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**URBAN FOOD CONSUMPTION PATTERNS AND
NATIONAL FOOD POLICY IN LIBERIA**

Report 5

METHODOLOGY AND EVALUATION

August 1987

by

Stephen J. Hiemstra
Restaurant, Hotel, and Institutional Management Department
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Purdue University

for

Nutrition Economics Group
Technical Assistance Division
Office of International Cooperation and Development
U.S. Department of Agriculture

A Report Prepared Under Cooperative
Agreement 58-319-R-6-013 With
Purdue University

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URBAN FOOD CONSUMPTION PATTERNS AND
NATIONAL FOOD POLICY IN LIBERIA

Report 5: METHODOLOGY AND EVALUATION

EXECUTIVE SUMMARY

This report summarizes and critiques the methodology and evaluates the data collected in the Urban Food Consumption Survey conducted in Liberia in March 1986. A number of changes are recommended for subsequent surveys of this type that may be conducted in Liberia or elsewhere in developing countries.

This study generally met the criteria for a "rapid appraisal" of food consumption or expenditures for purposes of food policy. This conclusion is based on consideration of the following limitations that were placed on the study: (a) limited study objectives that were precisely specified, (b) strict limitations on time available to complete the study, (c) cost sharing, with a minimum amount of out-of-pocket financial support, and (d) certain limitations on local support staff and capabilities, a minimum of technical equipment and local support, and several guidelines regarding indigenous training objectives and conflicting objectives.

The study's objectives were specifically limited in scope and intended

to make assessments on the basis of more aggregative data than would be the case for a full-blown definitive study. The objectives specified that this study was intended to be an analysis of food consumption or expenditures as opposed to a nutritional analysis which would have entailed considerably more detailed data collection.

The questionnaires were specifically designed to yield the maximum amount of needed information, in compact form, and readily adaptable for computer data entry and analysis. The questionnaires from over 900 households were hand carried from Africa in a single briefcase stored under an airline seat. The first two reports containing all of the primary data and statistical analysis were submitted in final form to USDA within seven months of data collection and within 10 months of the initiation of the project.

Indigenous input and training objectives were met in part by inviting the project coordinator from Liberia's Ministry of Agriculture to Purdue University for two months, during which time the data were cleaned and verified to the extent possible. Data collection was facilitated by use of experienced enumerators from the Ministry and by developing a close working relationship with local officials.

The major shortcoming in data collection occurred in the case of the price data. Recommendations for improvements in these procedures are provided in this report. Less attention had been given to these procedures during the planning and training period because such data had

been routinely collected previously and it was considered to be a relatively straightforward activity.

Food expenditure data for the previous 7 days were collected from households for each major food or food group. In the case of rice, quantities of rice used during the previous seven days were collected directly when rice was routinely purchased by the bag. The expenditure data were analyzed along with prices in estimating quantities of food used during the survey period. Expenditures during the previous 30 days were requested for nonfood items. Total expenditures was used as a proxy for income in the analysis. This procedure appears to have been acceptable, judging from the size and nature of income elasticities that were computed from the data.

Recommendations are made to broaden the sample collection areas to include a number of small towns and villages in subsequent surveys, as well as at least one urban area in the southeast region of the country. In addition, data should be collected in other seasons of the year to assess the importance of seasonality. One of the urban areas sampled in Nimba County could be dropped due to similarity in consumption patterns in the two areas. The number of households in each area could also be reduced somewhat.

There was some indication of interviewer biases. The significance of the bias was not determined, but it was obvious in the case of certain types of data. It could be reduced by rotating interviewers, providing

Interim training, or conducting more extensive pilot testing in the future.

The design of the questionnaire was basically sound, but some changes are recommended. These include (1) omission of some information that was not used related to demographic data, (2) rearrangement of one page to facilitate data entry and avoid interviewer misunderstandings, (3) some modifications of food items requested, (4) rearranging food commodities to coincide with food groupings, (5) omission of information related to number of "meals eaten yesterday," and (6) addition of a question to determine the total number of meals eaten the previous day.

Weighting of the data to reflect structure size differences was very important because of differences found in numbers of households per structure. However, there were not as many multi-household structures found as expected, particularly in outlying urban areas. Adjustments of the data for meal equivalents also appeared to be warranted to standardize for meals away from home and meals served to guests.

The procedure for measuring rice consumption appeared to yield satisfactory data, based on a comparison of results with annual supply and utilization data. This procedure combined cup or kenke rice purchases during the previous 7 days with purchases by the bag when purchasing less frequently than weekly. Per capita rice consumption averaged an annualized level of 252 pounds in Monrovia and 255 pounds in the remaining six urban areas. These numbers compare with 244 pounds

for all of Liberia when computed on a disappearance basis. The 1976-78 survey had reported an equivalent level of 218 pounds.

In the March 1987 survey, 81 percent of the rice was imported, 18 percent was from the "country," and 1 percent was from "concessions." In 1985, the latest data available, total imports amounted to 71.7 million metric tons. This level represents about 19.4 percent of the total rice supply available. The imported rice reported in the survey adds up to about 63 percent of the total level of imports in 1985, on an annualized basis.

"Other sources" of rice appeared to be reported more completely by some interviewers than others. For this reason, it is proposed that in future studies data be requested separately for food produced for home consumption, that received as a gift, and that received as payment for work.

Nonfood purchases appeared to be reported reasonably well, at least for the intended purposes of measuring income. But, there was a problem in interpreting the data for educational costs because of their sizable importance in total nonfood spending during the period of the March survey. Further, data on savings probably should be requested in future studies. The data collected on rent due but not paid was not found to be useful.

Per capita household expenditures on all items averaged \$829 annual rate

for all urban areas. This average combines Monrovia's \$924 and the average for the remaining six urban areas of \$557. One can compare these figures with average per capita gross domestic product for all of Liberia reported at \$497 per year in 1984, according to the Ministry of Planning. The World Bank reported \$470 per capita for 1984. These various concepts of income differ considerably. However, if one ignores the differences in concepts and assumes that the \$497 is the average for all of Liberia and \$829 is the urban average, then the data imply \$392 expenditures per capita for the population living in nonurban areas. If an adjustment is made for education costs, total expenditures average \$706 per capita for all urban areas, 15 percent less than reported above.

More demographic data were collected than could usefully be used. The educational and occupational data were confusing and should either be clarified or omitted in the future. Less breakdowns of the data by age group would be sufficient unless a nutritional analysis were intended. The urbanization data showed less movement into urban areas than had been expected, and could be omitted.

The data collected on number of meals eaten yesterday by individual food products were not found to be useful. In their place, the number of total meals eaten yesterday is proposed, to assist in the meal equivalent estimates.

More and better data on food prices should have been collected. These

data should have been collected using standardized procedures and elements of probability in selecting products for pricing, as in the case of the household data collection. All food products that were found to be purchased should have been priced, and those item specifications found to be volume sellers should have been priced most frequently, rather than the practice of pricing different sizes or types of products to try to span product specifications.

**URBAN FOOD CONSUMPTION PATTERNS AND
NATIONAL FOOD POLICY IN LIBERIA**

Report 5: METHODOLOGY AND EVALUATION

I. INTRODUCTION AND OBJECTIVES

The purpose of this report is to summarize and critique the methodology used in collecting and analyzing the data related to the food consumption survey in Liberia in March 1986. Recommendations will be made regarding proposed changes that could improve data collection activities of this type either in Liberia or elsewhere in developing countries. Finally, usefulness of this type of data for purposes of rapid appraisals of food consumption will be considered briefly.

Many references to methodology have been made in Reports 1 through 4 of this series which will be summarized in this report (Hiemstra and Savadogo, 1986, and Hiemstra, 1987). Some of this information was also provided to U.S. AID/Liberia and the Ministry of Agriculture (MOA) on the final trip to Liberia by the Purdue team in August 1986. See Appendix A for a copy of the information provided.

II. CRITIQUE OF METHODOLOGY USED

The initial objective of this study was to measure the amount and kinds of food consumed in Liberia. This information was collected mainly for the ultimate purpose of analyzing alternative rice and other food policies for the country.

A. Household Data Collection

1. Area Sampling

The study was limited to Monrovia and six other major urban areas of the country because it was not deemed practical to survey rural areas, and because certain data had already been collected from a study of marketing in rural areas. These urban areas were chosen to cover all of the major population centers plus a representative number of smaller urban areas in rural areas with heavy concentrations of rice production. Some of the more sparsely populated areas in the southeast and northwest parts of the country were not represented in the sample. See Figure 1 for a map of Liberia and the locations of the sample areas, and see table 1 for distances among the various areas sampled.

LIBERIA

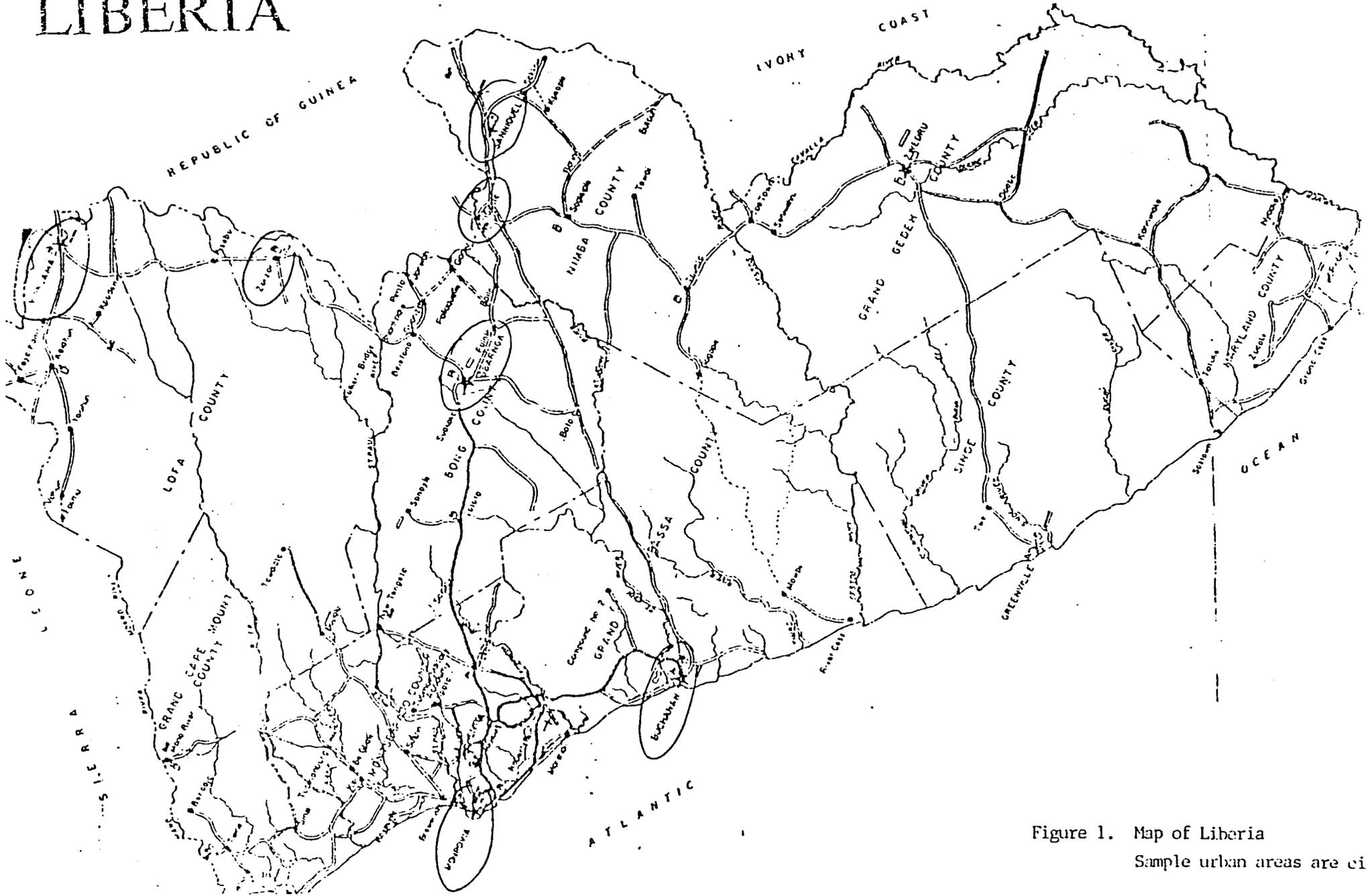


Figure 1. Map of Liberia
Sample urban areas are circled.

