

Preliminary Draft

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A PROPOSAL FOR
A QUARTERLY MULTIPURPOSE
HOUSEHOLD SAMPLE SURVEY IN PAKISTAN

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TABLE OF CONTENTS

PREFACE

SUMMARY OF RECOMMENDATIONS

- A. Scope of Work in Pakistan
- B. Summary of Recommendations
 - 1. Sample Design
 - 2. Questionnaire Content
 - 3. Design of Pilot Survey
- C. Possible Future Work.

APPENDICES

- I. Current Sample Design.
- II. Proposed Questionnaire Design
 - (A) Introduction
 - (B) Items Covered
 - (C) Questionnaire Format, including General Instructions
 - (D) Tabulation Outline
 - 1. Introduction
 - 2. Socio-Economic Measures and Cross-Tabulations
- III. Design of a Pilot Survey.
- IV. Summary of Activity in Pakistan
- V. Recommendations for Future Statistical Work.
- VI. Currently Used Labor Force Survey Questionnaire

P R E F A C E

This report is the result of work covering approximately four weeks: three weeks in Pakistan and a week in Washington. Since this proposal will be subject to some modifications as more extensive field tests indicate better options for collecting desired information, it is considered still tentative. Opinions expressed herein, including recommendations made, are of course the sole responsibility of the author. They are based on field observations and discussions with many persons. This assignment also involved the technical and administrative support of many individuals. In this regard, the author would like to express his deepest appreciation and gratitude, especially to the following persons for help and advice on this project:

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SUMMARY OF RECOMMENDATIONS

A. Scope of Work

As stated in AID/HEW PASA No. NESA (HD)27-75, dated May 27, 1975, the purpose of this temporary duty (TDY) assignment in Pakistan was to provide advice and assistance to personnel in the Government of Pakistan (GOP), Ministry of Finance, Planning and Development, (including its Statistics Division) in exploring the feasibility of and developing a multipurpose household sample survey to collect statistical data on employment, income and household activities needed for policy-making purposes. The product of this work was to include recommendations on sample design, a proposed multipurpose questionnaire format, and formulation of a pilot survey test to be conducted sometime in the latter part of 1975 by the Statistics Division, GOP.

B. Summary of Recommendations:

1. Sample Design

Review of the sample design indicates that the currently utilized design should not be revised at this time. The suggestion by Mr. N. Sheikh of the Statistical Division for extending the sample coverage to include group quarters such as hotels and hostels may be worth considering in the future. This proposal assumes that the listing and enumeration procedures

can be worked out without too much expense and difficulty, e.g., utilization of Census listings. This needs to be carefully reviewed. Presumably, persons living in such quarters would be in the higher income categories but it appears that higher work priorities exist. Discussions with the Statistical Division Sampling Section personnel revealed that the present scheme appears to be generally satisfactory (see summary in Appendix I). They also reported that a rotational scheme for reinterviewing sample households is being worked on. When this is implemented, it should materially improve the efficiency of the present survey design in providing longitudinal information. As experience is gained in implementing the proposed multipurpose sample survey, it may then be more appropriate to make future improvements in the sample design. As resources permit, it would also be useful to determine the extent of frame bias emanating from the underenumeration of migratory households living in temporary tent camps located in urban and rural areas.

2. Questionnaire Content

As discussed in some detail in Appendix II, the proposed multipurpose questionnaire format is divided essentially into 5 parts:

- (a) Identification of the sample household

(b) Sample household composition including selected socio-economic characteristics of household members.

(c) Economic status of household members including probing questions on usual work activities of farm workers.

(d) Housing characteristics, amenities and income.

(e) Supplementary questions asking information on household activities needed for human resource development, e.g., migration, expenditure patterns, illness, disability, education, etc.

A primary objective for recommending additional questionnaire items on usual economic status for agricultural workers (and unpaid family workers, and others as necessary) is the need to examine in more detail the shift in work/non work activity (and underreporting of hours worked) of agricultural unpaid family workers, especially during seasonal periods. For this analysis, probing questions are asked to those classifying themselves in the reference period survey as farm workers. Questions cover their economic status during busy and slack seasons, including their desire for more work during these seasonal periods.

Also, further analysis is made of the extent of under-utilization of work capacity of those employed. This analysis is made by asking questions on whether or not

- 4 -

respondents perceive themselves as available for more work in terms of number of hours and available skills.

Another area of analysis covers the open unemployed. Although the rate of open unemployment in Pakistan as in other developing countries is relatively low - approximately 2 percent of the labor force (10 years and above) as computed from the 1971-72 survey findings, it appears that about half cover those with some education. Hence, it is important to probe for more information on the background and work-seeking activity among these persons.

A major recommendation is to initiate collecting, on a regular basis in the proposed multipurpose survey, income (and selected expenditures) data, notwithstanding the fact that there are serious response problems associated with these types of questions. The beginning of this endeavor, of course, should be minimal, but as more experience is obtained and better techniques are formulated in future research studies, the collection of these and other important measures of levels of living should improve and consequently expanded.

Finally, the addition of questions to compile information on housing characteristics, household amenities and household activity related to human resource development should materially add to the current stock of statistical information needed for planning and policy-making purpose. Although the proposed multi-purpose

10

questionnaire content includes more questions than the number of questions currently used in the ongoing quarterly labor force questionnaire, preliminary field tests indicate that the proposed multipurpose questionnaire is operationally feasible, probably requiring about 30-45 minutes to complete per interview depending on the type of respondent and on the enumerator's experience.

