Response variability in African demographic survey data: a case study of a Nigerian village

Emmanuel Kenneth Andoh
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Abstract
This paper is an excerpt from Ken Andoh's doctoral dissertation, "Response Variability in African Demographic Survey Data: A Case Study of a Nigerian Village," written at the Population Studies Center of the University of Pennsylvania. The sources of data for this study are surveys carried out in three villages in Southern Nigeria in December 1973 and Fall, 1974 by Dr. Frank L. Mott (under the auspices of the Human Resources Research Unit, University of Lagos, Nigeria, with the assistance of the Population Council. Vital registration, which is the source of accurate demographic information, is described as inadequate for all tropical Africa. Based on surveys conducted in a Southern Nigerian village in 1973 and 1974, this study seeks to estimate the prevalence and magnitude of misreporting vital events. Survey responses concerning age of respondents, age of children, marital status, duration of residence in the village, educational level, occupation, number of pregnancies, and number of children are presented, and are compared from one survey to the next, revealing great discrepancies between the responses. The degree of correspondence between the surveys was calculated. Certain groups of respondents and certain questions were subject to greater levels of inconsistency than others, with age, number of pregnancies and children, and period of residence exhibiting the highest inconsistency indices.

Keywords
demographic surveys, population, demography, statistics, vital statistics, census, methodology, Africa, survey data, surveys, data, case study, Nigeria, Ebendo

Comments

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Response Variability in African Demographic Survey Data: A Case Study of a Nigerian Village

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UNIVERSITY OF PENNSYLVANIA
ACKNOWLEDGEMENT

This paper is an excerpt from Ken Andoh's doctoral dissertation, "Response Variability in African Demographic Survey Data: A Case Study of a Nigerian Village," written at the Population Studies Center of the University of Pennsylvania. The sources of data for this study are surveys carried out in three villages in Southern Nigeria in December 1973 and Fall, 1974 by Dr. Frank L. Mott (under the auspices of the Human Resources Research Unit, University of Lagos, Nigeria, with the assistance of the Population Council. The author wishes to thank Dr. Frank Mott of Ohio State University on two scores: first for providing the data on which the dissertation is based and secondly, for serving as one of the members of the dissertation committee. Thanks are also due to Drs. E van de Walle and G. Condran for their guidance throughout the writing of the dissertation.

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I. Introduction

The conventional source of accurate demographic information - continuous and complete vital registration - is inadequate for all tropical African countries and this situation cannot be remedied immediately as it will take time to construct a viable system of vital registration. Given the inevitable delay in improving procedures for administering of vital statistics, and the urgent need for better information, research designed to improve the quality of estimation through indirect methods has had to be the preoccupation of several students of African demography.

Today the balance between the available analytical techniques and the quality of the demographic data is overwhelmingly in favour of the former. It is evident, therefore, that better demographic statistics will have to stem from better reporting rather than improvements in techniques. And, a logical intermediary step between the present circumstances and improved statistics is an understanding of misreporting. This paper deals with two issues: (i) the prevalence of misreporting and (ii) its extent. In other terms, we seek to answer the question: what proportion give inconsistent information and when they do, how much do their answers vary? Of course, the study does not establish what the correct values are and no attempt is made to ascertain to what extent such variations would affect measures calculated on the basis of these data. The discussion concentrates on factual, numerical answers.

The data used in this study originated from a number of surveys conducted in 1973 and 1974 in the village of Ebendo in Southern Nigeria. The village population as of survey date was about 1300. The individual surveys were as follows:

(a) Women's Follow-Up Survey (Fall 1973): The survey covered all women of childbearing age and collected information on maternity histories, knowledge, attitude and practice (KAP) of family planning, mortality and a variety of other socioeconomic variables. We have no access to a survey taken in March 1972, to which this is a follow-up.
(b) Women's Health Survey (Summer 1974): In addition to asking the standard census-type questions, data were collected on child-spacing, pre- and post-natal care and general medicare practice.

(c) Household Census (October 1974). This inquiry contained standard questions on mortality, fertility and migration. Information on other socioeconomic characteristics were also gathered.

(d) Survey of Men (November 1970): This aimed at all men aged fifteen and more and gathered data on their fertility histories, those of their present and ex-wives.

Original questionnaires from the various surveys were matched manually to identify those respondents common to at least two inquiries and those whose husbands were surveyed in the men's survey. Thus the sample sizes vary depending on the number of matches between two surveys.

Before statistical analysis of any body of survey data can be used, an assessment must be made of two factors. These are (1) the validity, and (2) the reliability of the survey data. By validity is meant the extent to which evaluation or measurement procedures do in fact measure what they claim to measure. By reliability, on the other hand, is meant the degree to which consistent results are obtained when the measurement procedure is applied under standard conditions. Reliability depends on several factors, including: (1) the nature of the research instrument or questionnaire used (for example, the questionnaire design, order of questions, the meaning and/or interpretation of questions for different respondents in different circumstances, etc.); (2) the method of data-collection (that is, whether it is by personal interview, mail questionnaire, etc.); (3) the characteristics of the respondent (that is, his/her social status, willingness to answer the questions correctly and to the best of his/her knowledge, and psychological characteristics, etc.); (4) the characteristics of the interviewer (that is, his/her knowledge of his/her art and of the questionnaire being used, training,
and abilities in general), and (5) the use of the same or different interviewers at different times.

The degree to which survey data are reliable can be determined by examining the consistency with which respondents give the same or similar answers to the same questions at various times. The analysis of variations in such data is the main objective of the research reported herein. Our reference point is the Women's Follow-Up Survey and variations is measured as deviations from answers in this inquiry.

II. Patterns of Variations in Responses to Selected Information Items

In this part, we analyze variations in responses given by our female respondents to questions on their own socioeconomic characteristics, conjugal, migration, and fertility-history variables in two independent surveys. As stated earlier, the objective is to find out which items of information are inconsistently reported on, do exhibit wide response variations, and are, therefore, most likely to be unreliable. The measure of consistency used is CORRESPONDENCE, defined as the proportion of responses to the same question in both surveys which are identical. Thus, the higher the correspondence, the more consistently that item of information is reported on, and the more reliable that statistic is presumed to be. Besides, we use ABSOLUTE DEVIATION as a measure of the degree to which two given responses differ. Absolute deviation is just the difference between the responses given, disregarding algebraic signs in the case of numeric responses.

Thus:

$$A_j = \frac{1}{N_j} \sum_{i=1}^{N_j} (X_{i1} - X_{i2})$$

where $X_{i1}$, $X_{i2}$ are the answers to the $i$th item at the earlier and later dates respectively $N_j$ is the number of respondents in a category, say, age group. $A_j$ is the absolute deviation. Note also that $X_{i1}$ and $X_{i2}$ are adjusted for the intervening period. For example, a woman reporting her age as 16 in the 1973 survey could genuinely be either
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<th>%</th>
<th>Characteristics of Respondents</th>
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<td>%</td>
<td>No.</td>
<td>%</td>
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*The Nigerian currency, Naira (₦), had an average exchange rate of ₦1.00 = U.S. $1.60 for the year 1973-74.*
16 or 17 at the time of the 1974 inquiry. In this context, the measure is to be viewed as a lower boundary estimate of the magnitude of the error.