Table 1. Distances Among Urban Areas Sampled.

| From | To | | | | | |
|--------------|----------|-------|---------|--------------|----------|--------|
| | Buchanan | Ganta | Gbarnga | Sanniquellie | Voinjama | Zorzor |
| | (miles) | | | | | |
| Monrovia | 94 | 168 | 125 | 193 | 247 | 189 |
| Buchanan | -- | 212 | 169 | 237 | 291 | 233 |
| Ganta | | -- | 43 | 25 | 165 | 107 |
| Gbarnga | | | -- | 68 | 122 | 64 |
| Sanniquellie | | | | -- | 190 | 132 |
| Zorzor | | | | | -- | 58 |

Liberia had a total population of about 2,081,000 in 1984, according to preliminary census data. Of that number nearly one-half (971,000) represents the agricultural population. The population in the urban areas sampled totaled only 474,670. Consequently, there is a sizable proportion of the population, roughly equal to the group that was sampled, that live in small towns and villages that were not represented in the survey. Any use of the data from the survey needs to recognize the partial nature of the sample for purposes of policy implications drawn for both the country as a whole and even for the nonfarm sector as a whole.

The fact that there were no data collected in the southeast and northwest sectors of the country raises further questions about the

representativeness of the data for urban areas. However, there are no large urban areas in these sections of the country so data from those areas would likely have no adverse impact on the urban area totals.

2. Household Sampling

A random sample of housing structures was selected from which data were collected by personal interviewers within each of the urban areas selected. More precisely, a sample of housing structures was selected on a statistical basis in each urban area and then households within each of those structures were selected in a predetermined way. See Section IV of Report 2, Part 1 for a detailed description of this procedure.

Within each urban area outside of Monrovia, households were all selected from three contiguous areas. In Monrovia, six areas were sampled. While these local areas were selected in a random way, the relatively small number of areas selected could cause sampling problems for some types of data collected which tend not to be geographically disbursed within an urban area. This could include data related to ethnic groups, due to the fact that people tend to live in clusters by ethnic group.

3. Survey Teams

The data were collected by trained interviewers from MOA. Household data were collected simultaneously in each of the urban areas during the week of March 24 by survey teams that had been trained as a group the week previously.

Each survey team was composed of three interviewers and one supervisor. There were two teams operating in Monrovia which had approximately twice as many households surveyed as did the other areas. Each interviewer was responsible for surveying 37 households (46 in Monrovia).

Local supervisors were responsible for (1) local sample selection, (2) on-the-spot checking of the questionnaires for completeness, reasonableness of the data, and data consistency, (3) local interpretation of the general procedures established for data collection, and (4) security of the data and submission of the final completed questionnaires to Monrovia. See Appendix B for a copy of the questionnaires and code sheets used, Appendix C for the Interviewer Instruction Sheet, Appendix D for the Hand Editing Procedures Used, Appendix E for Sampling Procedures, and Appendix F for Supervisor's Responsibilities.

On-site quality reviews were made in each survey area during the survey week by a team composed of representatives from Purdue University and MOA. Interviewer training had been conducted jointly by the Purdue team and MOA during the week of February 16. This training included pilot testing of the questionnaires in suburban areas of Monrovia.

There appeared to be some significant differences in responses to some of the questions by the different survey teams. Questions related to purchases of food away from home and food from "other sources" were

among those where differences were the most apparent. However, it is hard to know when the differences were due to true differences in the sampled populations. Many of these types of differences were uncovered by the quality reviews made by the teams from Purdue and MOA. For this reason, such reviews are very important in trying to smooth out interviewer differences. However, statistical tests for interviewer differences were not conducted.

Rotating the survey teams among survey sites part way through the sample collection period would probably have been useful in attempting to minimize the impacts of interviewer differences. Alternatively, if time had permitted, the survey teams could have been brought together after one or two days of surveying to discuss detailed procedures, individual problems, and local variability. More extensive pilot testing would also have been useful.

B. Questionnaire Development

The questionnaires were drafted by the Purdue team, reviewed by OICD/USDA/Washington and U.S. AID/Liberia, and modified in consultation with the Statistics and Marketing Divisions of MOA. This group included representatives from the Agricultural Sector Analysis Project, with economic and statistical expertise, and two representatives from the Peace Corp working with MOA. Additional changes were made again following pilot testing during the first trip to Liberia in February 1986.

1. Seven Day Recall

The questionnaires were designed primarily to collect weekly expenditure data from individual households in the urban areas selected. Some of the methodology--for example, the 7-day recall procedure and adjustment to full-time-meal equivalents--was patterned after the nationwide food consumption surveys conducted in the U.S. by the Human Nutrition Information Service of USDA, even though this survey was limited to request for expenditures except in the case of rice.

The 7-day recall procedure appeared to yield reasonable data. But, one can not be positive that the resulting data were accurate. The study of caloric content of foods raises a question of overreporting because of the relatively ample levels of intakes implied. There is some possibility that expenditures were inadvertently overstated by reporting some items weekly that in reality had been purchased less frequently. Time compression of memory may result from aided recall in reading a list of food items. It is also possible that the interviewers may have prompted positive responses to questions concerning purchases by the tenor of the questions posed.

Surprisingly few incidents of difficulty in recalling food spending over this period were noted, or all least recorded. Most households appeared to have relatively fixed patterns of food purchases, either daily or weekly. The level of cooperation was excellent, in people's willingness to take the time to think through their previous week's purchases.

Techniques of aided recall used by the various interviewers probably should have been standardized more precisely, however.

2. Meal Equivalents

The 14-meal equivalent calculations were based on the understanding that the typical Liberian eats two meals per day. The calculation is important only in the adjustment for meals eaten away from home and for guest meals. A further assumption was that these two types of meals are equivalent. The net difference in number of such meals was used as the basis for the adjustment to the 14-meal equivalent. It was necessary to exclude a few households with less than about one-half of their meals eaten at home, because the adjustment can imply quite unusual consumption patterns for households eating few meals at home.

The determination of use of 14 as the appropriate average number of meals per week to use was based on judgment, after extensive discussion with the interviewers and other Liberians involved in data collection or analysis. The data collected on the number of times daily that each food was eaten helped to some degree---extremely few foods were ever reported eaten three times a day. But, that does not preclude different foods from being eaten at different times. The question was not formally asked as to how many different times during the day that people ate anything. Such a question would need to be carefully framed because of the general feeling that one has not eaten a meal in Liberia unless it contains rice.

3. Nonfood Purchases

Expenditures were collected on nonfoods as well as foods, even though foods were of primary interest, because of the need to analyze food consumption data with respect to changes in income. Total expenditures for all items was used as a proxy for income.

There also were some potential problems in reporting nonfood items used in a business or for resale--gasoline or car expense for a car used part-time as a taxicab, for example. A few instances of this type of problem was uncovered even though it had been discussed with the interviewers.

Another problem occurred with respect to educational costs. In the month preceding the March survey, tuition fees and other school expenses had been paid. These costs are collected twice yearly, both for public and private schools. The costs were significant for public schools and often represented a large share of total household nonfood spending when students attended private schools. In total, educational costs constituted a sizable 47 percent of total nonfood spending during the survey period (Report 2, Part 1).

It was difficult to know how to treat this information. Educational costs could have been omitted or an adjustment made to count these costs only twice during the year (for the two semesters). On this basis, annual average household income for all urban areas would be \$4,339 and for Monrovia, \$4,771, rather than the reported figures of \$5,153 and

\$5,675, respectively, on an annualized basis. For aggregative purposes, these figures may be preferable and therefore they were calculated and reported for each urban area. It is not known to what extent these payments were made from savings as opposed to current incomes. But, no doubt during the period of the survey, spending for food and other items was reduced to allow payment of the educational costs. For this reason, total spending data were used in calculating income elasticity relationships in Report 2, Part 2.

4. Rice Consumption

The quantities of rice purchased by the household during the survey week were collected as well as the dollar values. Those households that had not purchased any rice during the survey week were asked to report the quantity used by the household during the previous 7 days, in addition to spending at the time of last purchase. These procedures were followed for two reasons: (1) because of the paramount importance of rice consumption for success of the study, and (2) because of the known common practice of buying rice by the bag which would mean that weekly purchases would fall to record many individual rice purchases.

This procedure appears to have worked well in getting the data needed. There was some confusion in explaining the procedures to interviewers and their supervisors, but this was expected and careful attention was devoted to it during the training sessions.

It was also expected that there may be much rice (as well as cassava,

plantains, and other foods) obtained from (1) home production, (2) received as a gift from extended family or friends, or (3) received as partial pay for labor performed in an economy that is not completely market oriented, particularly in rural areas. For this reason, data were requested on the dollar value of all food from "other sources" during the survey week. The total of all such food was to be aggregated and reported together.

In hindsight, it is suspected that this procedure of asking for a composite figure was a mistake. All interviewers did not appear to have recorded food from all three of the above sources.

An improvement in questionnaire design could have been made that perhaps would have been less confusing in recording rice from "other sources." This could be accomplished by rearranging the first page of Section B to transpose the rows and columns of data requested. That is, record the three kinds of rice as columns rather than as rows. This alignment would have allowed the "other sources" information to have been placed following subsection b (latest purchase, for those buying rice by the bag), rather than following subsection a.

5. Commodity Detail

Food data were requested on 52 different foods or food groups, which included three kinds of rice (country, imported, and concession) and two kinds of cassava (tubers and fufu). Food away from home was recorded in two groups, that purchased from commercial vendors and that received at

work or school. There were 25 categories of nonfoods requested. Alcoholic as well as nonalcoholic beverages were classified as foods. See the code sheet for Section B in Appendix B for the list of individual items for which information was collected.

Foods were categorized into commodity group totals as indicated by the listings of individual items in the various household and per capita tables carried in Report 2, Part 1. It would have been helpful if these grouping decisions had been made at the time of questionnaire design for ease of later data handling and table construction. Other researchers may have categorized foods somewhat differently, for example, in the case of pulses, maggi cubes, and miscellaneous nonfoods. Similarly, some researchers may prefer to treat alcoholic beverages as nonfoods rather than foods, for comparability with U.S. food consumption data.

For nonfood items, expenditures were requested for the past 30 days rather than the past 7 days, mainly because many items would not have been purchased during the previous 7 days. No information was requested on "other sources" of nonfood items, even though they may have been important for some items like charcoal or firewood. The item detail for nonfoods was not nearly as complete as for foods. For that reason, the data accuracy likely was not as great.

Miscellaneous nonfood expenditures were rather high on average but there was a wide divergence among households and among interviewers in these answers. Some interviewers appeared to differ significantly in their

diligence in recording such information. For example, in Zorzor, miscellaneous spending was zero, but it averaged \$14.83 per household per month in Monrovia.

No information was collected on savings, which probably was a mistake. Data were collected on rent owed but not paid, which did not appear to be useful in analysis.