3. Design of a Test Survey

As explained further in Appendix III, the field test survey for the proposed multipurpose sample household questionnaire should be conducted with a sample of about 1,000 to 1,500 households (depending on budgetary constraints) selected from three areas: urban, mixed urban-rural, and rural. This selection will allow a better shakedown of the effectiveness of the proposed questionnaire in obtaining the desired information, and to determine the comparability between labor force information collected using the proposed questions with that previously collected. In this regard, the test should simultaneously use three sets of questionnaires, the first being the multipurpose questionnaire with the migration supplement (since the current labor force questionnaire has migration questions), the second being the multipurpose questionnaire without the probing questions, and the third being the regular labor force questionnaire

which is utilized in the quarterly labor force survey. This inclusion will allow comparisons between and among data obtained by using the regular labor force survey questionnaire and the multipurpose survey questionnaire. This test should provide information on survey operational problems and differences in primary data compiled from the use of the proposed multipurpose questionnaire.

C. Possible Future Work

First, it is considered very important in the implementation of the multipurpose sample household survey that both the users and the producers understand the rationale for the questions included in the proposed questionnaire. It is crucial that better communication be established between users and suppliers of statistical information for policy-making. Hence, it would be highly useful indeed if a statistical interagency committee (which may already have been established) be formed (or reactivated) to meet regularly to review and comment on mutual problems involved in the use and the production of desired statistical data. In order to provide some frame of reference for future exchange of ideas, the introductory discussion on tabulation plans (Section D of Appendix II) was

deliberately lengthened in the report.

Second, statistical methodological research projects covering at least three topics should be initiated and implemented by the Statistics Division. These three topics include: 1) time analysis of daily activities of women members in households to determine the amount of time spent in unpaid family work during a particular reference period. Work activity rates obtained from these studies can then be applied as correction factors to adjust overall data on the female labor force participation rate which is believed to be understated. 2) Analysis of questionnaire methods to collect more adequately, information on household income and expenditures, and 3) development of new household survey methods to compile statistical data and formulate social indicators for low income households, e.g., those with 300 Rs./month or less.

Thirdly, it would be very helpful if a two-day technical meeting be held which would include specialists from different research groups in Pakistan which are currently developing or implementing survey methods in collecting socio-economic information for different types of studies, e.g., the study on socio-economic behavior of slum dwellers in Karachi being conducted by the Institute of Business Administration and Commerce, Karachi.

Finally, it would be indeed highly productive if a statistical computer programmer could spend about a month assisting the Statistics Division in developing additional cross-tabulations from the results of the labor force survey including more information on characteristics of household heads as differentiated from household members. The consultant would also investigate the feasibility matching sample households included in the Labor Force Survey with those included in the 1971-72 Family Income and Expenditures Survey. Furthermore, he could assist in formulating computer programs to calculate and publish standard errors directly from the results of the survey as it is being done by the U.S. Census Bureau.

APPENDIX I

**CURRENT SAMPLE DESIGN OF ONGOING LABOR FORCE
SURVEY AND FUTURE PLANS.**

A. REFERENCES

- (1) Sample Design for Quarterly Survey of Current Economic Conditions, 1966, for Rural Areas of West Pakistan (Internal Statistics Division Documentation).
- (2) Sample Design of Quarterly Survey of Current Economic Condition for Urban Areas in West Pakistan (Internal Statistics Division Documentation).
- (3) Sample Design for Labor Force Survey, 1974-1975. (Internal Statistics Division Documentation).
- (4) Labor Force Survey, 1971-1972, Publication, Statistics Division.

B. SCOPE AND COVERAGE

The sample design, divided into urban and rural areas, covers all of Pakistan except tribal agencies and special areas of Peshawar and D.I. Khan Division. Also excluded were institutional and group quarters such as jails, hospital, hotels, boarding houses, etc. Certain population groups, e.g., beggars, were also excluded from the survey.

The current sample size for the quarterly labor force survey is about 36,000 households per year or about 9,000 units per quarter. However, because of non-responses and non-available dwelling units, the sample size averages less than 9,000

household units per quarter. Urban areas include municipalities, towns, etc., and contiguous areas of homes inhabited by at least 5,000 persons which the province director considered as urban areas. In making these decisions, availability of such urban facilities as common utilities, roads, sanitation, schools etc., were considered. Areas not defined as urban areas were designated rural areas.

C. SAMPLE DESIGN

1. The sampling frame for urban areas consist of enumeration blocks demarcated in the Mapping and Quick Count Survey conducted by the Statistics Division. Initially, cities and towns in each province were stratified into 5 population size classes (over 100,000 population; between 75,000 and 99,999; between 50,000 to 74,999; between 25,000 to 49,000 and less than 25,000). All cities/towns with 100,000 and over populated were treated as self representing areas. These cities and towns were grouped in strata. In each stratum, enumeration blocks (consisting of about 200-250 households) were delineated using Union Committee areas for classification purposes only. The number of blocks in each stratum were cumulatively added to derive a total. The number of sample units to be selected from each stratum was determined proportionately to the size of the population in each stratum. This number was slightly adjusted by considering the variability in the general characteristics of enumeration blocks and field interview costs. Using equal probability methods, sample blocks

Page 1 - 2

were selected from each stratum. It was assumed that all of the enumeration blocks were about equal in size. After the sample enumeration blocks were selected from each stratum, all households within these sample blocks were listed by the enumerator. Using a random start and using fixed sampling intervals, enumerators selected ultimate sample households systematically within the sample enumeration blocks.

2. The sampling frame for rural areas consists of all households in selected villages. Initially, all villages in provinces and administrative districts were classified by population size. Using probability proportionate to size of village population in administrative districts, sample villages were selected from administrative districts. The village sample size within different administrative districts was determined considering the variability in the characteristics of villages and the costs of interviewing within administrative districts. After a sample village was selected for the survey, the enumerator listed all households located in the particular sample village. Using a random start with fixed interval, rural sample households were selected systematically by the enumerator for inclusion in the survey.

D. FUTURE PLANS

Discussions revealed that the Sampling Section of the Statistics Division is already planning a rotational sample scheme to be implemented in the near future. Thus, at some future point in

APP I - 4 -

time, it may be possible to have a sample design such that some proportion of sample households selected in a particular quarter could be resampled a year later. This type of rotational scheme should provide valuable information in analyzing annual changes in selected characteristic which have occurred for sample households previously enumerated.