A. Socioeconomic Variables

1) Age: Age is one of the more problematic concepts in tropical African censuses and surveys. The very idea of age in numerical terms being largely a Western import, it is not easy to ascertain with accuracy in this part of the world.

In our analysis of age reporting, it must be emphasized that we are comparing responses given in the Women's Follow-Up Survey and the Women's Health Survey. Adjustments in the data have been made to make them more comparable in view of the time interval between the surveys. Of the 222 women who could be matched, 209 gave their ages in both surveys, and only 45 percent reported their age-groups consistently in both surveys (Table 2). The correspondence—for the various age-groups ranges from a high of 77 percent for the fifteen to nineteen age-group to a low of about 24 percent for the forty to forty-four age-group. There is an inverse relationship between age and the consistency of age reporting, in that younger ages are associated with more consistent reporting, whereas older ages are associated with less consistent reporting.

Table 3 compares the respondents' stated age-groups as reported in the two surveys, showing the magnitude of deviation from the ages reported earlier. The higher age-groups appear to be more significantly spread out, spilling over many more age-groups, than the younger age-groups. Because no young woman could report as being younger than fifteen and no old woman as above forty-nine (since both surveys covered only women aged between fifteen and forty-nine), Table 3 has to be asymmetric. Yet, the most significant feature of this table is that whereas the younger respondents (that is, those aged fifteen-twenty-nine) generally tended to overstate their ages in the later survey, the older respondents (that is, those aged thirty-forty-nine) understated theirs, apparently to be interviewed. For example, of those reporting to be aged fifteen to nineteen at the time of the earlier survey, 23 percent reported in the later survey
TABLE 2
CORRESPONDENCE IN STATED AGES BETWEEN THE EARLIER AND LATER SURVEYS*
(5-Year Age-Groups)

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*The earlier survey refers to the Women's Follow-Up Survey of Fall, 1973, and the later survey to the Women's Health Survey of Summer, 1974.
TABLE 3

COMPARISON OF RESPONDENT’S AGE AS REPORTED IN WOMEN’S FOLLOW-UP AND HEALTH SURVEYS (PERCENTAGES)

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<tr>
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<td>209</td>
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<td>14.8</td>
<td>14.4</td>
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<td>13.9</td>
<td>14.8</td>
<td>12.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Underlined figures are for corresponding age-groups and, therefore, indicate levels of consistent reporting.
to be aged twenty-twenty-four. Of those initially reporting to be twenty-twenty-four, as much as 32 percent later reported to be in the next higher age-group, with 4 percent reporting the next to lower age-group, and another 4 percent the thirty-thirty-four age-group. Those initially reporting to be twenty-five to twenty-nine follow a similar pattern of age misreporting in the later survey; a pattern which is then reversed beginning with the age-group thirty to thirty-four and culminating in as much as 75 percent of those aged forty-five to forty-nine understating their age-group in the later survey.

As stated earlier, Table 2 shows that only 45 percent of the respondents consistently reported their age-groups in the two surveys compared. However, when we consider the reporting of single-year ages rather than five-year age groups, correspondence falls dramatically to a low of only 12 percent. Table 4 shows the deviations in reported single-year ages by the age of respondent as reported in the earlier survey, and it is apparent from the table that deviations in reported ages become wider as age rises, that younger ages are associated with more positive deviations, whereas older ages are associated with more negative deviations.

That the deviations actually range from -13 to +20 years indicates not only the high degree of guesswork done by both respondents in reporting their ages and by interviewers in estimating respondents' ages, but also most respondents' total ignorance of age in numerical terms. A correspondence of 12 percent is too low; even the 35 percent it rises to, if we accept a deviation of plus or minus one year to be correspondence, is too low

1 Since one year was subtracted from the ages reported in the later survey to make them comparable with those reported in the earlier survey, this proportion is apparently a lower limit, for some people might have had the same age at both surveys which were not exactly one year apart.
## Table 4

**Deviations in Respondent's Age as Reported in the Women's Follow-up and Health Surveys**

<table>
<thead>
<tr>
<th>Age as Reported in Follow-Up Survey</th>
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<td>-5 and Over</td>
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<td>-2</td>
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<td>+1</td>
<td>+2</td>
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</table>

*Note: The table displays the number of respondents with deviations in their reported age, categorized by the number of years from the reported age, for each age category.*
<table>
<thead>
<tr>
<th>Age as Reported in Follow-Up Survey</th>
<th>Deviations in Number of Years</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>-5 &amp; Over</td>
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<tr>
<td>41</td>
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<td>49</td>
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<td>Total</td>
<td>209</td>
</tr>
<tr>
<td>Percent</td>
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</table>

NOTE: The deviations are viewed from the perspective of the earlier survey—Women's Follow-Up Survey. Thus, the deviations are calculated by subtracting age reported in the earlier survey from age reported in the later survey. They actually range from -13 to +19 years.
to give one much confidence in age data from surveys of this kind. This is exemplified by the graphs in Figure 1, which show the proportionate distributions of the reported single-year ages of our female respondents in the two surveys. The two graphs have similar features: the pattern of age misreporting is the same, indicating preference for digits ending in 0 (or multiples of 5) and some heaping on even ages. In short, these age distributions are very conspicuously distorted, demonstrating the very inaccurate age reporting and patterns of biases typical of tropical African demographic data (van de Walle, 1968).

For our purposes here, the graphs, which show the unadjusted age distributions of the same respondents in the two surveys being compared, exemplify the extent of inconsistent reporting of age by individuals, resulting from the general problem of age misreporting.

To investigate age reporting further, we matched the responses to a question on the mother's age at her last birth, in most cases a very recent occurrence, as recorded in the Women's Follow-Up Survey and the Women's Health Survey. Responses from 166 could be matched because: (1) quite a few women had never had any child, and are excluded from the analysis; and (2) those women who had babies between the surveys were also excluded from the analysis, so that the analysis is centered on the same 'last birth.' Table 5 shows that of the 166 respondents, only sixty-one gave corresponding responses--a correspondence of less than 37 percent; just about 8 percentage points lower than the correspondence for the reported age of the respondent (see Table 2 above). The correspondence for this particular variable is this low partly because of the definitional problems posed by the concept of 'live birth,' as distinct from 'still births.' Some respondents may have misunderstood the question, especially if the interviewer failed to stress that 'last birth' actually meant 'last live birth.' Thus, some respondents may have discounted the real 'last birth' if it did not survive, and substituted an earlier surviving one; thereby distorting their own reported ages at the time of the actual last birth being referred to.
FIGURE 1. PROPORTIONATE SINGLE-YEAR AGE DISTRIBUTION OF MATCHED WOMEN