6. Meals Eaten Yesterday

For all foods, data were requested on the number of "meals eaten yesterday" by the person responding to the questions. The reason the question was asked was to gain perspective on the appropriate adjustment to use in adjusting for meals eaten away from home and for guest meals, as well as to gain information on the typical patterns of food use. The data were studied individually but were not tabulated because they did not appear to be useful for the purpose intended.

7. Demographic Data

Demographic data were collected from households regarding household size, age and sex composition, and educational level. These types of data were recorded separately for household heads and spouses and for selected age groupings. Marital status, occupation, and ethnic groups were also recorded for household heads, but no direct information was requested regarding overall level of household income.

More details regarding demographics were collected than could usefully

be analyzed for this type of data, particularly since detailed nutritional analyses were not conducted. The age and education categories were collapsed for purposes of analysis. (See Report 2, Part 2.) The educational data were confused because of different concepts concerning lack of education, for example, in the case of young, preschool children.

The occupational groupings provided some surprising results that could not be verified from independent sources. One-fourth of the sample consisted of government workers in Gbarnga, Sanniquellie, and Voinjama. The urbanization data showed very few households having moved from rural areas in the previous year. In the future, data collection could be simplified by eliminating the data breakdowns that were not used in analysis.

8. Questionnaire Coding

The demographic data were recorded by code number directly onto Section A of the questionnaire, which later became an efficient method of handling and entering the data into the computer (Appendix B). Section B recorded expenditures and other information for each household individually. This procedure also worked well. However, the classification data related to number of meals served to guests or eaten away from home, and the answers to the questions related to the number of households "making farm" had to be moved manually to facilitate computer entry by the statistical clerks. By transposing the rows and columns of data collected on the first page of Section B, as recommended

above, this information could in the future be placed in a better relationship to other data for purposes of data entry.

C. Market Price Data Collection

The purpose of the market price data collection was to be able to use the prices to develop estimates of quantities of food purchased from the expenditure data obtained directly from households. Except for rice, it was not considered feasible to ask households to provide either quantities or unit prices for the foods they had purchased.

Food prices were collected in each of the urban areas for which household data were obtained. The data were collected on a single day during the first week in April, with the exception of Buchanan where prices were collected one month later (May 7). Prices were collected in a central market following generally the same procedures used by MOA in their previous price collection activities.

The timing and precise method of selecting those prices was not carefully specified. But, the surveyors were asked to be consistent in their procedures and they were asked to record the specifications of the products they priced. The classification of products that were selected were those generally selling in large volume. However, three observations were obtained for each food product priced, and the three observations usually were chosen to span the range of variety or sizes offered, rather than concentrate all three on the volume seller.

Detailed food product groups were modified from those used in earlier surveys to match loosely those classifications used in the household questionnaire. However, prices for several foods reported in the household survey were not collected in all areas, in part because those foods were not available in the particular area on the day of the survey.

Unfortunately, there were many foods or food groups for which no prices were collected and therefore no food quantities nor nutrient data could be derived from the expenditure data. Out of a total monthly household purchase of \$173.38 for food and beverages (average for all urban areas), usable prices were not collected for \$48.31 or 28 percent of the total. Omitted foods included all of the "other cereals" such as bread and flour, cornmeal, and noodles as well as all of the "other foods," which include sugar, salt, coffee, tea, and soft drinks. White potatoes, beniseed, lamb and goat, poultry, eggs, milk, maggi cubes, avocados, beer, cane juice, and palm wine also were omitted from the price collection effort. Many of these foods at the time were not considered to be important enough to warrant price collection, but in total they represent a large share of total food spending, and without them they represent a major omission in the foods for which nutrients could be computed.

D. Data Tabulation and Cleaning

Data were entered by remote terminal into the mainframe computer at the Purdue University Computing Center. Two statistical clerks each entered all of the data independently. Then, the two data sets were matched by computer to verify data entry. A significant number of data entry errors were thereby discovered and corrected manually. Optical scanning of the data would have saved considerable effort at this phase of the analysis if the data could have been structured appropriately and the necessary equipment were available for scanning handwritten information.

The data were "cleaned" by computer application of a number of consistency checks that were developed for the purpose. These included developing relevant ranges of the data in cooperation with Tarnue Kolwou, a representative from the Ministry of Agriculture/ Liberia who spent about two months at Purdue during the early phases of data entry and analysis. Outliers of individual data were reviewed for reasonableness and eliminated or adjusted when collaborating information was available.

Clean data were put into a form that was assessable for statistical analysis by software developed by the SAS Institute, Inc., Cary, North Carolina. Version 5 of the SAS software was used for analysis on Purdue's mainframe computer. Subsequently, the clean survey data were downloaded onto five floppy disks and a copy provided to OICD/USDA for

any possible further analysis desired. A copy of the data code book is included in Appendix G.

III. RECOMMENDATIONS FOR CHANGE

Following are a series of changes in methodology or procedures that are proposed in followup studies of this type that might be conducted in Liberia or elsewhere when the objectives are roughly similar to those in this study. They continue to assume that resources are quite limited so that the perfect study probably cannot be conducted and that time pressures dictate that a rapid appraisal be conducted. Nevertheless, they assume that sufficiently accurate results must be obtained for purposes of food policy analysis. The objective, however, does not include the requirement of obtaining data detailed enough to allow nutritional assessment.

A. Seasonality

Data should be collected at different times of the year in order to assess the importance of seasonality in consumption. It appears that food stocks were quite minimal in urban areas at the time of the March 1986 survey (although such data were not collected) so most of the food that was produced or imported was assumed to be consumed within a rather short period of time.

Preferably, data would need to be collected about quarterly to test the

extent of seasonality that does exist. But, even one or two additional data collection periods would be helpful. It would not be necessary to collect as much data for purposes of measuring seasonality as in determining base levels of consumption, if the same population were being sampled. For example, data related to Monrovia and as few as two or three other urban areas would probably answer the primary questions related to seasonality. The number of households from which data were collected in Monrovia could also be reduced by perhaps one-half, for this purpose. But, about 100 households should continue to be sampled in each area to allow analysis by income level.

B. Urban Sample Selection

In later surveys it probably is not necessary to sample two urban areas in Nimba County, in part because of the close proximity of Sanniquellie and Ganta. The results showed that the two cities' consumption patterns were quite comparable. However, it is probably desirable to keep both Zorzor and Voinjama in the sample because consumption patterns differed substantially. The differences were probably due to the size and income differences of the urban areas rather than geographic or ethnic differences.

However, it certainly is recommended to add an urban area in the southeast part of the country to see how consumption patterns may differ in that area. It is recognized that that part of the country is sparsely populated so a sample from that area is not needed for the

purpose of measuring average consumption for all urban areas, but it would be useful to assess the amount of variability within urban areas of the country.

It is also highly recommended that consumption data be collected from a sample of small towns and villages. The data from Zorzor compared with that from other urban areas suggested that there may be striking differences in consumption patterns in the rural nonfarm areas of the country compared with that in Monrovia and the other five areas studied. It was noted earlier that there are about as many people living in rural nonfarm areas as in Monrovia and the other urban areas studied. These data are needed in making policy conclusions about food consumption in Liberia as a whole.

An alternative approach would be to reweight the data in this study giving the information from Zorzor equal weight with that from Monrovia and the other six urban areas. However, that would be putting heavy reliance on a rather small sample size from one area.

C. Household Sample Size

The sample size within each urban area in this study was increased by 10 percent over that originally recommended to allow for expected nonresponse and inability to complete all questionnaires. However, this was a much larger oversample than was necessary. Response by respondents was outstanding, due to the experienced interviewers used

and the cooperative nature of the people. In addition, the level and quality of the supervision and the various quality controls employed resulted in very few incomplete or unusable questionnaires. As a result, the number of questionnaires could have been reduced by about 10 percent with no loss of reliability.

D. Market Price Data

The most important data problem in this study was due to the insufficiency and lack of variability in the retail price data collected. In general, there was not enough attention given to ensuring that the price data were accurate and complete. There are several ways that the data could be improved:

1. Increase the number of items for which prices are collected.

As noted above, 28 percent of the food and beverage expenditures had no price counterparts at all. Increased attention should be given simply to ensuring that the categories match for which data are collected.

2. Precisely specify products.

Products should be closely specified for purposes of price collection rather than striving for variability in specification of individual products as was done in this study. That specification should reflect the volume seller in each market, to attempt to match up with the quantity data reported.

3. More price observations need to be collected.

If the price data are going to be used for computing elasticities, they need to be randomly selected on a probability basis, covering the same time period represented in the household survey. Prices should be selected at a random sample of all of the local markets at which households buy food and at various times of the day. These data should be weighted if possible to reflect roughly the volume of consumer sales. At a minimum, purchases on the weekly "market day" should be given more weight than daily prices.

4. Uniformity in procedures should be specified.

All interviewers should be trained to follow the same guidelines in sampling and determining prices, as in the case of the household survey. This includes procedures used in getting prices per pound from prices quoted by the pile or bunch.

E. Changes In the Questionnaires

Following is a summary of recommended changes in the household questionnaires that would make them less confusing, provide better data, and be easier to tabulate. Some of them have been discussed above.

1. Incorporate the questions on number of households within structures, number of guest meals, number of meals eaten away from home, and whether or not a household makes farm (if continued) into the body of Section B to facilitate computer entry.

2. Recommend reversing the rows and columns in Part 1, "Rice," of Section B. This would make the three kinds of rice as columns rather than rows and facilitate the integration of subsections a. and b. related to rice purchase and other sources of rice. This change would also facilitate the suggestions in a. above and c. which follows.
3. List the three "other sources" of rice (home-produced, gift, or pay) independently to be sure that the interviewers ask each part of the question. Data collected in this study suggest that home production may have been often omitted. Further, define "other sources" of rice as that used in the previous 7 days rather than that received during that period.
4. Ask how many total number of meals were eaten during the previous day, irrespective of what was eaten, to allow refinement of the 14-meal equivalent adjustment. Add the question to the introduction to Part 1 of Section B. Omit the question on number of times each individual food was eaten during the previous 24 hours.
5. Reorder the items listed on the questionnaire to conform to the order of the product groups used in the tabulations, both for food and nonfood items, to facilitate data handling, as noted above.
6. The categories of foods chosen appear to have been about right. However, dried fish and perhaps dried meat should have been recorded

separately, for purposes of pricing and determination of nutrient contents. Bread and flour probably should also have been separated because of the greater importance of these products than expected. Milk products perhaps also should have been separated into two items because of their importance. Cucumbers, pumpkin, lettuce, and cabbage are candidates for omission because of their lack of importance among vegetables, at least during this time of year. Similarly, avocado was not a large enough fruit to warrant collecting the data.

7. Omit or change the question in Section A regarding urbanization, since few households had moved into urban areas during the previous year.

8. Reduce the amount of demographic data collected. As noted above, some of the demographic data were not considered accurate (such as the education data) and some of it was more detailed than was useful for analysis. Age and education categories could be collapsed. The occupational data probably should be eliminated.

F. Provide Additional Training

Additional interviewer training should be provided on a number of issues that were either confusing or perhaps had not been adequately discussed in this survey. These include.

1. Clarify the concept of food away from home. There appeared to be

wide differences among the interviewers in the answers to this question. Apparently, snacks and street food often were ignored.

2. Clarify the intent to measure only expenditures for home consumption. Omit food purchased for resale and other inputs into commercial activities, such as gasoline used in taxicabs.

3. List the households surveyed by number in Section A for each urban area. All except one supervisor followed this practice in this survey. It helps avoid confusion in data entry and helps the interviewers avoid skipping households.