B

App.I - 4 -

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APPENDIX II - PROPOSED QUESTIONNAIRE DESIGN

A. INTRODUCTION

There were several important issues considered in developing this proposal. The most important consideration covered recommendations made by Planning Commission analysts that the current time series on labor force information be left intact since these data are used to make extrapolations needed for planning purposes. The writer concurs with this recommendation (regardless of the known deficiency of the current time series data which are compiled using the labor force approach) because one could assume that the current data on labor force activity are consistent and usable for making rough extrapolations with adjustments for under-reporting and misclassifications, as necessary. The second consideration involved the need for expanding and improving the conceptual and statistical base upon which work/non-work statistical data are collected. Thus, it is hypothesized that the labor force participation rate is underreported especially among female unpaid family workers but the extent and relative importance of this under-reporting is unknown. The proposed questionnaire introduces probing questions which attempt to obtain more details regarding these types of workers who shift from one activity to another on a regular basis during the survey reference week.

The third consideration is the writer's judgement based on discussions with Statistical, and Planning Division personnel that the use of a comprehensive multipurpose sample household survey should result in more useful, consistent and meaningful data for policy-making purposes. Moreover, its use should reduce overhead costs of obtaining more integrated information on household activity. In view of these considerations, the proposed questionnaire was designed as follows:

1. The questionnaire will be divided into five parts:
 - (a) household identification, (b) household composition, (c) economic status including, among others, questions on employment, underemployment, unemployment, and income with slight modifications of some of the questions currently asked in the ongoing quarterly labor force survey. This part also includes additional probing questions for population groups with variable types of work activities during the survey reference period, (d) housing characteristics, household amenities, and income, and (e) supplemental questionnaires asking for information on household activities needed for policy making and planning on human resource development.
2. As required, special sub-samples of households could be selected from time to time from the multipurpose survey master sample frame so that more detailed

information covering special topics, e.g., community facilities, other than those mentioned above, could be collected.

5. The emphasis should be made on collecting data measuring economic flows, with secondary interest in stock measures. Thus, although the female labor force participation rate may be understated, the economic value of work (or value added) performed by these groups during the reference period may not be significant as compared with others. This valuation depends on many factors.

It is also understood by the writer that this proposal, among others, will be reviewed by technical committees consisting of members from Statistics, Manpower, and Planning Divisions, after which they will decide on the questionnaire format which will be used for the test survey to be implemented sometime in the latter part of 1975. This review procedure should result in a better and more applicable questionnaire.

B. ITEMS COVERED IN THE PROPOSED QUESTIONNAIRE (5 PARTS)

1. Identification of the Sample Household (Part I)

Based upon discussions with field staff of the Statistics Division, data are usually collected in the ongoing quarterly labor force survey during the first 6 weeks of each quarter. Under these circumstances, it should be useful to include in Part I, the date

of interview. This information, once coded and stored in the computer files, could be eventually tabulated on a small sample basis to ascertain whether or not there is any bias which systematically excludes certain types of seasonal farm activity found within different sample areas during certain months of the year. In addition, recommendations have been made by Mr. Sheikh that the line number of household member or name of person who is the respondent be identified somewhere in the heading of Part I so that future analysis of type of respondent could be made. Studies in other countries have indicated that responses vary widely depending on who responds in the personal interview. Hence, later, it may be useful to compare data by type of respondent to determine differences found, if any, in the response provided either by the household head or by the village headman. Other than these recommendations, the proposed identification part could be the same as that currently used in the regular labor force survey.

2. Household Composition including Selected Socio-Economic Characteristic of Household Members

The household composition part should essentially consist of the basic items currently used in the labor force survey. All items should be pre-coded