LEGEND:
- WOMEN'S SURVEY
- WOMEN'S HEALTH SURVEY

AGE OF RESPONDENT (SINGLE-YEAR AGES)
<table>
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<tr>
<th>Follow-Up Survey: Age at Last Birth</th>
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<th>15-19</th>
<th>20-24</th>
<th>Health Survey: Age at Last Birth</th>
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<td></td>
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<td></td>
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<td>25-29</td>
</tr>
<tr>
<td>15</td>
<td>6</td>
<td>16.7</td>
<td>66.7</td>
<td>16.7</td>
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</tr>
<tr>
<td>15-19</td>
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<td>6.3</td>
<td>53.1</td>
<td>31.3</td>
<td>9.4</td>
</tr>
<tr>
<td>20-24</td>
<td>29</td>
<td>10.3</td>
<td>37.9</td>
<td>41.4</td>
<td>6.9</td>
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<td>25-29</td>
<td>27</td>
<td>3.7</td>
<td>11.1</td>
<td>48.1</td>
<td>18.5</td>
</tr>
<tr>
<td>30-34</td>
<td>27</td>
<td>3.7</td>
<td>3.7</td>
<td>29.6</td>
<td>29.6</td>
</tr>
<tr>
<td>35-39</td>
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<td>3.2</td>
<td>6.5</td>
<td>12.9</td>
<td>25.8</td>
</tr>
<tr>
<td>40-44</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td>27.3</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>33.3</td>
</tr>
<tr>
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<td>1.8</td>
<td>15.7</td>
<td>16.9</td>
<td>24.1</td>
</tr>
</tbody>
</table>

Note: Underlined figures are for corresponding age-groups and, therefore, indicate correspondence or levels of consistent reporting.
The literature on the origins of age misreporting also suggests that unknown ages of respondents are usually estimated by interviewers on the basis of such personal characteristics as the respondent's marital status, the number of children the respondent has ever borne alive, the age of her last-born child, and so on. For example, there is the tendency for interviewers to think that, all things being equal, divorced or widowed women and those with many pregnancies or live births are older than the never married and those with a few and/or very young children. Thus, different interviewers estimating the age of even the same respondent on different occasions are likely to vary in their estimates. Furthermore, for example, if a woman reported to be never married (or currently married) in the earlier survey were later found to be married (or divorced/separated or widowed) in the later survey, one would expect the difference in her reported age between the surveys to be (1) systematic, and (2) in one direction. Though there is no sufficient information in our data set to allow a direct investigation of the impact on the quality of age data of these sources of age information, an attempt was made to investigate this by relating the reporting of the age of the respondent to some of these stated personal characteristics. Table 6 shows the results.

The consistency of age reporting is not only much better among the never married respondents, with correspondence falling consistently lower as one moves from the never married to the widowed, but it is better among those currently married respondents with shorter marriage duration, who are also truly younger. In fact, variations in reported ages become wider with increase in marriage duration. Similarly, consistency of age reporting appears to have an inverse relationship with the numbers of pregnancies and of live births that a respondent has ever had. On the other hand, correspondence in age reporting appears to be positively related to the reported age of the respondent's last child, though the magnitude of deviation in age reporting seems to have a negative relationship with the age of the last child. However, it can be inferred from Table 6 that whether the respondents reported their own ages by themselves or the ages were
TABLE 6

PERCENTAGE DISTRIBUTION OF THE CONSISTENCY OF AGE REPORTING BY SELECTED CHARACTERISTICS OF RESPONDENT

<table>
<thead>
<tr>
<th>Characteristics of Respondent</th>
<th>Absolute Deviations in Reported Ages (in Years)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>1. Marital Status:</td>
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<tr>
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<td>209</td>
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<tr>
<td>Currently Married</td>
<td>25</td>
</tr>
<tr>
<td>Divorced/Separated</td>
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</tr>
<tr>
<td>Widowed</td>
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<td>2. Marriage-Duration:</td>
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</tr>
<tr>
<td>0-9 Years</td>
<td>60</td>
</tr>
<tr>
<td>10-19 Years</td>
<td>39</td>
</tr>
<tr>
<td>20+ Years</td>
<td>51</td>
</tr>
<tr>
<td>3. Number of Pregnancies:</td>
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</tr>
<tr>
<td>0-3</td>
<td>100</td>
</tr>
<tr>
<td>4-6</td>
<td>51</td>
</tr>
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<td>7-9</td>
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</tr>
<tr>
<td>10+</td>
<td>20</td>
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<td>4. Children Ever Born:</td>
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</tr>
<tr>
<td>0-3</td>
<td>80</td>
</tr>
<tr>
<td>4-6</td>
<td>49</td>
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</tr>
<tr>
<td>10+</td>
<td>39</td>
</tr>
<tr>
<td>5. Age of Last Child:</td>
<td></td>
</tr>
<tr>
<td>0-1 Year</td>
<td>61</td>
</tr>
<tr>
<td>2-4 Years</td>
<td>48</td>
</tr>
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<td>5-9 Years</td>
<td>28</td>
</tr>
<tr>
<td>10+ Years</td>
<td>72</td>
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</table>
estimated by interviewers on the basis of some of these personal characteristics, greater consistency is, as expected, associated with younger, unmarried respondents and those married for shorter periods as well as those with fewer pregnancies and children ever born alive. Thus, to the extent that the data allow an investigation of this kind, estimating ages on the basis of personal characteristics may not give reliable results, though it may help in some obvious cases where the respondent is clearly young or very old.

Next, we discuss the degree of consistency with which parents report the ages of their children. To make matters simpler, we compare only the ages of the last-born child as reported by the mothers (that is, the female respondents) in the Women's Follow-Up Survey and the Women's Health Survey. The birth of the last child being, in most cases, the most recent event in the fertility history of the mother, we expect more consistent responses in its reported age than in the age of an older child. The responses of 183 respondents could be matched on this variable, and the results are shown in Table 7.

According to these results, the age of even the last child is equally badly mis-reported. Of the 183 respondents, 68 gave consistent responses—a correspondence of only 37 percent. It is also clear from the table that younger mothers generally gave more consistent responses on the ages of their last children, largely because the children themselves are much younger, and as our earlier analysis shows, it appears much easier to estimate the age of a much younger person than that of an older person. It is also easier to remember a recent event than it is to remember a much older one; therefore, all things being equal, a younger child's age must be easier to remember or estimate.
### TABLE 7


<table>
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<th>-2</th>
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<th>+1</th>
<th>+2</th>
<th>+3 &amp; Over</th>
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<td>15-19</td>
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<td>12.5</td>
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<td>6.6</td>
<td>8.2</td>
<td>37.2</td>
<td>21.3</td>
<td>8.2</td>
<td>6.0</td>
</tr>
</tbody>
</table>
In Table 8, we relate the consistency of the reporting of the age of the last child to the age of the child as reported in the earlier survey (that is, Women's Follow-Up Survey). Only last-born children still living as reported in both surveys are used in this particular table and analysis. The ages of younger last-born children are much more consistently reported than those of older children, according to the table. It is clear that the younger last-born children have not only higher correspondence but also much narrower deviations in their reported ages. The older last-born children belong to much older mothers who are the respondents in this case, and may be more affected by memory lapse. Furthermore, women may have reported on a different child, as in the case of a death or departure from home—a phenomenon which would be more frequent among older women, as Table 8 indicates. Therefore, the data in Tables 7 and 8 are consistent.