4. Provide much more detailed instructions on market price data collection procedures, as discussed above.

IV. CONCLUSIONS RELATIVE TO RAPID APPRAISALS, GENERAL METHODOLOGY, AND FURTHER STUDY

The concept of "rapid appraisal" is a rather ambiguous one. In the context of this report, the term is intended to mean a study conducted within the following rather strict and severe limitations:

1. Intended to satisfy rather limited and precise study objectives,
2. Conducted within strict time period limitations,
3. Conducted with quite limited financial resources,

4. Conducted within certain limitations of local staff capabilities, computer and other technical equipment limitations, and various indigenous special interests or requirements.

An overall assessment of these data and critique of the methodology suggests that the procedures used in this study in general were adequate within the context of a rapid appraisal as defined above. This does not imply that improvements could not have been made. Nevertheless, the authors were generally satisfied that the quality of the food consumption/expenditure data was adequate for purposes of this study and the various limitations that were necessarily present.

Data refinements would certainly need to be made if nutritional rather than food group or expenditure assessments were the primary objective of this study. As noted above, the major shortcoming was in collecting price data, and the lack of useable prices prevented a full assessment of quantities of food consumed. Nevertheless, this problem likely was due not to the general methodology employed but to lack of training and poor supervision in collecting these particular data.

One needs to recognize in assessing the results of this study that it is intended to be only Phase I of a larger effort of data collection and analysis needed to cover consumption and expenditures over a 12-month period. Almost all observers expect that there is considerable variation in seasonal patterns of food consumption in Liberia. There is some expectation that the period of observation for this survey was

rather typical of annual average consumption--due to the fact that it was near the mid-point between the period of rice harvest and the so-called "hungry" period. But, no doubt, average consumption for some foods means atypical consumption for others.

It is mainly due to some of the resource limitations noted above that this study is not being extended on a quarterly basis throughout the year. It is hoped that other researchers will carry on the work by studying consumption patterns in Liberia at other times of the year, extending the data base to some of the missing segments of the overall Liberian population, comparing the results with the findings in this report, and, hopefully, merging them into a composite total for the country and for a typical year.

Results from this study lend support to replicating the 7-day household recall methodology to other countries in Africa (and, indeed, the world) where similar patterns of food consumption exist. Other studies would, of course, need to be tailored to include local foods and nonfood purchases. Further, certain changes would be necessary if the methodology were to be used in appraising food consumption and expenditures by rural rather than urban people. More emphasis would need to be given to "other sources" of food, mainly that from home production. In addition, food use during the previous 7 days rather than food purchases may be appropriate for foods (other than rice) which are known to be purchased and stored or produced in volume in that particular country.

As noted, there is some suspicion of time compression and overstating consumption levels by use of the 7-day recall procedure. However, the amount likely is not large, at least for rice, based on a comparison of annual rice consumption from other data sources. Comparative data are lacking for most other food items, and even for rice the seasonal pattern of consumption is not known.

Perhaps, a 3-day food recall rather than a 7-day period should be considered. However, it is not recommended by this report for three reasons: (1) the assumption that food consumption can be approximated by food purchases during the survey period for most items would be increasingly hard to expect, (2) most urban areas in Liberia have "market days" once per week, which means that purchasing patterns likely do vary from day to day within a 7-day period, and (3) the sampling problem of zero purchases of minor food products becomes increasingly greater as the length of the survey period decreases for each household.

The use of total expenditures as a proxy for income appeared to be satisfactory, judging by the consistency and reasonableness of the resulting income elasticity measurements. Again, some improvements likely could be made, as noted above, in measuring savings and dealing with the sampling problem of high educational costs this particular survey period.

The data adjustments and statistical procedures used in this study appeared to be appropriate for the types of data analyzed. The meal equivalent adjustments for missed and extra household meals appeared to be useful, but could be refined if better data were available on number of meals eaten. The structure size adjustments were very important and appeared appropriate to the type of data available.

One methodological question considered in the statistical analysis but not adopted was whether or not to weight the data by size of population in the various urban areas sampled. The decision that was made was to leave the weighting to the intercept adjustments in the statistical model, most of which were highly significant.

Another question that should be addressed in future analyses is whether or not to alter the statistical procedures to explicitly include the information on frequency of households purchasing during the period of the survey as well as the average levels of consumption. See, for example, the recent study by Blaylock and Smallwood based on use of the tobit model which expressly incorporates frequency of use data through maximum likelihood procedures (1986). The problem with zero purchases would be greatly increased in analyzing 3-day rather than 7-day recall data, as noted above, because there would be more instances of zero purchases during the shorter period. The problem would be particularly severe in villages where a large share of food is purchased on "market day" which may occur weekly.

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PURDUE UNIVERSITY



DEPARTMENT OF RESTAURANT, HOTEL
AND INSTITUTIONAL MANAGEMENT

August 7, 1986

Shirley Pryor, Ph.D.
OICD/TA/NEG
4300 Auditors Building
U.S. Department of Agriculture
Washington D.C. 20250

Dear Shirley,

Attached are some detailed recommendations regarding changes in questionnaire construction, interviewer training and data collection for the proposed Phase II and Phase III household food expenditure and market price surveys in Liberia. These recommendations follow from the analysis of Phase I data collection conducted up to this time. They are intended for discussion in Liberia next week when we present the preliminary findings from Phase I.

These recommendation assume that the analysis would be done in a similar fashion to Phase I. If that is not feasible, I would suggest that the sample size be cut rather substantially, perhaps by one-half, to reduce the data handling requirements of two large data sets (three for the annual totals).

If the analysis were to be done at Purdue University, we likely would utilize the PC version of SAS, which has just this week become available here, rather than the mainframe version. Attached is an overview of PC SAS prepared by the Purdue Computing Center. Unfortunately, PC SAS is available only on the basis of an annual site license. It would cost Liberia \$4,000 - \$5,000 per year to install this system.

These recommendations must be regarded as preliminary pending the preparation of Report 5 under our Agreement.

Sincerely,


Stephen J. Hiemstra,
Associate Professor



Recommended Changes in Phase II and III,
Household Survey and Retail Price Collection

Following are preliminary recommendations for changes in data collection proposed for the Phase II and III surveys, based on information available in early August. They are subject to modification in the final report pending results of the full analysis.

Phase II and III should focus on adding a new dimension to the total effort, namely providing information on seasonality and total consumption or expenditures for the entire year. For that reason, sample size can probably be reduced. To maintain data continuity over the time periods, only those changes should be made in methodology that represent true improvements.

1. Collect better retail price data.

The most obvious problem in the Phase I data collection effort was the quality of price data collected from local markets. This problem was apparent in studying the data tabulations but it became even more imperative after statistical analysis. The price data could not be used at all for several products because of problems of multicollinearity. The remaining data provided price elasticities and cross-elasticities that were not in line with normal expectations.

The problem appears to focus on the differences in product specifications among prices collected both for different urban areas and different item prices within a local market. There appears to have been a conscious

prices within a local market. There appears to have been a conscious effort to collect prices from as wide an assortment or quality of products as possible.

Rather, the objective should be to develop a tightly specified product to price (hopefully the volume seller of a given product class) and then concentrate on obtaining prices following a predetermined sampling procedure. This procedure should be closely followed to try to minimize product variation among urban areas as well as within an area.

Be sure to train the interviewers in appropriate pricing procedures. It was obvious that there was considerable variation in sampling procedures used in collecting the prices in Phase I. Training is as important in collecting prices as for collection of household data.

2. Reduce the household sample size within cities.

There were more data collected in Phase I than statistically necessary. The rate of response was higher than expected, so as a minimum the 10 percent oversample for this purpose is not necessary if the same procedures are followed. Recommend that no more than 100 households in each area and 200 in Monrovia be surveyed. Even that may be too many.

3. Eliminate one of the cities in Nimba County and substitute one from the southeast part of the country. Perhaps adding a city from the southeast is not feasible during the rainy season, but such data should at least be collected during Phase III. Zorzor and Voinjama should perhaps both be kept because they have quite different expenditure patterns. Any city that

is deleted from the sample should have its sample weight assigned to a similar city in developing all-urban totals.

4. Add a sample of small villages to the survey or develop sample weights for missing urban and rural nonfarm population.

About 25 percent of the population appears to represent rural nonfarm people that apparently live in small villages that are not represented in the sample but yet they represent a sizable part of the population that should be considered when making rice policy for the nation. By the time of analysis of Phase II and III data, more complete Census of Population should be available from which to develop better sampling weights to account for missing segments of the urban population. Consideration should be given to over-weighting Zorzor's data to account for the large group of small towns in the country.

5. Make several adjustments to the questionnaire.

a. Incorporate the questions on number of households within structures, number of guest meals, number of meals eaten away from home, and whether or not a household makes farm (if continued) into the body of Section B so they will not need to be manually transferred for computer entry.

b. Integrate the a. and b. parts of the rice purchase questions in Part 1 of Section B. Suggest reversing the information in Part 1 so the 3 kinds of rice purchased would become vertical columns on the page and the purchase and consumption categories of data would be horizontal. This would also allow the incorporation of data suggested in item a. above.

c. List the three "other sources" of rice (home-produced, gift or pay) independently to be sure that the interviewers ask the question. Data from Phase I suggest that home production information for rice was often omitted or perhaps incorrectly reported in some cities.

d. Define "other sources" of rice as that used in the previous 7 days rather than that received during that period.

e. Ask how many total number of meals were eaten during the previous day, irrespective of what was eaten, to allow a refinement of the 14-meal equivalent adjustment. Add the question to the introduction to Part 1, Section B.

f. Do not precode the product categories for nonfood products. They are not helpful in data entry and did not appear to be helpful to the interviewers because of the necessity of filling in many zeros.

g. Omit "bucket" as an option under unit of measure in Section A; it was seldom used.

h. Add savings to the list of nonfood categories, since it may be an important omission in estimating total income and the "other" category was seldom used. Delete the "rent not paid" item, since the information was not too useful.

i. Reorder the items on the questionnaire in line with the product groups used in the tabulations, both for foods and nonfoods. Little thought originally was given to grouping similar items in Phase I. Move alcoholic beverages to the nonfood group. Attached is the proposed listing, by groups.

j. Eliminate the occupation question because the data do not appear useful. However, retain a question on whether or not the household head or spouse was employed or not.

k. Omit two food items for which there were extremely few purchases in Phase I: cucumbers and pumpkin. Separate pineapples from plums and paw paw.

l. Omit the question in Section A regarding urbanization, since few households had recently moved.

6. Provide additional interviewer training on a number of issues that were either confusing or perhaps had not been adequately discussed in Phase I.

a. Clarify the concept of food away from home. There was wide difference among the interviewers in the answers to this question. Apparently, snacks and street food were often ignored, and there may have been other problems such as not even asking the question.

b. Clarify that the intent of the survey is to measure only expenditures for home consumption, not necessarily total expenditures for

all items purchased. Omit food purchased for resale or use in cookshops, and gasoline used in taxicabs, for example.

c. Clarify that "other sources" of food includes home produced food. By adding separate questions for the three types of other sources, as noted above, the response should be better. In Phase I, interviewers appeared to differ in their use of this question.

d. List the households surveyed by number in Section A within a given urban area. Most interviewers did this in Phase I, but some did not. It helps avoid confusion in data entry and helps the interviewers avoid skipping households by listing them sequentially.

e. Specify that the education question of household members relates only to people over age 5. Include all persons age 6 or older even if they plan to enter school later. There was considerable confusion in the answers to this question in Phase I. Alternatively, omit the education question entirely for people other than household heads and their spouses.

Introduction

Household Number _ _ _ Date of Information _ _ / _ _ / 86

"Hello, my name is _____. I am from the Ministry of Agriculture. We are collecting information on what people in (city or town) eat. We want to know if people are getting all the food they need to eat and where that food comes from."