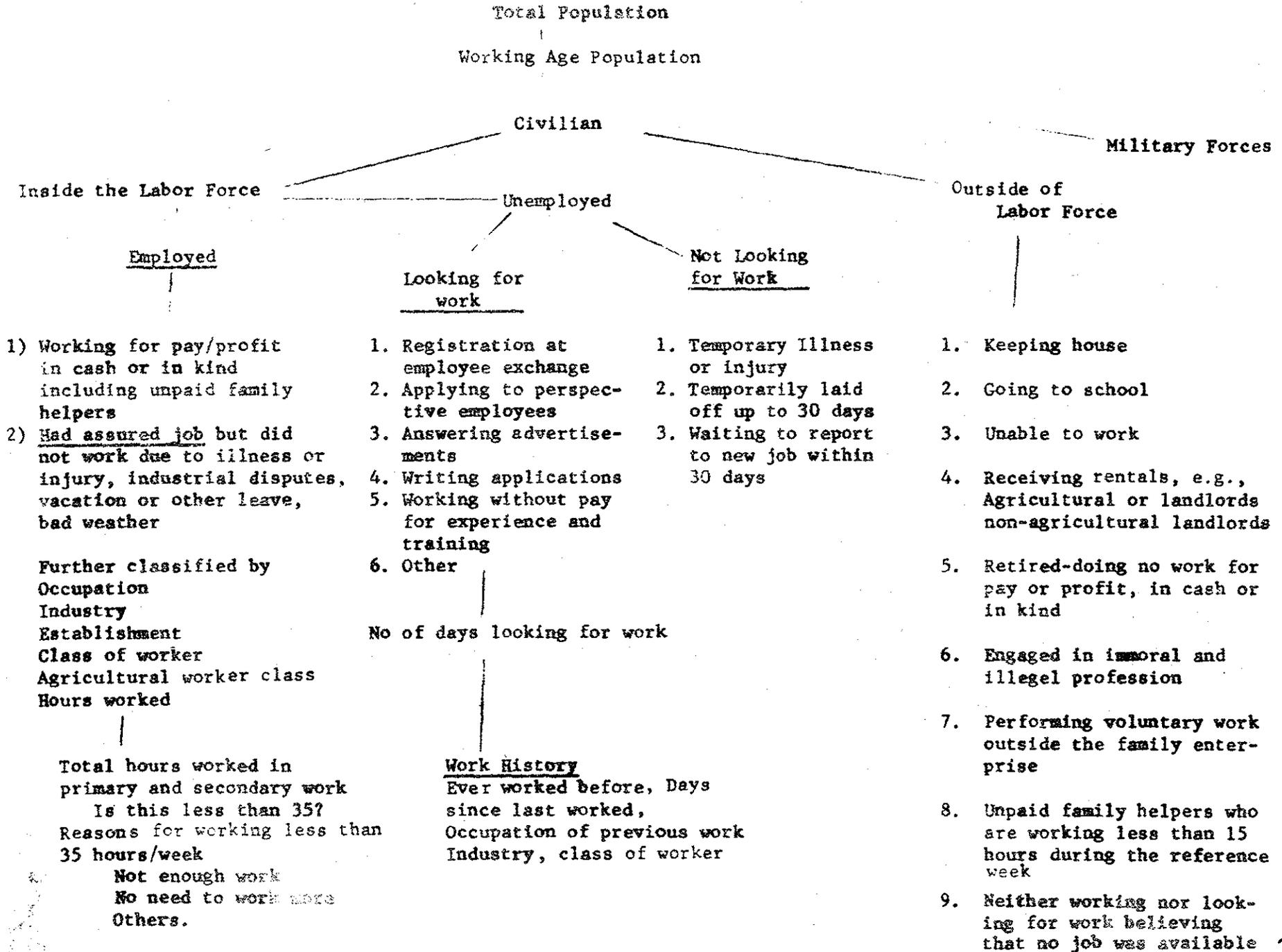
on the questionnaire since this would save time of interviewers who will then only code numbers on the questionnaire in the interview, instead of writing in detail, e.g., household relationships. Currently, this part as used in the ongoing labor force survey includes seven items such as name of household members, whether present or temporarily absent from residence, age, sex, marital status, household relationship and the highest school grade attained for each member 5 years of age and above. It may be useful to add a column to ask whether or not household members migrate from one place to another to work on a regular basis. Also identification of members on extended absence from his residence could be analysed further. However, these two items could be included in the migration special supplement questionnaire and hence may not be required for inclusion in the survey every quarter.

3. Economic Status of Household Members including Use of Probing Questions on Farm Workers, Unpaid family Workers, and the Unemployed.

This part has been extended in the proposed multipurpose questionnaire design. It is used to collect basic statistical information on work/non-work and income status for all household members 10 years of age and above. The proposed structure of questions follows essentially that used in the on-going quarterly labor

force survey. The general structure
for both the present and proposed questionnaire
designs is as follows:

Present Structure:



19-64

Total Population
Working Age Population

Civilian

Military Forces

Inside Labor Force

Employed

- 1) Working for pay/profit
incl. unpaid family
helpers 15 hrs.
- 2) Not working but had
assured job

Further classified by (primary
Occupation and secondary)
Industry
Establishment
Class of worker
Agricultural worker class
Hours worked, etc.

For Agricultural Workers (probing questions used)

Usual work, seasonality
crop, cultivated area,
whether want work, days,
type, net income, etc.

Others workers as needed

Additional details on
underutilization

Unemployed

Actively seeking
Methods of finding
Additional details
on aspirations, etc.
work/history

Outside of
Labor Force

Housewives
Students
Disabled
Retired, etc.

Additional details
to identify dis-
couraged workers
work/history

The proposed questionnaire also includes additional probing questions which attempt to analyse in depth the following problem areas:

a. Further Analysis of Unpaid Family Workers:

As recommended by Mr. Sheikh of the Statistics Division the numbers of hours worked by unpaid family workers (or helpers) needs to be broken out further since it is believed that the number of hours is significantly under-reported due to many reasons, two being respondent bias, and the purdah system. According to current information reported in Statistical Division publications and the ILO Year Book of Labor Statistics, Pakistan has one of the lowest female labor force participation rates in the World (about 9 percent). India had a rate of about 28 percent while the United States had 25 percent. The percentage of female unpaid family helpers to the economically active population was 20 percent in Pakistan as compared with 29 percent for the United Arab Republic. The overall rate (for both sexes) was 0.5 percent in Pakistan as compared with 19 percent for United Arab Republic. According to table 17 (pg. 20) the 1971-72 Labor Force Survey publication, among persons 10 years of age and above who were not in the labor force, about 0.1 percent were unpaid family helpers who worked less than 15

hours during the reference week. Seventy five percent reported they were keeping house. However, table 16 (pg. 19) indicates that among unpaid family helpers who reported working as unpaid family helpers for less than 15 hours during the survey week, 72 percent had worked between 10-14 hours during the week. Figures show 56 percent for rural areas and 94 percent for urban areas. Mr. Sheikh appropriately points out that many unpaid family workers who are currently classified as being not in the labor force should be designated as being in the labor force since he believes that the number of "working" hours reported by the household head are under-reported. This writer suspects that this "bunching" phenomena indicates some bias in the reporting of hours by this group and that Mr. Sheikh's hypothesis is a plausible one. However, it also means that the concept of "housekeeping" to the household head may be such that it includes both work and non-work activities. The overall labor force participation rate is also considered underestimated. Although not strictly comparable, India's labor force participation rate is about 43 percent relative to Pakistan's 33 percent.

Mr. Sheikh also appropriately notes in his draft Technical Paper that one of the main work needed now

in reviewing the labor force questionnaire is to develop better ways to reduce the misclassification of housewives and students who had actually worked more than 15 hours of a week as unpaid family helpers, especially in the rural areas. According to table 17 of the 1971-72 Labor Force Survey Report, about 79 percent of all female persons in rural areas were reported to be "keeping house" and about 12 percent of male persons in the rural areas were reported "going to school". It is evident that probing questions will have to be added to help identify and resolve this classification problem; more important, some idea of their "imputed" economic importance will have to be obtained with respect to their output.

