Visitors Temporarily Staying With You?   Yes (Enter in Table)   No
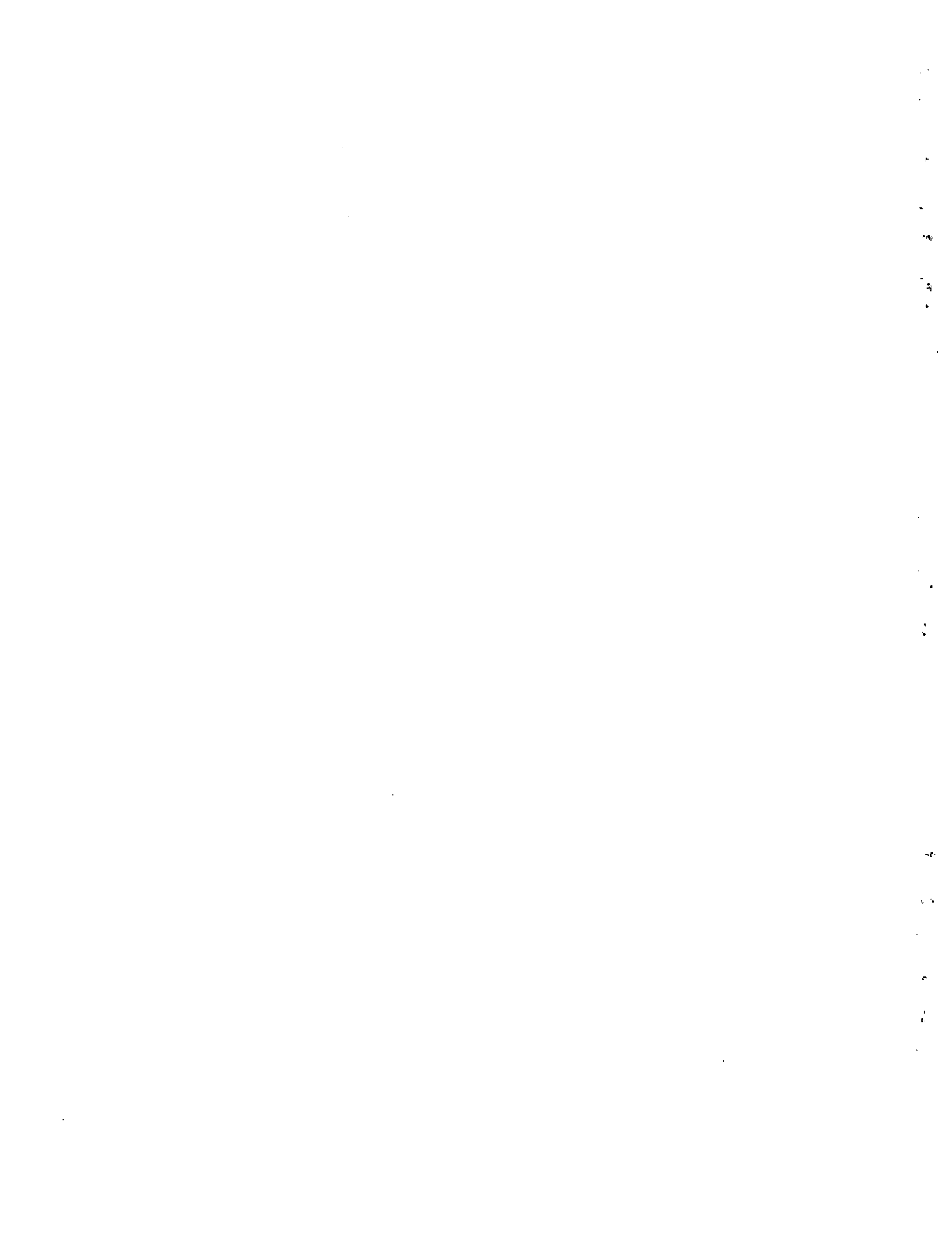
EDITING

Before coding, the following checks MUST be made:

1. Col.(11) for males respondents and col.(12) for females respondents should have figures 1 or more.   If 0 has been written, alter to 1.

2. Where a mother and her child(ren) have been enumerated on the same schedule, the figures in cols. (19)-(26) for the mother should correspond with the figures in cols.(11)-(18) for the children.   If they are not the same, alter the figures for the child(ren) to agree with those for the mother.

3. Where a mother and her child(ren) have been enumerated on the same schedule, the answers in columns (9) and (10) entered against the children should both be "Yes".   If "No" has been written, or either of the columns left blank, alter to "Yes".

4. The sex shown in column (4) should agree with the name (Col.1) and the relationship (Col.2).

MIGRATION   SURVEY

CODE   LIST

Col.(4) Sex

Code	Sex
1	Male
2	Female

Col.(5) Age

Code figure shown as a 2-digit code, with leading zeros for children under 10.

Children Under 1, Code 00

Persons shown as aged 100 or more, code 99

Not Stated code XX.

Col.(6) Marital Status

Code	Marital Status	
0	Single	(Si)
1	Married	(M)
2	Widowed	(W)
3	Divorced	(D)
4	Separated	(Se)
X	Not Stated	

Col.(7) Education

Code	Highest Level Attained
0	None or Not Stated
1	Primary 1st - 7th Standard
2	Secondary
3	Graduate
4	Technical/Vocational
5	Other

Col.(8) Birthplace

Code	Birthplace
1	Barbados or Not Stated
2	Outside Barbados

Cols.(9)-(10) Mother

Code	Mother Alive/Mother in Barbados
1	Yes
2	No/Not Applicable
X	Not Stated

Cols.(11)-(18) Brothers and Sisters and Cols.(19)-(26) Children

Code the figure in each column as a single-digit code.

Not Stated code X.

If the figure shown in any one column is 10 or more, Code 9.

Cols.(19)-(26) for males or females under 15, leave blank.

LIST OF COMPUTER PRODUCED
TABLES FOR
BARBADOS-MIGRATION SURVEY

FRONT PIECE - Rounds included in tabulation run, by number of cases in each round.

TABLE I - Tables to identify population used in further tabulations and analysis.

Part 1 - Population by sex, age-group and birthplace.

Part 2 - Population by sex, age-group/birthplace and quality of sibling information.

Part 3 - Female population by age-group/birthplace and quality of children information.

TABLE 2 - Barbados-born population by sex, age-group and survival/ residence of mother.

TABLE 3 - Barbados-born population by sex, age-group and number of siblings of the same sex living in Barbados, with total number of siblings by the their sex and residence.

Part 1 - Male respondents reporting on brothers   ⎫ Each part in 3 sections:

Part 2 - Male respondents reporting on sisters   ⎪ Section 1 - All persons born in Barbados.

Part 3 - Female respondents reporting on brothers ⎬

Part 4 - Female respondents reporting on sisters   ⎪ Section 2 - Persons with mother living in Barbados.

Part 5 - All respondents reporting on brothers   ⎪ Section 3 - Persons with mother abroad or dead.

Part 6 - All respondents reporting on sisters   ⎭

TABLE 4 - Barbados-born population by sex and age-group, with weighted numbers of siblings by their sex and residence.

Part 1 - Male respondents   ⎫ Each part in 3 sections:

Part 2 - Female respondents   ⎬ Section 1 - All persons born in Barbados.

Part 3 - All respondents   ⎭ Section 2 - Persons with mother living in Barbados.

Section 3 - Persons with mother abroad or dead.