Our analysis so far has revealed a general pattern: that age in general—that is, whether one's own age or that of one's child—is grossly misreported, and that older respondents have more problems reporting both their own ages and those of their children, even last-born children. This appears to be due largely to the respondents' ignorance of age in numerical terms and to memory lapse on the part of the older respondents, because the evidence of better reporting at younger ages seems to be consistent with the memory lapse explanation.

ii. Marital Status

Despite its definite meaning in most African cultures, marriage does not seem to lend itself easily to a general definition. First, there is a lack of comparability of census and survey definitions of the concept, and (2) deficiencies in the tabulation of the collected data on marriage, perhaps because of (1) above. Yet the importance of marriage in demographic studies, especially its relationship with natality, makes it an absolutely necessary topic of study even if it is restricted to small communities
<table>
<thead>
<tr>
<th>Age of the Last Child</th>
<th>N</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 &amp; Over</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 Year</td>
<td>61</td>
<td>22.3</td>
<td>52.5</td>
<td>14.7</td>
<td>0.0</td>
<td>1.6</td>
<td>8.2</td>
</tr>
<tr>
<td>2-4 Years</td>
<td>48</td>
<td>10.4</td>
<td>35.4</td>
<td>22.9</td>
<td>16.7</td>
<td>2.1</td>
<td>12.5</td>
</tr>
<tr>
<td>5-9 Years</td>
<td>28</td>
<td>21.4</td>
<td>21.4</td>
<td>10.7</td>
<td>3.6</td>
<td>3.6</td>
<td>39.3</td>
</tr>
<tr>
<td>10+ Years</td>
<td>16</td>
<td>6.3</td>
<td>12.5</td>
<td>18.7</td>
<td>12.5</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>All Ages</td>
<td>153</td>
<td>17.0</td>
<td>37.2</td>
<td>17.0</td>
<td>7.2</td>
<td>4.6</td>
<td>17.0</td>
</tr>
</tbody>
</table>

*Earlier Survey is Women's Follow-Up Survey, Fall 1973.*
within the same or similar cultural areas. Even in such circumstances, as a first step, one would have to estimate somehow the reliability of such marriage data as reported by the respondent. Here, we are comparing the respondents' responses on their own marital status and the number of previous marriages they have ever had as reported in the Women's Follow-Up Survey and the Household Census.

The responses of 120 respondents on marital status could be compared, and according to Table 9, marital status seems to be highly consistently reported on. With such relatively high correspondence and a total correspondence of 90 percent, the table seems to endorse the fact that there are relatively fewer definitional and methodological problems that the concept has among respondents of virtually the same cultural background. The currently married gave the most consistent responses, followed by the never married, the widowed, and finally the divorced and/or separated in that order.

Except for one change reported, all the marital changes reported between the surveys—one year apart—and indicated in Table 9 are quite plausible and can be easily explained. The changes may have taken place even before the earlier survey but may have been inadvertently reported to have taken place within the interval between the surveys, hence the lack of coincidence or consistency of the reported marital status. The single implausible exception, not at all easy to explain, is the particular respondent out of the seven who had claimed in the earlier survey to be divorced and/or separated, but who later claimed to have never been married.

Similarly, stating the number of previous marriages one has ever been involved in does not seem to create much problem. Of the 97 respondents whose responses on this information item could be matched and compared, 83 gave consistent or corresponding responses—a correspondence of just under 86 percent. In the Women's Follow-Up Survey, according to Table 10, 82 respondents had claimed no previous marriage; however, 12 percent of these claimed in the Household Census to have had one previous marriage each.
<table>
<thead>
<tr>
<th>Women's Follow-Up Marital Status</th>
<th>Household Census, 1974: Marital Status</th>
<th>Currently Married</th>
<th>Divorced/Separated</th>
<th>Widowed</th>
<th>Never Married</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently Married</td>
<td>96</td>
<td>95.8</td>
<td>1.0</td>
<td>3.1</td>
<td>0.0</td>
<td>99.9</td>
</tr>
<tr>
<td>Divorced/Separated</td>
<td>7</td>
<td>28.6</td>
<td>57.0</td>
<td>0.0</td>
<td>14.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Widowed</td>
<td>3</td>
<td>33.3</td>
<td>0.0</td>
<td>66.7</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Never Married</td>
<td>14</td>
<td>28.6</td>
<td>0.0</td>
<td>0.0</td>
<td>71.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>82.5</td>
<td>4.2</td>
<td>4.2</td>
<td>9.2</td>
<td>100.1</td>
</tr>
</tbody>
</table>

**NOTE:** Underlined figures are for corresponding marital statuses, and show correspondence.
### TABLE 10
PERCENTAGE DISTRIBUTION OF STATED NUMBER OF PREVIOUS MARRIAGES IN TWO SURVEYS—WOMEN'S FOLLOW-UP SURVEY AND HOUSEHOLD CENSUS

<table>
<thead>
<tr>
<th>Number of Marriages</th>
<th>Women's Follow-Up Survey</th>
<th>Household Census</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>82</td>
<td>87.8</td>
<td>12.2</td>
</tr>
<tr>
<td>1</td>
<td>13</td>
<td>30.8</td>
<td>69.2</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
<td>78.4</td>
<td>19.6</td>
</tr>
</tbody>
</table>
It is quite possible that after the earlier survey (that is, the Women's Follow-Up Survey), these respondents terminated their unions and remarried before the later survey (that is, the Household Census); thus, these findings are quite plausible. However, of those reporting one previous marriage in the earlier survey, nearly 31 percent later on reported to have had no previous marriage at all. As the number of previous marriages cannot decrease with the passage of time, there must be some plausible explanation for this. Theoretically, respondents could move in and out of unions with the same spouse; and given the interval of one year between the survey and the census, it is possible that these four respondents might have gone back to their former husbands after the survey but before the census.

Compared with our analysis of the responses on age, our data on marital status and the number of previous marriages indicate that the respondents generally found the questions on these variables much easier to handle. The main problem posed in demographic research by data on marriage in rural tropical Africa seems to be the different definitions of marriage.

iii. Migration Status

In these two surveys, respondents were asked if they had been born in the village and for how long they had live in it. A comparison of the two sets of responses thus obtained is shown in Table 11. According to this table, about 69 percent of the

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2As done in the case of age, duration of stay as reported in the Household Census of 1974 was adjusted downward by a year to make it more comparable with what was reported in the Women's Follow-Up Survey of 1973.
## Table 11

### Percentage Distribution of the Number of Years of Stay in Ebendo as Reported in the Women's Follow-Up Survey and the Household Census

<table>
<thead>
<tr>
<th>Women's Follow-Up Survey: Number of Years of Stay</th>
<th>N</th>
<th>Non-Migrant</th>
<th>0-4</th>
<th>5-9</th>
<th>10+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Migrant</td>
<td>85</td>
<td>81.2</td>
<td>3.5</td>
<td>5.9</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>0-4</td>
<td>16</td>
<td>50.0</td>
<td>43.8</td>
<td>6.3</td>
<td>0.0</td>
<td>100.1</td>
</tr>
<tr>
<td>5-9</td>
<td>11</td>
<td>81.8</td>
<td>0.0</td>
<td>18.2</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>10+</td>
<td>5</td>
<td>40.0</td>
<td>0.0</td>
<td>0.0</td>
<td>60.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>117</td>
<td>75.2</td>
<td>8.5</td>
<td>6.8</td>
<td>9.4</td>
<td>99.9</td>
</tr>
</tbody>
</table>