As pointed out by many writers (e.g., Myrdal, Turnham, Oshima, etc.) this problem on analyzing more carefully the time (and value) expended in labor force activity is a difficult one because of the mix of the modern and traditional sectors typically found in developing countries. It must be investigated, however, since these are important groups in these countries. One of the difficulties encountered in Pakistan (and other such developing countries) is that the respondent is typically the male household head who provides answers as he considers them to be

culturally appropriate. The term "housework" and "work" are difficult to identify clearly.

Moreover, even if he does not know the actual situation regarding individual members of his household, the household head typically does not consult with them in responding. Thus in a field test in the rural Sattal village in Rawalpindi, we were attempting to clarify the numbers of hours worked by unpaid family workers of a household and it was not an easy task. If we are to obtain adequate information on this subject, more research will have to be done using time activity analysis. (see Appendix V). This problem has obvious policy-making implications since the unpaid family worker group represents a relatively large population which goes in and out of the work market, depending on how the respondent perceives business conditions and employment opportunities.

In view of its importance, few questions have been proposed in the questionnaire to identify discouraged workers among those not working and not seeking work.

b. Further Analysis of the Employed:

(1) Another area of further analysis is to disaggregate the mix between principal and secondary work performed by those working. The distinction between principal and

secondary work is based on the number of hours worked during the week. According to data presented in table 15 (page 15) of the 1971-72 Labor Force Survey Report, about 58 percent of employed persons had worked more than 25 hours in subsidiary occupations. In view of this relative high rate (typical in developing countries) of secondary occupation among workers, it is recommended that questionnaire space be given to record secondary activities of persons who were employed during the reference week.

(2) Another important problem found in developing countries is the under-utilization of "capacity" among persons employed. There are several dimensions of "capacity" involved, e.g., under-utilization of time available, of maximum skill/experience available and of potential earnings. (In this regard, Professor Philip M. Hauser has been developing various studies on this subject)

In estimating his/her under-utilization rate, the individual subjectively formulates a satisficing production boundary with respect to his available time and skill, and his perceived potential and actual earnings and roughly compares what actually is with what is probably feasible. Hence, it is primarily a subjective probabilistic exercise determined by what he/she estimates can be done during a short range of time span. The relative size of the individual's feasible production

boundary depends upon his/her background, training, experience, social contacts, peer groups, previous accomplishments, current resources, frustrations, etc., translated into a rough idea of what the individual feel he/she can possibly attain, given the current circumstances. The proposed questionnaire includes some subjective questions. There is also an attempt to differentiate wishes from "real" needs in asking questions indicating some measure of the intensity of need.

In a field test covering a rural household in Rawalpindi, the elderly farm worker (household head) appeared to have been satisfied with his current work status presumably because of having enough food intake from his subsistence farming work and especially in receiving cash remittances from his two sons working in the city. However, in contrast, it was rather clear in a urban household in Lahore that the respondent who had graduated from college and who was out of work for about three years had definite ideas on what he would like to do in finding work. His reservation price was about 700-800 Rs/month. His first preference was clerical work possibly in a bank but he said he would be willing to do any kind of work if it paid adequately. Although the current labor force questionnaire includes a question which can be used to measure roughly the rate

of time under-utilization among those working part-time, the currently used questionnaire does not cover the full-time under-utilized worker.

In table 11 (page 18) of the 1971-72 Labor Force Survey Report, data show that 23 percent of those who had worked less than 35 hours of work (a part-time designation) in all areas had stated "not enough work" as the reason for part-time employment. In urban areas, the same rate was 42 percent. This was in response to the question: "What was the reason he/she worked less than 35 hours during the last week." Although the basic intent of this question appears to be different, one could surmise from the data that a good portion of these part-time workers or visibly underemployed felt that they can do more work, that is, if given the opportunity.

A number of questions have been added in the proposed questionnaire for further analysis of this problem.

Thus, in the question "Would he/she be willing to work more hours regular at the same pay in his/her principal line of work was to be asked to all workers, regardless whether they worked full-time or part-time, "Yes and No" responses will be analysed with other primary statistical data to derive a measure of time under-utilization of workers. Furthermore, for farm workers, questions are asked as follows:

Does he/she have enough work to keep busy regularly throughout the year? If no, does he/she want or will accept extra work for pay or profit during the slack periods? If yes, what kind of work does he/she can do if offered.

Responses to these questions, supplemented by other primary data on age, sex, educational level and current economic status could be used to identify groups classified by different degrees of time and skill under-utilization.

c. Further Analysis of the Unemployed

Another important element of policy-making is concerned with identifying and assisting the open unemployed, especially among those who have completed some schooling and who have relatively negligible work experience. Thus, table 18 (page 20) of the 1971-72 Labor Force Survey Report shows that about 20 percent of all unemployed persons in urban areas had at least passed the matriculation examination (equivalent to high school graduates.) Overall, about 60 percent of the unemployed had not attended any educational institution. Moreover, about half of the open unemployed were new entrants into the job market with no previous work experience. About 90 percent were looking for work for more than 60 days or two months and about 7 percent were looking for work for more than a year's time. This problem regarding the need for more information on the open unemployed, especially among the

better educated, has policy-making implications.

It may be useful to note that in a 1969 report prepared by Dr. Jozefowicz, he concludes that "the educated manpower runs a greater risk of remaining unemployed to the residual manpower." He reports "that 75 percent of job negotiations in West Pakistan failed due to employers rejection of the candidate as unsuitable. Offers not accepted by the candidates due to inadequate salary and other reasons amounted to 25 percent in West Pakistan" (See pg. 181 of Human Resource Planning, Development and Utilization, edited by Zuleka Zar, National Manpower Council, Labor and Social Welfare Division, Government of Pakistan, Karachi, 1971. Hence, although some of the more detailed questions (designated by *) may not be required to be asked every quarter (possibly twice a year at the most) more questions on the open unemployed have been added as follows:

Did this person who did not work and did not have an assured job last week:

Actively looking for work?