We have notified the City Superintendent of our study and he has agreed to let us conduct the survey. We have a few questions we would like to ask you about the kinds of food you and your household eat.

"How many households live in this structure? _ _ . We are defining a household as the people eating out of the same cooking pot."

If the answer is more than one, ask "can you give me the first names of each of the household heads and the number of people in each household?"

Record below.

| <u>Number</u> | <u>Household Size</u> | <u>Name of HOH</u> | <u>Name Selected</u> |
|---------------|-----------------------|--------------------|----------------------|
| 1 | _____ | _____ | _____ |
| 2 | _____ | _____ | _____ |
| 3 | _____ | _____ | _____ |
| 4 | _____ | _____ | _____ |
| 5 | _____ | _____ | _____ |

"I would like to talk to _____ or his wife. Is he/she at home?" yes __, no __. If not: "When could I speak to him/her if I return later?"

If the proper person is available, proceed to questionnaire A.

Household Selection Table

Fill in the following table using information from the Instruction Sheet

Order of Selection

Number of Households Per Structure

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |

CODE SHEET FOR SECTION A: DEMOGRAPHIC SURVEY

NOTE: HOH = Head of Household

City Code

1. Monrovia
2. Buchanan
3. Gbarnga
4. Ganta
5. Saniquellie
6. Zorzor
7. Voinjama

1. Head of HOH

1. Male
2. Female

2. Marital Status

1. Single
2. Married or living together

3. Age of HOH

1. 34 or under
2. 35 - 64
3. 65 +

4. Urbanization

1. 1 year or less
2. More than 1 year

5. Age - Sex Composition

The Number of persons in the household in each age-sex category

6. Profession/Occupation

1. Farmer, fisherman
2. Market woman, merchant, trader
3. Clerk, unskilled laborer
4. Professional, skilled laborer
5. Government worker
6. Other employment
7. Unemployed, not employed, retired, housewife

7. Education

- 0 = No formal education
 1 = Attended elementary school
 2 = Completed elementary school
 3 = Attended junior high
 4 = Attended senior high
 5 = Attended college or above

8. Ethnic Group

1. Lorma
2. Kpelle
3. Gbandi
4. Kissi
5. Mande
6. Mandingo
7. Belle
8. Gola
9. Vai
10. Bassa
11. Kru
12. Krahn
13. Grebo
14. Gio
15. Mano
16. Sarpo
17. Other Liberians
18. Other Africans
19. Lebanese
20. Other nationalities

9. Notes

Record date of initial attempt to visit household and date of each callback up to Number 5.

CODE SHEET FOR SECTION B., CONSUMPTION SHEET

1. Product CodeFood Products

- | | |
|--|--|
| 01. Country rice | 40. Paw paw, plums, pineapples |
| 02. Imported rice | 41. Avocado (butter pear) |
| 03. Concession rice | 42. Bananas |
| 04. Cassava (tubers, bushy, G.B.) | 43. Sugar |
| 05. Fufu | 44. Salt |
| 06. Farina (gari) | 45. Coffee, tea |
| 07. Sweet potatoes | 46. Soft drinks |
| 08. Yams | 47. Cane juice |
| 09. Eddoes (cocoa yams) | 48. Palm wine |
| 10. Potatoes (Irish) | 49. Beer, other alcoholic drinks |
| 11. Plantains | 50. Other food for use at home |
| 12. Corn meal | 51. Prepared food from cook shops, restaurants, street vendors, snacks |
| 13. Beans (Cowpeas, broad beans, limas) | 52. Meals at work, school |
| 14. Noodles, macaroni, spaghetti | |
| 15. Wheat bread, flour | <u>Nonfood Product</u> |
| 16. Other cereal products (dry cereal, cream of wheat) | 53. Soap |
| 17. Beef, ground beef | 54. Gasoline, diesel |
| 18. Pork (ham, bacon, pig feet) | 55. Kerosene |
| 19. Lamb, goat | 56. Wood |
| 20. Bush meat | 57. Water |
| 21. Poultry | 58. Medicines, drugs, traditional medicines |
| 22. Fish (fresh, canned, dried) | 59. Tobacco, cigarettes, matches |
| 23. Eggs (chicken, other) | 60. Batteries, flashlights, candles |
| 24. Milk, evaporated milk, condensed milk, powdered | 61. Rent, house payments |
| 25. Palm oil, palm kernel, coconut oil, palm nuts | 62. Rent, due but not paid |
| 26. Vegetable oils (imported) margarine, butter | 63. Electricity, telephone |
| 27. Peanuts (groundnuts), beniseed, other seeds | 64. Charcoal, gas for cooking |
| 28. Onions, garlic | 65. Cooking utensils |
| 29. Pumpkin, squash | 66. Furniture |
| 30. Bitterballs, eggplant | 67. Men's clothing, shoes |
| 31. Cassava leaves | 68. Women's clothing, shoes |
| 32. potato greens and other leaves | 69. Children's clothing, shoes |
| 33. Lettuce, cabbage | 70. Vehicles, bicycles, motor-bikes, vehicle repair |
| 34. Okra | 71. School supplies, uniforms |
| 35. Tomatoes | 72. School fees |
| 36. Cucumbers | 73. Social expenses, entertainment, family celebrations |
| 37. Peppers (hot, sweet, other) | 74. Contributions to church, charity |
| 38. Oranges, grapefruit, lemons, limes, juice | 75. Licenses, inspections, taxes |
| 39. Maggi cubes | 76. Interest expense |
| | 77. Bus, taxi fare |
| | 78. Other nonfoods |

3. Units of Measure

1. Cup
2. Kenke (bowl)
3. Bucket
4. Bag

2. Frequency of Purchase

1. Daily, every other day
2. Every 3 to 7 days
3. 4 days or more

URBAN HOUSEHOLD FOOD CONSUMPTION SURVEY IN LIBERIA

Interviewer Instruction Sheet

The objective of the following information is to give suggestions on how to ask questions to the respondents and how to fill out the survey form. Do not leave blanks in the form to indicate zeros or data unknown. Zeros must be filled in with 0 or 00, depending on the number of spaces provided. Unknown or irrelevant data should be coded 9 or 99.

Introduction

The purpose of the Introduction is to begin the interview in a consistent manner, to define the number of households in a structure, and to choose that one particular household that you will be interviewing.

Household Selection Procedure

When there are more than one households in a given structure, one household must be selected on a random basis.

The general procedure for selecting a household from a multi-household structure is as follows. The first time you encounter a structure with, say, 3 households, select the head of the household (head) whose first name ranks first alphabetically. The second time you encounter a structure with 3 households, choose the head with first name ranking second alphabetically. The third time you encounter a structure with 3 households, select the head whose first name ranks third alphabetically. If you encounter a

structure with 3 households for a fourth time, restart the process (i.e., select the head with first name ranking first alphabetically), etc. To facilitate this process, a Household Selection Table is provided.

Each structure containing more than one household must be entered in the Household Selection Table with a designation of "/". Start filling the boxes beginning with box 1 for each differing number of households per structure (structure size). Proceed down the column until all the boxes are filled for that structure size. Then, start again with number one and repeat the process. Repeat filling the boxes as many times as necessary.

For example, sample numbers in the above table indicate that 3 households in structure size 2, 1 household in size 3, and 7 households in size 5 have been encountered. The next time a structure size of 5 is encountered, the third household in alphabetic order would be selected.

The number selected tells you which household to select after all first names of household heads have been arranged alphabetically in the Introduction.

A. Household Demographics:

Interviewer Code

Each interviewer will be assigned a unique number which will be put on each survey form which he completes.

Reviewer Name and Date

The name of the reviewer and date of the review is to be put on each form.

City Code

Each city will be given a unique number. Enter the appropriate number (see City Code, Section A).

Household Number

Each household will be assigned a unique number for each city. Each interviewer will be given a range of numbers to assign to households in his/her assigned survey area. Enter the three-digit code for each household on a single line as each interview is conducted.

Col. 1. Sex of Head of Household

Record the appropriate code for sex determined in the Introduction (see Code 1).

Col. 2. Marital Status of the Head of Household

Ask the respondent if he/she is single and living alone, or whether he/she is married or living with another adult of opposite sex (other than parents or relatives) unless already determined from the Introduction (see Code 2).

Col. 3. Age

Record age group of household head. The respondent's age group may be determined by observation if it is readily apparent. Else, ask if his/her age is above or below age 35 or age 65, as appropriate. Do not ask for specific age in years (see Code 3).

Col. 4. Urbanization

Ask if the household head has lived in a city for more or less than one year. The intent of the question is to

identify persons that have recently moved from rural areas (see Code 4).

Col. 5. Household Age-Sex Composition

Seven age groups are provided for classifying individual household members. Go through each age group and ask the respondents how many members of the household belong in each group. After you get this number, ask the respondents for a further breakdown between males and females. Enter numbers in appropriate columns. Example: Ask the respondents "how many children aged 6 through 12 live in your household?" If the answer is 3, ask how many of them are boys; if there are 2 boys, enter "2" under Males 6-12 and "1" under Females 6-12. When there is no one in the particular age-sex group, enter 0. Include the head of household and spouse in appropriate age-sex groups. Enter the total number of household members in the column provided.

Col. 6. Profession, Occupation

Ask the respondents what they do to earn money or obtain their food. Then, code according to one of the categories provided in Code 6. Determine occupation on the basis of how they spend most of their time during the business day. Concentrate on work performed during the previous three months if they name several activities and select the primary occupation only.

Code 6.4 includes skilled labor of all kinds as well as common professional groups such as teachers, doctors and lawyers. All government workers should be classified in

code 6.5 (not recorded as clerks or professionals). Code 6.7 is to include all persons not working for pay; it includes persons that are unemployed, disabled, retired, homemaking, housewife, etc. Record both for household head and spouse.

Col. 7. Education

For head of household and spouse, enter the code for the grade level completed. For other members of the household, enter the number of people that have received various grade levels of education.

For only elementary school is there interest in knowing if a person completed that level of education. Other levels of education request only if a person attended that level. See Code 7 for grade levels.

Ask for level of education for individual persons at the time of asking for age group.

Col. 8. Ethnic Group HOH

Record by observation the tribal group or nationality of the respondent/household head if present and the group is apparent. If not, ask for appropriate group as listed in Code 8.

Col. 9. Notes

Dates must be recorded in this section for the date of the first attempt to collect information and for each of the first 5 attempted callbacks. Callbacks should be made at different times of the day each time you return. Make appointments to return if the respondent is too busy to talk

or the proper person is not available. Weekend or evening visits must be made if they can only be interviewed at that time. Children and elderly parents are not acceptable as respondents.

B. Consumption and Expenditures:

General Information

Each household will need at least two pages to record food expenditures by individual products (one product per line).

The household number used in part B will correspond to the number assigned in Part A. Record the city code and address of each household.

All food expenditure on consumption data provided in part B must be limited to food or nonfood items intended for personal consumption purposes. Purchases for resale or any business purpose, and rice purchased for seed must not be included.

Number of Meals Served to Guests

For the past 7 days (ending the night before the interview) record the total number of meals served to visitors or guests to the household (number of guests times meals per guest).

Number of Meals Eaten Away From Home

For the past 7 days, record the total number of meals eaten away from home by all members of the household (number of days times number of meals per day). Include meals eaten at work, at school, at the market or at restaurants, plus

meals eaten at the homes of friends, as meals eaten away from home.

Section 1. Rice

Section 1 relates only to purchases and consumption of rice. Three kinds of rice are of concern, as noted on the product Code Sheet (country, imported, and concession). Purchases of other food products are to be recorded in Section 2.