**Note:** Underlined figures are for corresponding durations of stay, and indicate correspondence.
respondents' responses coincide (that is, 81 out of 117), even though the length of stay is broadly classified into five-year groups. As indicated earlier, the population of this community is largely sedentary with just a sprinkle of migrants. The computations are therefore based on rather small numbers. However, the perennial problem of aliens not wholly owning up to their actual status in certain circumstances and situations is underscored by the finding that of the 85 respondents who had claimed in the earlier survey to be non-migrants, about 19 percent later claimed to be migrants who had stayed in the village for various periods. Similarly, of the sixteen migrants who had claimed to have lived in the village for less than five years, half indicated later that they were non-migrants, whereas 82 percent and 40 percent of the migrants claiming to have lived in the village for five to nine years and ten and more years respectively later claimed to be non-migrants.

Unreliable as data on migration status appear to be, data on the duration of the migrant's stay in the village appear to be even more unreliable. As Table 11 also shows, correspondence for the various durations of stay in the village is not only woefully low, but it also appears to fall much lower as duration of stay rises. This inverse relationship between duration of stay and consistency of reporting is brought into a much sharper focus when the analysis is based on single years of duration of stay. Responses of only eleven migrants on the duration of stay could be matched and compared. According to Table 12, the responses of only one of these in both surveys coincide. Despite the earlier adjustment of the data to take care of the one year interval between the surveys, we may accept a deviation of one year as a perfect match. Yet, even this raises the correspondence to just over 36 percent. Admittedly, the numbers of respondents dealt with in the analysis of this particular variable are very low; yet the message carried by these low correspondence figures on duration of stay is loud enough, especially the finding of a correspondence of zero (0.0) percent for those
TABLE 12
PERCENTAGE DISTRIBUTION OF THE ABSOLUTE DEVIATIONS IN MIGRANTS' STATED DURATION OF STAY IN EBEÑO AS REPORTED IN WOMEN'S FOLLOW-UP SURVEY AND HOUSEHOLD CENSUS

<table>
<thead>
<tr>
<th>Women's Follow-Up Survey: Duration of Stay (Number of Years)</th>
<th>Absolute Deviations:</th>
<th>Number of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>0</td>
</tr>
<tr>
<td>0-4</td>
<td>8</td>
<td>12.5</td>
</tr>
<tr>
<td>5-9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10+</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>9.1</td>
</tr>
</tbody>
</table>
TABLE 13
PERCENTAGE DISTRIBUTION OF MIGRANTS' REASONS FOR MIGRATING TO EBENDO AS REPORTED IN THE WOMEN'S FOLLOW-UP SURVEY AND THE HOUSEHOLD CENSUS

<table>
<thead>
<tr>
<th>Women's Follow-Up Survey; Reasons</th>
<th>Household Census: Reasons</th>
<th>N</th>
<th>For Marriage</th>
<th>Return with Husband</th>
<th>Work Related</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Marriage</td>
<td></td>
<td>8</td>
<td>75.0</td>
<td>12.5</td>
<td>12.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Return with Husband</td>
<td></td>
<td>6</td>
<td>50.0</td>
<td>33.3</td>
<td>16.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Return to family</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
<td>60.0</td>
<td>20.0</td>
<td>20.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

NOTE: Underlined figures are for corresponding reasons, and indicate correspondence or consistency of reporting.
claiming to have stayed for longer than four years. In general, longer periods of stay are associated with much lower correspondence or consistency and much wider deviations. Therefore, the longer one's stay in a place, the more difficult it is for the respondent to remember and state the exact duration of stay. Perhaps it is due to the same problem associated with giving responses in numerical terms. One may know that one has been in a place for either a short or long period, but giving a numerical tag to how short or long 'short' or 'long' is seems to be the main problem.

There is also not much correspondence on reasons for migrating to the village of Ebendo. Table 13 compares the reasons given by fifteen migrants for migrating to the village, and clearly shows the importance of marriage and family in the migratory patterns of these women. The reasons given by all these fifteen respondents in the earlier survey (that is, Women's Follow-Up Survey) for migrating concern marriage and the family, whereas in the later survey (that is, Household Census), three of them changed their reasons to that of work. The reasons given by eight out of these women coincide, giving a correspondence of about 53 percent. Since migrating for the reasons of marriage and returning with husband are not very different in interpretation, these two reasons can be combined into one—migrating for marital reasons. When this is done, we find that in twelve out of fifteen cases the responses given in the two surveys do coincide, with a correspondence of 80 percent.

Therefore, even though respondents may have problems stating their migration status and migrants the duration of their stay in a place, reasons for migrating are much more easily reported with a much greater degree of consistency. This is largely because data on migration status and length of stay are affected by several factors including:
TABLE 14

PERCENTAGE DISTRIBUTION OF EDUCATIONAL LEVEL AS REPORTED IN THE WOMEN'S FOLLOW-UP SURVEY AND THE HOUSEHOLD CENSUS

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Women's Follow-up Survey</th>
<th>Household Census</th>
<th>Educational Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>No Education</td>
<td>Elementary</td>
</tr>
<tr>
<td>No Education</td>
<td>92</td>
<td>90.2</td>
<td>9.8</td>
</tr>
<tr>
<td>Elementary</td>
<td>25</td>
<td>20.0</td>
<td>80.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>4</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>73.6</td>
<td>24.8</td>
</tr>
</tbody>
</table>

NOTE: Underlined figures are for corresponding categories, and indicate correspondence or consistency of reporting.
1. aliens not correctly reporting their real nationalities mainly for political reasons;

2. people not recognizing the fact that moving from one's home town/village to stay with other members of the family in another town/village may constitute a migratory movement; and

3. the problem of measuring length of stay in numerical years in predominantly non-literate societies.

iv. Educational Level

Educational level is much better reported than migration status. One hundred-twenty-one respondents answered the question on educational level attained in both surveys, and a comparison of their responses, shown in Table 14 indicates a high correspondence of almost 87 percent. 105 out of the 121 respondents coincide. The correspondence for the various educational levels is also relatively high—90 percent for no education, and 80 percent and 50 percent for elementary and secondary educational levels respectively. Yet, the inverse relationship between educational level and correspondence is contrary to expectation and cannot be easily explained. However, one of the main reasons for the massive rural-urban migration in tropical Africa and its resultant unprecedented urban population growth is the rural population's expectation of the relatively educated among them to move into the towns to engage in the non-agricultural sector of the economy. Thus some of the educated few who remain in the rural areas tend to be so sensitive as to lie about the degree of education they have when they think that their status is at stake. On the other hand, some respondents may have overstated the levels of their education to impress the interviewers.