Not looking actively for work.

What steps have he/she taken to actively obtain work?

Register at Employment Exchange

Placing or answering advertisements

Contacting perspective employers, who may be

able to help secure a job

Writing letters of applications

Participating in competitions

Others (specify)

For how many days have he/she actively looking
for work?

Is he/she looking for full-time or part-time work? *

What kind of preferred work is he/she looking for?*

Will he/she accept any other work, if unable to get
preferred work? *

If want work or accept work if offered, what is the
lowest monthly pay he/she expects? *

If he/she gets work outside of his/her home areas,
would he/she accepts it? *

If Yes, did he/she try to find work in some other
place other than his/her home area? *

4. Housing Characteristics, Household Amenities and Income

This discussion covers income first, expenditures next,
household amenities and then housing characteristics last,
ranked by their difficulties in collecting good data.

(Their order in the questionnaire is reversed.)

In view of the need for income, expenditures (and
savings) data for policy-oriented studies constrained
by very difficult operational problems encountered in
collecting this type of information, a compromise

was reached in the proposed questionnaire

format as follows:

(a) Wage and salary data (both in cash and in kind) will be collected from those who reported themselves as employees. Information will be collected from all employees in the household on their monthly earnings received from all wage/salary work. A question will also be asked whether they worked at the principal job during the last 12 months. For those who reported that they had the same principal work during the past 12 months, they will be requested to provide information on bonus payments received during the past 12 months. This information will be added to their estimated annual wage/salary earnings (derived by multiplying monthly earnings by 12) to obtain annual income received by employees who had worked at the same work during the past 12 months. Household annual income will be derived by adding annual amounts reported for employees in the household.

(b) Moreover, for those reporting themselves as doing farm work, questions will be asked as to estimate their net income received from farm and non-farm work, separately. Also asked will be questions on income in kind received. Obviously, these estimates will be very rough.

(c) These two sets of data will then be summarized in the space provided in Part IV of the questionnaire. This summarization would provide rough annual income levels for:

- (1) "Pure" employee households in which the household head had worked at the same job during the past 12 months.
- (2) "Pure" farm households in which income from only farm work was received.
- (3) Mixed farm and employee households in which both farm and non-farm income were received during the past 12 months.

Excluded from this groupings are "pure" non-farm self-employed and others with income from rentals, interests and other sources of capital income.

This general approach will be later modified as the pilot study and further research indicate better ways to collect more comprehensively and directly, information needed to obtain data on total household incomes received.

- (d) With respect to collecting household expenditures estimates, the proposed questionnaire format does not contain any questions on household expenditures except for a question on the proportion of

monthly income spent for food. Later, as experience is gained on the use of this multipurpose survey, expenditure (and income) items could be included as supplementary questions. However, it is recommended that regressions from past surveys be formulated relating expenditures with (1) housing characteristics, (2) ownership of amenities, (3) income estimates (excluding pure non-farm self employed), and (4) the Engel coefficient, by different socio-economic grouping, e.g., education, occupation and hours of work categories. These regressions should be used to provide the "first cut" estimates of expenditures. These data should be further refined by using more detailed regressions which relate summary data against more detailed information using these methods. Detailed income and expenditure data could be collected every five years instead of every year. Sample field tests should be conducted to test information derived by the use of this regression technique against actual amounts collected in field surveys. The items listed under housing amenities are highly correlated with income levels

should be also highly useful in formulating socio-economic categories. Likewise for housing characteristics. The use of this information will be discussed in more detail in later section.

5. Supplementary Questions on Household Activity for Human Resource Developmental Planning

Obviously, the term "multipurpose" involves viewing the household as an integrated production and consumption socio-economic unit. In the same way that the business enterprise makes decision on allocation of scarce resources, household members also make tradeoffs regarding the allocation of scarce resources, including income, expenditures, savings, time, energy, etc., whether explicitly or implicitly. Obviously it is important that data collected in household surveys be comprehensive and interrelated. Also, in view of the overhead costs involved in conducting household surveys, it is important that primary statistical information must be collected efficiently. In view of these requirements, the logical step would be to initiate multipurpose sample surveys whereby key information on human and social capital formation can be collected economically. Of course, the questionnaire cannot be overloaded. Hence, during the first few years, supplementary questions should be limited to a maximum of ten

questions. Also, the use of follow-on survey for special target population should be expanded (with linkage devices to relate same households covered in different surveys) and experimented to improve on this alternative technique.

Topics covered in this supplementary part could include such policy-oriented issues as the status of health, nutrition, education, migration, training, etc. Top priority should be given to devise better data collecting instruments to obtain integrated information on household activities.

42

C. THE QUESTIONNAIRE FORMAT INCLUDING GENERAL INSTRUCTIONS

This section will cover primarily Parts III (economic status), IV (housing, etc) and V (supplementary).

Parts I and II will essentially be the same as those currently used in the ongoing Labor Force Survey.

(1) The format of the Core Section, including

follow-up or probing questions on agricultural

workers. (Part III). The questionnaire format

in this part consists of two sections: (a) the

recurring questions in the CORE (or standard)

Section includes questions regularly asked on

work/non-work activity of household members.

This section will also include follow-up or

probing questions for those reporting themselves

as being a farm or agricultural workers. These

latter questions are designated standard probing

or follow-up questions.

(b) From time to time, as needs arise, there will

be additional sets of nonrecurring or probing

special questions included or attached to the

questionnaire which will be used to obtain more

detailed information on work/non-work activities

of population groups considered to be of special

interest, e.g., the unpaid family worker who

works less than 15 hours a week, the "discouraged"

worker, the educated open-unemployed, etc. These

special infrequently asked questions will attempt

to elicit more information for special groups considered important for manpower planning purposes. The basic format can be schematically shown as follows:

	Regular	Probing or Followup
CORE Recurring	Core Labor Force and Income	Agricultural
Non-recurring		Special groups of interest

Please note that some of the questions have been revised from the initial questionnaire format distributed previously. The basic arrangement, however, is the same.