Col. 1. Product Code

Each rice product has a separate code number already listed in Section 1. Begin by asking: "do you normally eat or buy country rice?" If so, record all the information for that product, except for number of meals eaten yesterday. When finished, ask the same question for imported rice (pussava) and concession rice.

Col. 2. Frequency of Purchase

If the response to the first question is yes, ask how frequently country rice is purchased. Record the answer from the code sheet.

If you record 1 or 2, go to Section a (Cols. 3 to 7). If you record 3, go to Section b. Section b is used to record only the latest purchase when rice is used from a large quantity purchased more than 7 days earlier. On rare occasions, rice can be used both from daily purchase and from larger stocks purchased more than 7 days earlier. In this case Section a and Section b would both be filled in.

Col. 3. Unit of Measure

Unit of measure relates only to unit in which rice is purchased. See the code sheet for various units of measure.

Col. 4. Number of Units

Record the number of units actually purchased during the previous 7 days (ending the night before the interview).

Include spending by the entire household.

Col. 5. Total Spending

Record the total dollars actually spent for individual food items during the previous 7 days, by the entire household. Probe to be sure that spending by each member of the household is included. Include only spending for food use at home.

Col. 6. Other Sources of Rice

This question refers to three sources of rice: 1) rice produced for home consumption by the same household; 2) rice received as a gift from friends or family outside the household; and 3) rice received as partial payment for work performed for others. Record the value of food consumed during the past 7 days. Ask the respondent to estimate what the food from these various sources would cost if the rice were purchased in the local market. This information may need to be estimated by probing by the interviewer.

Col. 7. Number of Meals Yesterday

Record the number of meals of each type of rice that are actually eaten by the respondent during the previous day,

ending the night before the survey. Be sure to ask the question only of the respondent, not the total household.

Col. 8. Weight Per Unit

Record the weight in terms of whole number of pounds that reflect a whole or part of a bag.

Col. 9. Number of Units

Record the number of units that were purchased at one time. Refer only to the latest purchase for rice that was purchased more than 7 days earlier.

Col. 10. Total Spending

Record the total dollars of spending at the time of the latest purchase for rice.

Col. 11. Quantity Consumed During Past 7 Days

Record information on quantity of rice consumed during past 7 days, for purchases that were made more than 7 days earlier. Units will be defined as the usual measure used by the household, usually a cup or kenke. Weight per unit will be determined by scales carried by the enumerator after asking the respondent to bring him a portion of rice in the usual household container. Number of units used in the past 7 days will be requested directly.

Section 2. Foods Other Than Rice

Col. 1. Product Code

Each food or nonfood product is listed on the code sheet for Section B. Read each product from the list by asking

"Did you buy any cassava during the past 7 days, in the form of either tubers, dumboy or G.B?" If the response is yes, record the product code of 04 for cassava, on the first line of Section 2.

Col. 2. Total Spending Past 7 Days

Ask how much the household spent on each form of the products listed in Col. 1. Add the results together for all cassava before recording the total, for example. For foods not purchased during the past 7 days, omit them even if they were eaten. Food products coded 04 through 50 relate only to food intended for use at home. Food consumed away from home is coded 51 or 52 regardless of type of commodity. Food purchased for use in a cook shop would be omitted.

Col. 3. Other Sources

This question is similar to Col. 6 for rice. include the total amount of each food product obtained from home production, received as a gift from friends or family and received as partial pay for work performed for others. Record the value consumed during the past 7 days. Ask the respondent for the value in terms of w' at the product would cost if purchased in the local market.

Col. 4. Number of Meals Yesterday

Record the number of meals of each type of food eaten yesterday. Include foods that are components of a mixed pot of food, such as meat or fish included in the pot of rice. Be sure to probe for such components eaten with the rice or

part of a soup. Ask this question after recording the 7 days purchases of all foods. Number of meals yesterday relates to consumption of the respondent only, not the entire household.

Section 3. Nonfood Products

Col. 4. Total Spending Past 30 Days

For nonfood products, read the list of items from the code sheet asking for purchases of each item during the previous 30 days ending yesterday. Don't ask for usual purchases. For example, if no furniture was purchased during the previous 30 days, ignore that item. Probe for spending on items omitted and make a list of such products; record only the total. Such spending may include, for example, haircuts, national lottery, etc.

It may be necessary to aid the respondent in computing total spending for the previous 30 days. Things such as charcoal that may be purchased weekly or daily can be multiplied as needed and recorded on a monthly basis. Weekly data should be multiplied by 4.3 to translate it to an equivalent monthly total.

Purchases intended only for personal use are to be included. Omit items intended for resale or production purposes. Gasoline purchased for use in a taxicab, for example, would not be included.

Hand Editing ProceduresI. Generalities

1. Interviewer must go over each questionnaire on a daily basis, as soon as possible after each interview. Try to reconstruct the interview in your own memory and double check the answers recorded to be sure the data are entered in the proper columns and are entered in the proper units.
2. Check the form for legibility. Copy the information on clean forms if you think another person will have trouble reading the data.

II. Hand Editing Section A.

1. Make sure all cells are filled in
 - a) for the "household age - sex composition" enter "0" in a given age - sex category if no household member belongs in that category.
 - b) for the "education of other members" also enter "0" in a particular education level if no household member belongs in that category.
 - c) enter "9" in other cells when information is irrelevant or not available. Irrelevant information is that related to spouse in cases where the HOH is not married. Thus enter "9" in column "SPSE" under the headings "PROF. OCCUP" and "EDUCATION" if the HOH is not married. When information is relevant but not available, also enter "9" (or "99" for two-cell responses). Never enter "9" in any cell for "HOUSEHOLD AGE - SEX COMPOSITION" or "EDUCATION OF OTHER MEMBERS" unless that "9" effectively means that there are 9 people in the cell.
2. Checking for consistency.

Verify the household size in your own mind and check for consistency between the household size data recorded in the Introduction and the age - sex data on Section A.

III. Hand Editing Section B

1. Doublecheck all mathematical calculations made during the interview when your mind is on several things at one time and you are under pressure to keep the conversation moving.

2. Make sure that the data are entered in the proper columns and proper units.

3. Rice

a) for each type of rice consumed by the household, make sure that either part a. or part b. is filled out.

b) make sure that all relevant information is filled in. For example if country rice is purchased weekly and the column "TOTAL SPENDING" contains figures, make sure that the "unit" and "number of units" column are also filled out. Likewise if country rice is purchased monthly, make sure that all columns in part b. are filled out.

c) check for plausibility of the figures on rice consumption/ expenditure. Do you believe that the numbers recorded are plausible given the size of the household? A family of 6 is expected to spend not more than \$25 per week. If the combined expenditures on the various rice types exceed \$25 per week for a family of 6 people, the information is likely to be inaccurate. In such a case you should visit the household again to verify the information.

d) number of meals: this information refer exclusively to the respondent and therefore should not exceed 3 or 4. If you find a higher number in this column, you should check the validity of such number by visiting the household again.

4. Other Foods, Nonfoods

a) for each product code that is entered, make sure you have information on "total spending" or "other sources" and "number of meals", for foods. For nonfood each code entered must be followed by information on total spending.

b) fill in zeros where appropriate. For example if the household did not buy cassava during the past week but rather got some as gift, fill the "total spending" columns with zeros.

IV. Responsibility of Supervisor

It is the responsibility of the supervisor to make sure that the guidelines for hand editing are followed. He must go through the forms daily and make sure that they are legible and conform to the hand editing requirements. He must sign each form to verify that the report has been reviewed for completeness and consistency.

Sampling Procedure

by Al Potter

1. Divide the city into thirds (sixths in Monrovia) of approximately equal size; one for each interviewer.
 2. Enumerators will prepare a sketch showing all streets and major paths in their assigned sector. The purpose is to subdivide his assigned area into as many sub-areas of 10 or more structures as possible.
 3. Count the structures* in each sub-area.
 4. The Supervisor will combine any sub-area of 30 or less structures with other small sub-areas.
 5. List new "combined sub-areas" with correspondent structure count. Assign a cumulative range of numbers to each combined sub-area.
 6. Select one area at random for data collection by selecting a number from a table of random numbers to choose from the cumulative list.
 7. Each structure in the selected sample is given a number by enumerator.
 8. Thirty-seven structures are to be randomly drawn for enumeration from each sub-area. Extra numbers of structures in an area are to be eliminated by chance (random number selection).
- * Exclude structures under construction, those used by institutions like churches and schools, and others that obviously do not have people living in them. Apartment units that appear to be independent housing units are to be defined as separate "structures" even though they are physically connected.

Appendix F

Supervisor's Responsibilities

1. Meet the Superintendent of the County (except in Montserrado) and present copy of the letter signed by the Minister of Agriculture, informing him/her about the nature of your assignment in the County. Explain the purpose of the Survey.
2. For interviewers' assignment, divide the City into three (3) areas of approximately equal size. Assign each area to an interviewer for segmentation (divide into sub-areas using identifiable features) and structures counts under your supervision.
3. As each interviewer completes his segmentation and counting of structures in each of the sub-areas, receive the sketch and record the structures counts by sub-area on a sheet provided. Combine sub-areas of 36 structures or less and then accumulate. Randomly select one sub-area using random numbers table. Give the selected sub-area to the interviewer for structures listing (structures should be serially numbered and the names of households heads be recorded).
4. Receive the listing record from the interviewer when completed. Check for completeness and duplication. Check that the structures are correctly numbered as expected from 1 to N (N = number of the last structure count in the sub-area selected). Randomly select 37 structures from each sampled area (for Bassa, Bong, Lofa, and Nimba) and 46 structures (for Montserrado) with simple random sampling without replacement using random numbers table. Prepare a list of the sampled structures and give it to the interviewer for enumeration.
5. Closely supervise the interviewer and conduct on-the-spot checking. Make sure that the instruction for the survey and the guidelines for hand editing are followed. Go through the

Date Code Book

The clean survey data are stored on five floppy disks. The data for Monrovia are stored on two disk, the second being a continuation. The remaining urban areas are paired since the data of two at a time could fit on one disk. Thus, Buchanan and Gbarnga, Ganta and Sanniquellie. and Zorzor and Voinjama, are paired and stored on three separate disks.

The data record of each household spans twelve cards (lines). Each card contains variables whose position in the card is defined in the format attached. A total of 286 variables are defined for each household.

The format table is interpreted as follows:

- CA (Card) contains the card numbers.
- COL1 (Column 1) is the starting column of a data field.
- COL2 (Column 2) is the ending column of a data field.

For example, for the "CITY CODE" variable, data are recorded in columns 1 and 2 on card 1.

- FORMA (Format) gives the format of the data. For example, variables with an I2 format are integer variables spanning two columns. Variables with an F6.2 format are floating point (decimal) variables which span 6 columns and have a decimal point in column 4 and two digits after the decimal point. Likewise, an F7.2 variable spans 7 columns, has a decimal point in column 5, and two digits after the decimal point.

To read the data the format implied in the cable may be expressed as:

(I2, I4, 35I2, 49I1/6I2, 6F6.2, 3I2, 3F6.2, 3F5.1, 3F6.2/
15F7.2/15F7.2/15F7.2/15F7.2/15F7.2/17F6.2/17F6.2/15F6.2/
26F5.1/26F5.1),

where "/" tells the system to go to the next card.