Of course, in the cases where a respondent is still enrolled in school, the level of education can increase over the one year between the surveys. However, this does

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3 The surveys compared are the Women's Follow-Up Survey of 1973, and the Household Census of 1974.
### Table 15

Percentage Distribution of Occupation as Reported in the Women's Follow-Up Survey and Household Census

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Women's Follow-up Survey</th>
<th>Household Census Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>6</td>
<td>0.0</td>
</tr>
<tr>
<td>Trading</td>
<td>10</td>
<td>0.0</td>
</tr>
<tr>
<td>Farming</td>
<td>94</td>
<td>1.1</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>0.9</td>
</tr>
</tbody>
</table>

**Note:** As for Table 14.
not apply in this analysis as none of our matched respondents was recorded in either survey as still enrolled in school. Interviewing situations and sensitive (or threatening) questions are known to introduce various response biases into survey data (Sudman and Bradburn, 1974); and it is quite possible that some of the respondents found the question on educational level fairly sensitive at one time or the other.

v. Occupation

A multiplicity of occupations is widely prevalent in Africa. In the rural areas, for example, one could be a farmer, a trader and a teacher all at the same time, and may report one occupation at one time and a different one at another time. Thus, it is not wholly surprising that in comparing our respondents' stated occupations in the two surveys, (Health Survey, 1973 and Census 1974) we find that only a few people can claim to have no occupation. What is surprising, however, is the fact that a large number of the responses given coincide, giving a general correspondence of almost 84 percent—responses of ninety-two out of 110 respondents. Farming being the most predominant occupation in rural Africa, its correspondence of nearly 94 percent is expected. However, that only 40 percent of the responses of those who had earlier claimed to be traders coincided with their responses in the later survey is a reflection of the fact that trading is largely a secondary and/or complementary occupation to farming. (See Table 15.)

It also reflects the methodological problems posed by the multiplicity of job-holding in tropical Africa due largely to the seasonality of the occupations and the uncertainties that farming in particular faces from time to time because of climatic changes.
B. Pregnancy History Variables

The importance of data on pregnancy histories in demographic research cannot be overemphasized, because most studies in fertility and mortality and their numerous variants depend on such information. The validity of inferences made from such studies depends largely on the accuracy and reliability of the basic data used. Yet little is known about the extent to which data on pregnancy histories are reliable. With the same women interviewed twice on their pregnancy histories, it is possible to check their responses in both interviews to examine the extent to which the two responses agree or differ. Because most of the questions on pregnancy histories asked in the two surveys (Women's Follow-Up, 1973 and Health Survey, 1974) differed, our analysis of response variations here is based on only responses to questions on number of pregnancies and number of children ever born. To ensure that the pregnancies and live births reported on in the surveys compared actually referred to those that had taken place before the earlier survey (Follow-Up Survey), in which they were expected to have been already reported, all pregnancies and births reported to have occurred in the interval between the surveys are excluded from the analysis to make the data comparable.

1. Number of Pregnancies

Responses of the 208 women who answered the question on number of pregnancies in both the Women’s Follow-Up and Women’s Health Surveys are compared in Table 16 which shows that responses of 113 women in the two interviews coincided—a correspondence of only 54 percent. Table 16 also shows the extent to which the numbers of pregnancies reported in the later survey deviated from the numbers reported in the earlier survey, and the degree of accuracy with which the various numbers of pregnancies were reported in the two surveys. In general, there was a slight overreporting of the number of pregnancies in the later survey, as nearly 22 percent and 24 percent of the responses
## Table 16

**Deviations in Number of Pregnancies by Number of Pregnancies**

<table>
<thead>
<tr>
<th>Number of Pregnancies</th>
<th>-3 and Less</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
<th>+3 &amp; Over</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No %</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>0</td>
<td>24 85.7</td>
<td>3  10.7</td>
<td>1  3.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>21 63.6</td>
<td>9  27.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3  9.1</td>
</tr>
<tr>
<td>2</td>
<td>2 13.3</td>
<td>10 66.7</td>
<td>2  13.3</td>
<td>1  6.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1 4.2</td>
<td>2  8.3</td>
<td>5  20.8</td>
<td>13 54.2</td>
<td>2  8.3</td>
<td>1  4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1 5.9</td>
<td>3  17.6</td>
<td>9  52.9</td>
<td>3  17.6</td>
<td></td>
<td></td>
<td>1  5.9</td>
<td>17 99.9</td>
</tr>
<tr>
<td>5</td>
<td>1 7.1</td>
<td>2  14.3</td>
<td>4  28.6</td>
<td>1  7.1</td>
<td>5  35.7</td>
<td>1  7.1</td>
<td>14 99.9</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2 10.0</td>
<td>2  10.0</td>
<td>10 50.0</td>
<td>4  20.0</td>
<td></td>
<td></td>
<td>2  10.0</td>
<td>20 100.0</td>
</tr>
<tr>
<td>7</td>
<td>1 7.7</td>
<td>4  30.8</td>
<td>2  15.4</td>
<td>5  38.5</td>
<td>1  7.7</td>
<td></td>
<td></td>
<td>13 100.0</td>
</tr>
<tr>
<td>8</td>
<td>1 9.1</td>
<td>2  18.2</td>
<td>6  54.5</td>
<td>2  18.2</td>
<td></td>
<td></td>
<td></td>
<td>11 100.0</td>
</tr>
<tr>
<td>9</td>
<td>1 7.1</td>
<td>1  7.1</td>
<td>4  28.6</td>
<td>4  28.6</td>
<td>3  21.4</td>
<td></td>
<td>1  7.1</td>
<td>14 100.0</td>
</tr>
<tr>
<td>10+</td>
<td>2 10.5</td>
<td>3  15.8</td>
<td>3  15.8</td>
<td>7  36.8</td>
<td>2  10.5</td>
<td>2  10.5</td>
<td></td>
<td>19 99.9</td>
</tr>
<tr>
<td>Total</td>
<td>8 3.8</td>
<td>12 5.8</td>
<td>25 12.0</td>
<td>113 54.3</td>
<td>32 15.4</td>
<td>10 4.8</td>
<td>8  3.8</td>
<td>208 99.9</td>
</tr>
</tbody>
</table>
show negative and positive deviations respectively. It is clear from the table that the lower numbers of pregnancies were more consistently reported than the higher numbers, for they not only show higher correspondence but they are also associated with much narrower deviations than the higher numbers of pregnancies. In short, the correspondence (see the column headed '0') shows a falling trend as the number of pregnancies increases.

This inverse relationship between number of pregnancies and correspondence is revealed more clearly in Table 17 in which the number of pregnancies is grouped, showing a consistently falling correspondence as number of pregnancies increases. The table also shows that from the perspective of the earlier survey, the lower numbers of pregnancies (0; 1-4) are associated with overreporting in the later survey, whereas the higher numbers (5-8; 9+) were underreported in the later survey. There is probably a 'regression toward the mean' effect, for a woman with only a few pregnancies is more likely to overreport than to underreport in a re-survey, whereas a woman with many pregnancies might underreport rather than overreport, everything else being equal.