(2) CORE Basic Questions on Labor Force and Income

1. (a) What was he/she doing most of the time last week?

- Working for pay and profit 01 go to 3a
- With an assured job but not at work 02 go to 1a
- Keeping house 03 go to 2a
- Going to school 04 go to 2a
- Others 05 go to 2a

Although a recommendation has been made to replace "most of" now used in the on-going labor force questionnaire with "mostly", this writer prefers "most of the time" to clarify the point that the differentiation of persons' activity status is based

44

on hours worked, e.g., below and above 15 hours for unpaid family workers. In any event, this issue can be further tested out, if necessary. An additional item is added in the proposed question which is currently not included in the present labor force questionnaire "with an assured job but not at work." This item helps to identify persons holding a job but who did not work any or most of the time during the 7 day reference period. This will allow interviewers to ask questions to the employed on their regular work activity e.g., occupation, no. of hours worked, etc. The information obtained on their principal work will be used to determine whether or not they should be asked probing questions. The definitions used to define working, keeping house, etc. will be those used in the current ongoing labor force survey. The interviewer should remind the respondent that the term "work" is for pay or profit.

- 1. (b) Ask to persons who reported in item 1 as having a job but not at work any or most of the time last week.

Why did he/she not worked any or most of the time last week although he/she had an assured job?

- Teacher on school vacation 01)
-)
- Agricultural landlord 02)
-)
- Property owner excluding agricultural landlord 03) go to 2a
-)
- Vacation, leave 04)

45

Temporary illness 05)
Others (specify) 06)

2. (a) Ask to persons answering keeping house, going to school or others in question 1a: Did he/she do any work at all last week for pay or profit?

Yes - 01 go to 3a

No - 02 go to 2a

This question may appear redundant but it is necessary since the distinction is made between any and most of the time last week, especially to clarify status of unpaid family workers.

2. (b) Last week, did he/she do any work on a family farm or business as an unpaid family worker that is, without pay on family farm work or family business? For example, tending livestock or tending the store?

Yes - 01 go to 2c

No - 02 go to 18

Addition of "any" and changing "helper" to "worker" plus clarifying unpaid family worker may help to further identify the work status of this important group.

2. (c) If worked as unpaid family worker, how many hours did she/he worked during last week such as tending livestock/poultry, fetching water, doing fieldwork, etc?

Between 1 - 4 hours 01 go to 18

5 - 9 hours 02 go to 18

10 - 14 hours 03 go to 18

more than 15 hours 04 go to 3

This writer concurs with Mr. Sheikh who believes that the inclusion of this question should help reduce the underreporting of the number of unpaid family workers within the labor force.

3. (a) Ask to persons who worked and persons who had an assured job but who did not work any or mostly last week.

What kind of occupation he/she had or held last week?

Principal work (Description to be office coded)

3. (b) Any secondary work?

Yes 01

No 02

If yes, describe. (Description to be office coded)

This information is used to derive the principal and secondary three digit occupational code. The secondary work description is

41

considered important. According to table 15 (page 15 of labor force publication) about 58 percent of employed persons had worked more than 25 hours in subsidiary occupations. Also, descriptions should be as detailed as possible.

4. (a) What kind of business/industry was that?

Principal work (Description to be office-coded)

4. (b) Any secondary business/industry?

Yes, Same as above 01

Yes, Different from above 02

No 03

Secondary business to be noted if different from principal occupation. (Description to be office coded)

5. (a) What was the name of establishment where he/she worked?

5. (b) Name of secondary establishment if different from above. (Description to be office coded)

6. What kind of worker category he/she had or held last week?

<u>Employer</u>	<u>Principal Work</u>	<u>Secondary Work</u>
Farm work	01	01
Non-farm work	02	02
<u>Self Employed</u>		
Farm work	03	03
Non-farm work	04	04
<u>Unpaid family Worker</u>		
Farm work	05	05
Non-farm work	06	06
<u>Employee (Private)</u>		
Regular	07	07
Casual	08	08
<u>Employee (Government)</u>		
Permanent	09	09
Temporary	10	10
<u>Other (describe)</u>		
	11	11

Categories have been disaggregated to differentiate between farm and non-farm work and private and government employees. Mark both for principal and secondary work.

7. Did he/she worked last week or held a job
in the following categories:

	<u>Principal Work</u>	<u>Secondary Work</u>
Owner Cultivator	01	01
Owner Cultivator- cum sharecropper	02	02
Sharecropper	03	03
Contract Cultivator	04	04
Farm wage laborer	05	05
None of above	06	06

Mr. Sheikh suggest that item 02 (combination of owner cultivator and share cropper) be added which is a good suggestion because of its frequency.

8. How many hours did he/she worked at the main or principal work last week (mentioned against item 3a)? _____

9. How many hours did he/she worked in activity other than principal work (including secondary work)? _____

10. Total No. of hours worked last week (Q. 8 + Q. 9)

(to be calculated by interviewer) _____

Less than 35 hours a week 01

More than 35 hours a week 02

11. Ask to (1) persons who worked and (2) persons who had an assured job but did not work last week because of temporary illness or vacation, etc.

How many total hours does he/she usually work a week?

Less than 35 hrs. 01

More than 35 hrs. 02

This question is asked to obtain usual hours worked for those employed.

12. Ask to persons who had reported in question 10 that they had actually worked less than 35 hours during last week:

What was the reason he/she worked less than 35 hours during last week?

Not enough work 01

No need to work more 02

Other (specify) 03

13. Ask to all persons working regardless of hours worked or had a job but who did not work sometime last week:

Would he/she be willing to work more hours regularly at the same pay in his/her principal line of work?

Yes 01

No 02

This question is need to help delineate the fully utilized from the underutilized worker, regardless of the number of hours worked last week, i.e., whether full time or part time.