DATA FORMAT

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Page 1

| VAR DEF | COL1 | COL2 | FORMA |
|---------------------------|------|------|-------|
| CITY CODE | 1 | 2 | 12 |
| HOUSEHOLD CODE | 3 | 6 | 14 |
| INTERVIEWER CODE | 7 | 8 | 12 |
| STRUCTURE SIZE | 9 | 10 | 12 |
| SEX OF HEAD OF HHLD | 11 | 12 | 12 |
| MARITAL STATUS OF HEAD | 13 | 14 | 12 |
| AGE OF HEAD OF HHLD | 15 | 16 | 12 |
| URBANIZATION OF HEAD HHLD | 17 | 18 | 12 |
| NUMBER MALE BABIES | 19 | 20 | 12 |
| MALE CHILDREN, 2-5 | 21 | 22 | 12 |
| MALE CHILDREN, 6-12 | 23 | 24 | 12 |
| MALE TEENS, 13-18 | 25 | 26 | 12 |
| ADULT MALES, 19-34 | 27 | 28 | 12 |
| ADULT MALES, 35-64 | 29 | 30 | 12 |
| ELDERLY MALES, 65+ | 31 | 32 | 12 |
| NUMBER FEMALE BABIES | 33 | 34 | 12 |
| FEMALE CHILDREN, 2-5 | 35 | 36 | 12 |
| FEMALE CHILDREN, 6-12 | 37 | 38 | 12 |
| FEMALE TEENS, 13-18 | 39 | 40 | 12 |
| ADULT FEMALES, 19-34 | 41 | 42 | 12 |
| ADULT FEMALES, 35-64 | 43 | 44 | 12 |
| ELDERLY FEMALES, 65+ | 45 | 46 | 12 |
| OCCUPATION OF HHLD HEAD | 47 | 48 | 12 |
| OCCUPATION OF SPOUSE | 49 | 50 | 12 |
| EDUCATION OF HHLD HEAD | 51 | 52 | 12 |
| EDUCATION OF SPOUSE | 53 | 54 | 12 |
| MEMBERS W/ NO FIMAL EDUC. | 55 | 56 | 12 |
| MEMBERS, ATTD ELEMENTARY | 57 | 58 | 12 |
| MEMBERS, COMPLTD ELEMENT. | 59 | 60 | 12 |
| MEMBERS, ATTD JR HIGH | 61 | 62 | 12 |
| MEMBERS, ATTD SR HIGH | 63 | 64 | 12 |
| MEMBERS, ATTD COLLEGE | 65 | 66 | 12 |
| ETHNIC GROUP OF HHLD HEAD | 67 | 68 | 12 |
| NUMBER MEALS AWAY HOME | 69 | 70 | 12 |
| NUMBER GUEST MEALS | 71 | 72 | 12 |
| MAKE FARM, RICE? | 73 | 74 | 12 |
| MAKE FARM, CASSAVA? | 75 | 76 | 12 |
| NO. TIMES EATEN CASSAVA | 77 | | 11 |
| NO. TIMES EATEN FUFU | 78 | | 11 |
| NO. TIMES EATEN FARINA | 79 | | 11 |
| NO. TIMES EATEN SWT POTAT | 80 | | 11 |
| NO. TIMES EATEN YAMS | 81 | | 11 |
| NO. TIMES EATEN EDDOES | 82 | | 11 |
| NO. TIMES EATEN IRISH POT | 83 | | 11 |
| NO. TIMES EATEN PLANTAIN | 84 | | 11 |
| NO. TIMES EATEN CORN MEAL | 85 | | 11 |
| NO. TIMES EATEN BEANS | 86 | | 11 |
| NO. TIMES EATEN NOODLES | 87 | | 11 |
| NO. TIMES EATEN BREAD | 88 | | 11 |
| NO. TIMES EATEN OTHR CER | 89 | | 11 |

DATA FORMAT

-08-86 AT 11:53 a.m.

Page 2

| VAR DEF | COL | COL | FORMA |
|-----------------------------------|-----|-----|-------|
| NO. TIMES EATEN BEEF | 90 | | I1 |
| NO. TIMES EATEN PORK | 91 | | I1 |
| NO. TIMES EATEN LAMB, GOAT | 92 | | I1 |
| NO. TIMES EATEN BUSH MEAT | 93 | | I1 |
| NO. TIMES EATEN POULTRY | 94 | | I1 |
| NO. TIMES EATEN FISH | 95 | | I1 |
| NO. TIMES EATEN EGGS | 96 | | I1 |
| NO. TIMES HAD MILK | 97 | | I1 |
| NO. TIMES EATEN PALM OIL | 98 | | I1 |
| NO. TIMES EATEN VEGET OIL | 99 | | I1 |
| NO. TIMES EATEN PEANUTS | 100 | | I1 |
| NO. TIMES EATEN ONIONS | 101 | | I1 |
| NO. TIMES EATEN PUMPKIN | 102 | | I1 |
| NO. TIMES EATEN BITTERBL. | 103 | | I1 |
| NO. TIMES EATEN CASS LEAF | 104 | | I1 |
| NO. TIMES EATEN POT GREEN | 105 | | I1 |
| NO. TIMES EATEN LETTUCE | 106 | | I1 |
| NO. TIMES EATEN OKRA | 107 | | I1 |
| NO. TIMES EATEN TOMATOES | 108 | | I1 |
| NO. TIMES EATEN CUCUMBERS | 109 | | I1 |
| NO. TIMES EATEN PEPPERS | 110 | | I1 |
| NO. TIMES EATEN ORANGES | 111 | | I1 |
| NO. TIMES EATN MAGGI CUBE | 112 | | I1 |
| NO. TIMES EATEN PAW-PAW | 113 | | I1 |
| NO. TIMES EATEN AVOCADO | 114 | | I1 |
| NO. TIMES EATEN BANANA | 115 | | I1 |
| NO. TIMES EATEN SUGAR | 116 | | I1 |
| NO. TIMES EATEN SALT | 117 | | I1 |
| NO. TIMES HAD COFFEE, TEA | 118 | | I1 |
| NO. TIMES HAD SOFT DRINKS | 119 | | I1 |
| NO. HAD CANE JUICE | 120 | | I1 |
| NO. TIMES HAD PALM WINE | 121 | | I1 |
| NO. TIMES HAD BEER | 122 | | I1 |
| NO. TIMES EATEN UTHR FOOD | 123 | | I1 |
| NO. TIMES EATEN IN RESTRT | 124 | | I1 |
| NO. TIMES EATEN AT WORK | 125 | | I1 |
| .Subtotals.. 86 records, CARD = 1 | | | |

| | | | |
|---------------------------|----|----|------|
| FREQ. PURCH, CTRY RICE | 1 | 2 | I2 |
| FREQ. OF PURCH, IMPT RICE | 3 | 4 | I2 |
| FREQ. OF PURCH, CONC RICE | 5 | 6 | I2 |
| WEEKLY UNIT, CTRY RICE | 7 | 8 | I2 |
| WEEKLY UNIT, IMPT RICE | 9 | 10 | I2 |
| WEEKLY UNIT, CONC RICE | 11 | 12 | I2 |
| WEEK SPENDING, CTRY RICE | 13 | 18 | F6.2 |
| WEEK SPENDING, IMPT RICE | 19 | 24 | F6.2 |
| WEEK SPENDING, CONC RICE | 25 | 30 | F6.2 |
| OTHER SOURCES, CTRY RICE | 31 | 36 | F6.2 |
| OTHER SOURCES, IMPT RICE | 37 | 42 | F6.2 |
| OTHER SOURCES, CONC RICE | 43 | 48 | F6.2 |

DATA FORMAT

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Page 3

| VAR DEF | COL | COL | FORMA |
|------------------------------------|-----|-----|-------|
| NO. TIMES EATEN CTRY RICE | 49 | 50 | I2 |
| NO. TIMES EATEN IMPT RICE | 51 | 52 | I2 |
| NO. TIMES EATEN CONC RICE | 53 | 54 | I2 |
| MONTH SPENDING, CTRY RICE | 55 | 60 | F6.2 |
| MONTH SPENDING, IMPT RICE | 61 | 66 | F6.2 |
| MONTH SPENDING, CONC RICE | 67 | 72 | F6.2 |
| PER BAG PRICE, CTRY RICE | 73 | 77 | F5.1 |
| PER BAG PRICE, IMPT RICE | 78 | 82 | F5.1 |
| PER BAG PRICE, CONC RICE | 83 | 87 | F5.1 |
| CONS FROM BAG, CTRY RICE | 88 | 93 | F6.2 |
| CONS FROM BAG, IMPT RICE | 94 | 99 | F6.2 |
| CONS FROM BAG, CONC RICE | 100 | 105 | F6.2 |
| ..Subtotals.. 24 records, CARD = 2 | | | |

| | | | |
|------------------------------------|----|-----|------|
| WEEK SPENDING, CASSAVA | 1 | 7 | F7.2 |
| WEEK SPENDING, FUFU | 8 | 14 | F7.2 |
| WEEK SPENDING, FARINA | 15 | 21 | F7.2 |
| WEEK SPENDING, SW POTATO | 22 | 28 | F7.2 |
| WEEK SPENDING, YAMS | 29 | 35 | F7.2 |
| WEEK SPENDING, EDDOES | 36 | 42 | F7.2 |
| WEEK SPENDING, IRISH POT | 43 | 49 | F7.2 |
| WEEK SPENDING, PLANTAIN | 50 | 56 | F7.2 |
| WEEK SPENDING, CORN MEAL | 57 | 63 | F7.2 |
| WEEK SPENDING, BEANS | 64 | 70 | F7.2 |
| WEEK SPENDING, NOODLES | 71 | 77 | F7.2 |
| WEEK SPENDING, WHT BREAD | 78 | 84 | F7.2 |
| WEEK SPENDING, OTH CEREAL | 85 | 91 | F7.2 |
| WEEK SPENDING, BEEF | 92 | 98 | F7.2 |
| WEEK SPENDING, PORK | 99 | 105 | F7.2 |
| ..Subtotals.. 15 records, CARD = 3 | | | |

| | | | |
|-----------------------------------|----|-----|------|
| WEEK SPENDING, LAMB, GOAT | 1 | 7 | F7.2 |
| WEEK SPENDING, BUSH MEAT | 8 | 14 | F7.2 |
| WEEK SPENDING, POULTRY | 15 | 21 | F7.2 |
| WEEK SPENDING, FISH | 22 | 28 | F7.2 |
| WEEK SPENDING, EGGS | 29 | 35 | F7.2 |
| WEEK SPENDING, MILK | 36 | 42 | F7.2 |
| WEEK SPENDING, PALM OIL | 43 | 49 | F7.2 |
| WEEK SPENDING, VEGET OIL | 50 | 56 | F7.2 |
| WEEK SPENDING, PEANUTS | 57 | 63 | F7.2 |
| WEEK SPENDING, ONIONS | 64 | 70 | F7.2 |
| WEEK SPENDING, PUMPKIN | 71 | 77 | F7.2 |
| WEEK SPENDING, BITTERBALL | 78 | 84 | F7.2 |
| WEEK SPENDING, CASS LEAVS | 85 | 91 | F7.2 |
| WEEK SPENDING, POT GREENS | 92 | 98 | F7.2 |
| WEEK SPENDING, LETTUCE | 99 | 105 | F7.2 |
| .Subtotals.. 15 records, CARD = 4 | | | |

| | | | |
|-------------------------|---|----|------|
| WEEK SPENDING, OKRA | 1 | 7 | F7.2 |
| WEEK SPENDING, TOMATOES | 8 | 14 | F7.2 |

DATA FORMAT

-08-86 AT 11:53 a.m.