Table 18 shows the distribution of absolute deviations in reported number of pregnancies, and that wider deviations are associated with the higher numbers of pregnancies stands out very clearly. For example, if we consider a deviation of at least two pregnancies, the proportion of women whose responses deviated by that magnitude increases consistently with increase in the number of pregnancies reported. Thus, our analysis indicates that higher numbers of pregnancies are badly reported as they are associated with lower correspondence and much wider deviations, whereas lower numbers of pregnancies are associated with much higher correspondence and narrower deviations—features of more consistent reporting.
<table>
<thead>
<tr>
<th>Number of Pregnancies</th>
<th>-3 &amp; Less</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
<th>+3 &amp; Over</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>0</td>
<td>24</td>
<td>85.7</td>
<td>3</td>
<td>10.7</td>
<td>1</td>
<td>3.6</td>
<td>28</td>
<td>100.0</td>
</tr>
<tr>
<td>1-4</td>
<td>1</td>
<td>1.1</td>
<td>3</td>
<td>3.4</td>
<td>10</td>
<td>11.2</td>
<td>53</td>
<td>59.6</td>
</tr>
<tr>
<td>5-8</td>
<td>4</td>
<td>6.9</td>
<td>5</td>
<td>8.6</td>
<td>8</td>
<td>13.8</td>
<td>25</td>
<td>43.1</td>
</tr>
<tr>
<td>9+</td>
<td>3</td>
<td>9.1</td>
<td>4</td>
<td>12.1</td>
<td>7</td>
<td>21.2</td>
<td>11</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>3.8</strong></td>
<td><strong>12</strong></td>
<td><strong>5.8</strong></td>
<td><strong>25</strong></td>
<td><strong>12.0</strong></td>
<td><strong>113</strong></td>
<td><strong>54.3</strong></td>
</tr>
</tbody>
</table>
### TABLE 18

**DEPENDENT DEVIATIONS IN NUMBER OF PREGNANCIES BY NUMBER (GROUPED) OF PREGNANCIES**

<table>
<thead>
<tr>
<th>Number of Pregnancies</th>
<th>Absolute Deviations (Number of Pregnancies)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>0</td>
<td>24</td>
<td>85.7</td>
</tr>
<tr>
<td>1-4</td>
<td>53</td>
<td>59.6</td>
</tr>
<tr>
<td>5-8</td>
<td>25</td>
<td>43.1</td>
</tr>
<tr>
<td>9+</td>
<td>11</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>113</td>
<td>54.3</td>
</tr>
</tbody>
</table>

Total: 208 100.0
A number of factors may account for these tendencies. First, it is obviously much easier to remember and report smaller numbers than larger ones, and so a woman with fewer pregnancies may be more likely to remember and report, with a greater degree of consistency, the exact number of pregnancies she has had. A woman with many more pregnancies is more likely to forget to report some of these pregnancies merely because of the large numbers involved. Secondly, age is involved here, since older women generally have many more pregnancies than younger ones. Memory lapse associated with old age, therefore, becomes an important factor, in that the younger women have a number of advantages: (a) being younger they have relatively no problem of memory lapse and can remember much more easily the number of pregnancies they have had; (b) being younger, they only have to remember and report fewer (or smaller numbers of) pregnancies; (c) there is also a lesser probability, among the younger respondents, that their child/children—products of the pregnancies—will have died or left home; thus, the interviewer will be able to count the children for himself/herself; (d) the probability of misunderstanding the question will also be reduced, as younger respondents are likely to be better formally educated and (e) the events of pregnancy themselves will be more recent for the younger women with fewer pregnancies. Thirdly, the tendency to forget some pregnancies is compounded by pregnancy wastage and infant deaths, known to be frequent in Africa. A woman is likely to forget and/or discount, for cultural and personal reasons, a pregnancy that was aborted or whose resulting live births was later lost in infancy. Thus to be able to obtain accurate and reliable data on numbers of pregnancies depends largely on the interviewer’s skills and ability to probe further for accurate responses rather than accepting the very first response as the truth.
<table>
<thead>
<tr>
<th>Number of Children Everborn</th>
<th>-5 &amp; Less</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2 &amp; Over</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>50.0</td>
<td>3</td>
<td>50.0</td>
<td>6</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>29</td>
<td>76.3</td>
<td>5</td>
<td>13.2</td>
<td>4</td>
<td>10.5</td>
<td>38</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>22.2</td>
<td>10</td>
<td>55.6</td>
<td>4</td>
<td>22.2</td>
<td>18</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>5.9</td>
<td>4</td>
<td>23.5</td>
<td>9</td>
<td>52.9</td>
<td>1</td>
<td>5.9</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>8.3</td>
<td>2</td>
<td>16.7</td>
<td>2</td>
<td>16.7</td>
<td>5</td>
<td>41.7</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>6.7</td>
<td>2</td>
<td>13.3</td>
<td>4</td>
<td>26.7</td>
<td>5</td>
<td>33.3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>18.6</td>
<td>1</td>
<td>4.5</td>
<td>2</td>
<td>9.1</td>
<td>1</td>
<td>4.5</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>6.3</td>
<td>1</td>
<td>6.3</td>
<td>2</td>
<td>23.8</td>
<td>5</td>
<td>21.2</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>9.1</td>
<td>2</td>
<td>18.2</td>
<td>3</td>
<td>27.3</td>
<td>1</td>
<td>9.1</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>21.4</td>
<td>2</td>
<td>14.3</td>
<td>2</td>
<td>14.3</td>
<td>2</td>
<td>14.3</td>
<td>3</td>
</tr>
<tr>
<td>10+</td>
<td>6</td>
<td>54.5</td>
<td>4</td>
<td>36.4</td>
<td>1</td>
<td>9.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>7.8</td>
<td>11</td>
<td>6.1</td>
<td>11</td>
<td>6.1</td>
<td>14</td>
<td>7.8</td>
<td>28</td>
</tr>
</tbody>
</table>
41

ii. Number of Children Ever Born

Because of the closeness of the relationship between the number of pregnancies and the number of children ever born, we would expect the reporting of the latter to follow the same pattern as the reporting of the former, discussed in the section above. Discounting the twenty-eight women who had had no pregnancies (Tables 16 to 18), the responses of the 180 women whose responses on children ever born alive in the two surveys—Women's Follow-Up and Women's Health Surveys—could be matched are compared, and the deviations in their reported numbers of children ever born are shown in Table 19. An interesting pattern is revealed in the table:

a. number of children ever born is very badly misreported, in that the responses of only seventy-seven out of 180 respondents coincide—a correspondence of less than 43 percent;

b. correspondence falls as the numbers of children ever born increases;

c. that, from the perspective of the earlier survey, a gross underreporting in the later survey is associated with higher numbers of children ever born, especially from three children onwards.4 Significantly only 14 percent of the respondents reported more children in the later survey than they had done in the earlier survey.

4According to Dr. Frank L. Mott who supervised the surveys used in this study, one reason for the more underreporting in the later survey is the greater probing for fertility information in the earlier survey (Women's Follow-Up Survey, 1973). Thus, according to him, the data from the earlier survey are more accurate and reliable (Personal Communication).
Table 20 shows the same deviations but according to grouped numbers of children ever born. In this table, the falling correspondence associated with increasing numbers of children ever born is brought into a sharper focus; so is the finding that larger numbers of children ever born are associated with underreporting in the later survey.