Page 4

| VAR DEF | COL | COL | FORMA |
|------------------------------------|-----|-----|-------|
| WEEK SPENDING, CUCUMBERS | 15 | 21 | F7.2 |
| WEEK SPENDING, PEPPERS | 22 | 28 | F7.2 |
| WEEK SPENDING, ORANGES | 29 | 35 | F7.2 |
| WEEK SPENDING, MAGGI CUBE | 36 | 42 | F7.2 |
| WEEK SPENDING, FAW-FAW | 43 | 49 | F7.2 |
| WEEK SPENDING, AVOCADO | 50 | 56 | F7.2 |
| WEEK SPENDING, BANANA | 57 | 63 | F7.2 |
| WEEK SPENDING, SUGAR | 64 | 70 | F7.2 |
| WEEK SPENDING, SALT | 71 | 77 | F7.2 |
| WEEK SPENDING, COFFEE, TEA | 78 | 84 | F7.2 |
| WEEK SPENDING, SOFT DRINK | 85 | 91 | F7.2 |
| WEEK SPENDING, CANE JUICE | 92 | 98 | F7.2 |
| WEEK SPENDING, PALM WINE | 99 | 105 | F7.2 |
| ..Subtotals.. 15 records, CARD = 5 | | | |

| | | | |
|------------------------------------|----|-----|------|
| WEEK SPENDING, BEER, OTHR | 1 | 7 | F7.2 |
| WEEK SPENDING, OTH FOOD | 8 | 14 | F7.2 |
| WEEK SPEND, FOOD AWAY | 15 | 21 | F7.2 |
| WEEK SPEND, FOOD AT WORK | 22 | 28 | F7.2 |
| MONTH SPENDING, SOAP | 29 | 35 | F7.2 |
| MONTH SPENDING, GASOLINE | 36 | 42 | F7.2 |
| MONTH SPENDING, KEROSENE | 43 | 49 | F7.2 |
| MONTH SPENDING, WOOD | 50 | 56 | F7.2 |
| MONTH SPENDING, WATER | 57 | 63 | F7.2 |
| MONTH SPENDING, MEDICINES | 64 | 70 | F7.2 |
| MONTH SPENDING, TOBACCO | 71 | 77 | F7.2 |
| MONTH SPENDING, BATTERIES | 78 | 84 | F7.2 |
| MONTH RENT PAYMENT | 85 | 91 | F7.2 |
| RENT DUE BUT NOT PAID | 92 | 98 | F7.2 |
| MONTH ELECTRIC, PHONE BILL | 99 | 105 | F7.2 |
| ..Subtotals.. 15 records, CARD = 6 | | | |

| | | | |
|------------------------------------|----|-----|------|
| MONTH SPENDING, CHARCOAL | 1 | 7 | F7.2 |
| MONTH SPENDING, UTENSILS | 8 | 14 | F7.2 |
| MONTH SPENDING, FURNITURE | 15 | 21 | F7.2 |
| MONTH SPEND, MEN 'S CLOTH | 22 | 28 | F7.2 |
| MONTH SPEND, WOMEN CLOTH | 29 | 35 | F7.2 |
| MONTH SPEND, CHILD CLOTH | 36 | 42 | F7.2 |
| MONTH SPENDING, VEHICLES | 43 | 49 | F7.2 |
| MONTH SPEND, SCHL SUPPLIES | 50 | 56 | F7.2 |
| MONTH SPENDING, SCHL FEES | 57 | 63 | F7.2 |
| MONTHLY SOCIAL EXPENSES | 64 | 70 | F7.2 |
| MONTH CONTRIB TO CHURCH | 71 | 77 | F7.2 |
| LICENSE, TAX EXPENSES | 78 | 84 | F7.2 |
| INTEREST EXPENSES | 85 | 91 | F7.2 |
| BUS, TAXI FARE | 92 | 98 | F7.2 |
| OTHER NONFOOD SPENDING | 99 | 105 | F7.2 |
| ..Subtotals.. 15 records, CARD = 7 | | | |

| | | | |
|------------------------|---|---|------|
| OTHER SOURCES, CASSAVA | 1 | 6 | F6.2 |
|------------------------|---|---|------|

DATA FORMAT

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Page 5

| VAR DEF | COL | COL | FORMA |
|-----------------------------------|-----|-----|-------|
| OTHER SOURCES, FUFU | 7 | 12 | F6.2 |
| OTHER SOURCES, FARINA | 13 | 18 | F6.2 |
| OTHER SOURCES, SW POTATO | 19 | 24 | F6.2 |
| OTHER SOURCES, YAMS | 25 | 30 | F6.2 |
| OTHER SOURCES, EDDOES | 31 | 36 | F6.2 |
| OTHER SOURCES, IRISH POT | 37 | 42 | F6.2 |
| OTHER SOURCES, PLANTAIN | 43 | 48 | F6.2 |
| OTHER SOURCES, CORN MEAL | 49 | 54 | F6.2 |
| OTHER SOURCES, BEANS | 55 | 60 | F6.2 |
| OTHER SOURCES, NOODLES | 61 | 66 | F6.2 |
| OTHER SOURCES, WHT BREAD | 67 | 72 | F6.2 |
| OTHER SOURCES, OTH CEREAL | 73 | 78 | F6.2 |
| OTHER SOURCES, BEEF | 79 | 84 | F6.2 |
| OTHER SOURCES, PORK | 85 | 90 | F6.2 |
| OTHER SOURCES, LAMB, GOAT | 91 | 96 | F6.2 |
| OTHER SOURCES, BUSH MEAT | 97 | 102 | F6.2 |
| .Subtotals.. 17 records, CARD = 8 | | | |

| | | | |
|-----------------------------------|----|-----|------|
| OTHER SOURCES, POULTRY | 1 | 6 | F6.2 |
| OTHER SOURCES, FISH | 7 | 12 | F6.2 |
| OTHER SOURCES, EGGS | 13 | 18 | F6.2 |
| OTHER SOURCES, MILK | 19 | 24 | F6.2 |
| OTHER SOURCES, PALM OIL | 25 | 30 | F6.2 |
| OTHER SOURCES, VEGET OIL | 31 | 36 | F6.2 |
| OTHER SOURCES, PEANUTS | 37 | 42 | F6.2 |
| OTHER SOURCES, ONIONS | 43 | 48 | F6.2 |
| OTHER SOURCES, PUMPKIN | 49 | 54 | F6.2 |
| OTHER SOURCES, BITTERBALL | 55 | 60 | F6.2 |
| OTHER SRCE, CASSAVA LEAVS | 61 | 66 | F6.2 |
| OTHER SOURCES, POT GREENS | 67 | 72 | F6.2 |
| OTHER SOURCES, LETTUCE | 73 | 78 | F6.2 |
| OTHER SOURCES, OKRA | 79 | 84 | F6.2 |
| OTHER SOURCES, TOMATOES | 85 | 90 | F6.2 |
| OTHER SOURCES, CUCUMBERS | 91 | 96 | F6.2 |
| OTHER SOURCES, PEPPERS | 97 | 102 | F6.2 |
| .Subtotals.. 17 records, CARD = 9 | | | |

| | | | |
|---------------------------|----|----|------|
| OTHER SOURCES, ORANGES | 1 | 6 | F6.2 |
| OTHER SOURCES, MAGGI CUBE | 7 | 12 | F6.2 |
| OTHER SOURCES, PAW-PAW | 13 | 18 | F6.2 |
| OTHER SOURCES, AVOCADO | 19 | 24 | F6.2 |
| OTHER SOURCES, BANANA | 25 | 30 | F6.2 |
| OTHER SOURCES, SUGAR | 31 | 36 | F6.2 |
| OTHER SOURCES, SALT | 37 | 42 | F6.2 |
| OTH SOURCES, COFFEE, TEA | 43 | 48 | F6.2 |
| OTHER SOURCES, SOFT DRINK | 49 | 54 | F6.2 |
| OTHER SOURCES, CANE JUICE | 55 | 60 | F6.2 |
| OTHER SOURCES, PALM WINE | 61 | 66 | F6.2 |
| OTHER SOURCES, BEER, OTHR | 67 | 72 | F6.2 |
| OTHER SRCES, OTH FOOD | 78 | 84 | F6.2 |

DATA FORMAT

8-08-86 AT 11:53 a.m.

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OTHER SRCE, FOOD AWAY 85 90 F6.2
 OTH SRCE, FOOD AT WORK 91 96 F6.2

..Subtotals.. 15 records, CARD = 10

1 PER CUP PRICE, CTRY RICE 1 5 F5.1
 PER CUP PRICE, IMPT RICE 6 10 F5.1
 PER CUP PRICE, CONC RICE 11 15 F5.1
 MARKET PRICE, CASSAVA 16 20 F5.1
 MARKET PRICE, FUFU 21 25 F5.1
 MARKET PRICE, FARINA 26 30 F5.1
 MARKET PRICE, SW POTATO 31 35 F5.1
 MARKET PRICE, YAMS 36 40 F5.1
 MARKET PRICE, EDDOES 41 45 F5.1
 MARKET PRICE, IRISH POTAT 46 50 F5.1
 MARKET PRICE, PLANTAIN 51 55 F5.1
 MARKET PRICE, CORN MEAL 56 60 F5.1
 MARKET PRICE, BEANS 61 65 F5.1
 MARKET PRICE, NOODLES 66 70 F5.1
 MARKET PRICE, WHEAT BREAD 71 75 F5.1
 MARKET PRICE, OTH CEREAL 76 80 F5.1
 MARKET PRICE, BEEF 81 85 F5.1
 MARKET PRICE, PORK 86 90 F5.1
 MARKET PRICE, LAMB, GOAT 91 95 F5.1
 MARKET PRICE, BUSH MEAT 96 100 F5.1
 MARKET PRICE, POULTRY 101 105 F5.1
 MARKET PRICE, FISH 106 110 F5.1
 MARKET PRICE, EGGS 111 115 F5.1
 MARKET PRICE, MILK 116 120 F5.1
 MARKET PRICE, PALM OIL 121 125 F5.1
 MARKET PRICE, VEGET OIL 126 130 F5.1

..Subtotals.. 26 records, CARD = 11

2 MARKET PRICE, PEANUTS 1 5 F5.1
 MARKET PRICE, ONIONS 6 10 F5.1
 MARKET PRICE, PUMPKIN 11 15 F5.1
 MARKET PRICE, BITTERBALLS 16 20 F5.1
 MARKET PRICE, CASS LEAVES 21 25 F5.1
 MARKET PRICE, POT GREENS 26 30 F5.1
 MARKET PRICE, LETTUCE 31 35 F5.1
 MARKET PRICE, OKRA 36 40 F5.1
 MARKET PRICE, TOMATOES 41 45 F5.1
 MARKET PRICE, CUCUMBERS 46 50 F5.1
 MARKET PRICE, PEPPERS 51 55 F5.1
 MARKET PRICE, ORANGES 56 60 F5.1
 MARKET PRICE, MAGGI CUBES 61 65 F5.1
 MARKET PRICE, PAW-PAW 66 70 F5.1
 MARKET PRICE, AVOCADO 71 75 F5.1
 MARKET PRICE, BANANA 76 80 F5.1
 MARKET PRICE, SUGAR 81 85 F5.1
 MARKET PRICE, SALT 86 90 F5.1

DATA FORMAT

08-86 AT 11:53 a.m.

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| VAR DEF | COL | COL | FORMA |
|--------------------------|-----|-----|-------|
| MARKET PRICE, COFFEE | 91 | 95 | F5.1 |
| MARKET PRICE, SOFT DRINK | 96 | 100 | F5.1 |
| MARKET PRICE, CANE JUICE | 101 | 105 | F5.1 |
| MARKET PRICE, PALM WINE | 106 | 110 | F5.1 |
| MARKET PRICE, BEER | 111 | 115 | F5.1 |
| MARKET PRICE, OTH FOOD | 116 | 120 | F5.1 |

.Subtotals.. 24 records, CARD = 12

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nted 284 of the 284 records.