Similarly, Table 21 shows the relationship between number of children ever born and absolute deviations in the reported number of children ever born. The general pattern is again repeated—as the number of children ever born increases, correspondence falls and deviations in the reported number of children become wider. Besides, larger proportions of respondents deviated in their responses as the reported number of children ever born increased.

Thus, the patterns of misreporting of the number of pregnancies and the number of children ever born are very similar. The methodological problems posed by this in demographic research are monumental. Meanwhile the reasons for such gross misreporting of the number of children ever born, especially when the numbers involved are large, are similar to those for the misreporting of pregnancies, as discussed in the earlier part of this section:

a. since smaller numbers are easier remembered than larger ones, lower parity women should remember and report the number of children they have ever had with greater consistency;

b. parity being highly positively correlated with age, the large numbers of children reported must be associated with older women, who may have higher incidence of memory lapse and cannot remember well the exact number of children they have had, especially if the children have left home or died;
### TABLE 20

DEVIATIONS IN NUMBER OF CHILDREN EVER BORN BY GROUPED NUMBER OF CHILDREN

<table>
<thead>
<tr>
<th>Number of Children Ever Born (Grouped)</th>
<th>-5 &amp; Less</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2 &amp; Over</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No %</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No %</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 50.0</td>
<td>3</td>
<td>50.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 100.0</td>
</tr>
<tr>
<td>1-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 1.2</td>
<td>3</td>
<td>3.5</td>
<td>10</td>
<td>11.8</td>
<td>53</td>
<td>62.4</td>
<td>11</td>
<td>12.9</td>
</tr>
<tr>
<td>5-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 7.8</td>
<td>5</td>
<td>7.8</td>
<td>8</td>
<td>12.5</td>
<td>9</td>
<td>14.1</td>
<td>16</td>
<td>25.0</td>
</tr>
<tr>
<td>9+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 35.0</td>
<td>6</td>
<td>24.0</td>
<td>2</td>
<td>8.0</td>
<td>2</td>
<td>8.0</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Total</td>
<td>14 7.8</td>
<td>11</td>
<td>6.1</td>
<td>11</td>
<td>6.1</td>
<td>14</td>
<td>7.8</td>
<td>28</td>
<td>15.5</td>
</tr>
</tbody>
</table>
### TABLE 21

**Absolute Deviations in Number of Children Ever Born by Grouped Number of Children**

<table>
<thead>
<tr>
<th>Number of Children Everborn (Grouped)</th>
<th>Absolute Deviations (Number of Children)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1-4</td>
<td>53</td>
</tr>
<tr>
<td>5-8</td>
<td>17</td>
</tr>
<tr>
<td>9+</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
</tr>
</tbody>
</table>


III. iv. Summary

To summarize and examine the extent of inconsistent reporting of the various items of information discussed we calculated the 'index of individual inconsistency' proposed by Ryder and Westoff for these items.

The index of Individual Inconsistency is defined as the ratio

\[ \frac{1 - 0}{1 - E} = \sum q_i \]

the total proportion responding randomly

where 0, is the observed proportion giving consistent responses and E is the expected proportion giving consistent responses.

Let \( P_i \) be the proportion responding consistently; that is, giving the ith response in both inquiries

\( q_i \) the marginal proportion giving the ith response in both interviews, but with a random relationship between the first and second responses

Then \( 0 = \sum P_i + \frac{\sum q_i^2}{\sum q_i} \) and \( E = \sum (P_i + q_i)^2 \)

Note also that \( P_i \) and \( q_i \) do not sum to unity.

Table 22 shows the correspondence—the percentage of agreement in responses—and the inconsistency index—the percentage estimated to be responding randomly—for each of the items or the variables. That the respondent's background variables like marital status, the number of previous marriages, educational level, and migration status are

Some information on infant deaths could be gleaned from only the Women's Follow-Up Survey, thus making such information non-comparable. There are therefore no good indications from the available data that dead children were more likely to be omitted, though this is possible.
TABLE 22

SUMMARY OF FINDINGS ON REPORTED ITEMS OF INFORMATION

<table>
<thead>
<tr>
<th>Item of Information</th>
<th>N</th>
<th>Correspondence Percent</th>
<th>Index of Individual Inconsistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Respondent:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-year age-groups</td>
<td>209</td>
<td>45.4</td>
<td>0.542</td>
</tr>
<tr>
<td>Single-year ages</td>
<td>209</td>
<td>12.0</td>
<td>0.875</td>
</tr>
<tr>
<td>Age of Respondent at her last birth:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-year age-groups</td>
<td>166</td>
<td>36.7</td>
<td>0.637</td>
</tr>
<tr>
<td>Age of last child:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-year ages</td>
<td>183</td>
<td>37.2</td>
<td>0.624</td>
</tr>
<tr>
<td>Marital Status</td>
<td>120</td>
<td>90.0</td>
<td>0.204</td>
</tr>
<tr>
<td>Number of Previous Marriages</td>
<td>97</td>
<td>85.6</td>
<td>0.201</td>
</tr>
<tr>
<td>Migration Status</td>
<td>117</td>
<td>70.1</td>
<td>0.373</td>
</tr>
<tr>
<td>Length of stay in Ebendo:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Including Non-migrants</td>
<td>117</td>
<td>69.2</td>
<td>0.466</td>
</tr>
<tr>
<td>Only Migrants</td>
<td>11</td>
<td>9.1</td>
<td>0.817</td>
</tr>
<tr>
<td>Reasons for migrating</td>
<td>15</td>
<td>53.3</td>
<td>0.486</td>
</tr>
<tr>
<td>Level of Education</td>
<td>121</td>
<td>86.8</td>
<td>0.208</td>
</tr>
<tr>
<td>Occupation</td>
<td>110</td>
<td>83.6</td>
<td>0.422</td>
</tr>
<tr>
<td>Number of Pregnancies</td>
<td>208</td>
<td>54.3</td>
<td>0.458</td>
</tr>
<tr>
<td>Number of Children Ever Born</td>
<td>180</td>
<td>42.8</td>
<td>0.569</td>
</tr>
</tbody>
</table>

aN is the number of respondents who responded to the specific questions in both surveys. It varies because of the elimination of "Don't Know", "Not Applicable", and "No Response" codes from the calculations and the analysis.
better reported is supported by their relatively low inconsistency indices. On the other hand, items of information with numerical responses—for example, age, number of pregnancies and of children ever born, and period of residence in the village—have the highest inconsistency indices. These suggest that very high proportions of these respondents responded to these items randomly. The problem of age misreporting is highlighted here, with the highest inconsistency indices, suggesting the respondents' nearly total lack of knowledge of their exact ages in numerical terms. Though occupation, migration status, and length of stay in the village appear to be more consistently reported, their indices of inconsistency are high enough to suggest substantial random reporting. In general, the fact that all these items of information have indices of inconsistency of more than 20 percent indicates the extent of inconsistent reporting among these respondents.

REFERENCES