14. For persons responding "yes" in question 13:

Did he/she actively look for more work of any

kind last week?

Yes 01

No 02

This question attempts to measure the intensity of how the respondent feels with respect to his/her degree of underutilization relative to his/her present situation.

15. Ask to household heads working or with a job but who did not work any or most of the time last week:
Are monthly total household expenses usually more than total household earnings?

Yes 01

No 02

16. Ask to those reporting as an employee (items 7, 8, 9, and 10) in question 6:

16. (a) About how much cash earnings did he/she received from all work last month?

Rs. _____

16. (b) About how much income in kind, e.g., housing allowances or food consumed, did he/she received last month?

Rs. _____

17. (a) Is his/her principal work the same throughout the past 12 months?

Yes 01

No 02

The purpose of this question is to identify workers who worked at the same job last year. They are to respond to the next question. For those responding yes, the monthly amounts will be multiplied by 12 to obtain annual estimates.

17. (b) For those responding yes in question 17a about how much in bonus payments did he/she received during the past 12 months?

Rs. _____

18. Ask to all persons who answered "No" in question 2(b) and items 1, 2, and 3 in question 2(c): Did this person who did not work and did not have an assured job last week:
Actively looking for work

- | | | |
|-------------------------------|----|----------------|
| For pay or profit | 01 | go to 20 |
| Not actively looking for work | 02 | go to 19a, 19b |

19. (a) Why did he/she not actively look for work last week?

- | | |
|--|----|
| Permanent illness/disability | 01 |
| Retired/too old | 02 |
| Unable to work | 03 |
| Temporary layoff up to 30 days due to slack work, material shortage, plant or machine repair | 04 |

- Waiting for farm cultivating season to start 05
- Labor dispute 06
- Temporary illness 07
- Waiting to report to new job within 30 days 08
- Keeping house on full time basis 09
- Going to school or other training without any pay 10
- Other (specify) 11

19. (b) In addition to the above, did he/she:

not actively look for work because:

Believe that no work is currently available in line of skill 10

Believe that he/she do not have any skill or the necessary skill to find work 11

19. (c) Would he/she accept any work for pay or profit if offered?

Yes 01

No 02

20. Ask to persons who have answered "actively looking

for work" in question 18:

What steps have he/she taken to obtain work last week?

Register at Employment Exchange 01

Contacting perspective employer
or persons who maybe able to find
a job 02

SF

Placing or answering advertisements	03
Writing letters of application letter	04
Participating in competitions	05
Others (specify)	06

21. For how many days have he/she actively looking for work? _____

22. Ask to person who is actively looking for work (item 1 in question 18) and will accept work if offered: (item 1 in question 19(c):

Is he/she looking for full-time work (35 hours) ? 01

Part-time work (less than 35 hours) ? 02

23. What kind of preferred work did he/she look for?

Occupation code (description to be office coded) _____

24. Will he/she accept any other work, if unable to get preferred work?

Yes 01

No 02

25. If want work or accept work if offered, what is the lowest monthly pay he/she expects? Rs. _____

26. (a) If he/she gets work outside of his/her home area would he/she accepts it?

Yes 01

No 02

55

26. (b) If yes, did he/she tried to find work in some other place other than his/her home area?

Yes 01

No 02

*27. (a) Work history - For all persons actively looking or will accept work, not looking nor accept work if offered. Did he/she ever worked before?

Yes 01

No 02

These questions from items 27 to 32 could be shifted to non-recurring follow-up questions as necessary.

*27. (b) If yes, how many days has it been since he/she had worked before?

*28. (a) Why did he/she leave that work?

Personal reasons including family responsibility 01

Health 02

Retirement/old age 03

Slack work/lay off 04

Temporary work completed 05

Work conditions not satisfactory 06

School/training 07

Others (specify) 08

*28. (b) What kind of business was that?
(Description to be office coded)

*28. (c) What industry was that?
(Description to be office coded)

*29. When last worked, was he/she an:

Employer	01
Self employed	02
Unpaid family helper	03
Employee	04
Other (specify)	05

*30. Were there any special requirements needed in last

principal work?
Yes, some requirements
Primary education only 01

Secondary education only 02
Diploma 03
Experience on job only 04
No, no known requirements 11
Not known 21

*31. Was this person working:

usually under 35 hours a week	01
usually over 35 hours a week	02

*32. Altogether, how many years did he/she worked in
the line of work reported in 28(b) before he/she
left that work?

*33. Is this the same kind of work he/she would do
if opportunity exists to return to work?

Yes 01

No 02

* = optional, since may not require regularly. These
questions could be asked possibly twice a year
and could be included as non-recurring followup
questions.

(3) CORE - Probing Questions For Farm Workers

If the work reported in questions 4, 6, 7 is farm work, the following probing questions will be asked to each household member:

- 1. He/she reported as doing farm work last week or some other time during the month. In this his/her usual year-round work?

Yes	01
No	02

- 2a. If yes, about how many weeks out of approximately 52 weeks (last year) did he/she worked on farming?

Less than 8 weeks	01
More than 8 but less than 16 weeks	02
More than 16 but less than 24 weeks	03
More than 24 but less than 42 weeks	04
More than 42 weeks	05

- 2b. In these weeks worked on farming, are they usually:

More than 35 hours/week	01
Less than 35 hours/week	02

- 2c. What are the usual busy and slack months

<u>Busy</u>	<u>Slack</u>
_____	_____

- 3a. What are the principal crops? About how much was produced for each crop?

<u>Crop</u>	<u>Unit</u>	<u>Estimated Volume produced</u>
_____	_____	_____
_____	_____	_____

3b. Is there any irrigation on the land he/she works on?

Yes 01

No 02

3c. What is the approximate cultivated area
in which he/she works on?

4. Does he/she have enough work to keep busy
regularly throughout the year?

Yes 01

No 02

5. If no, does he/she want or will accept extra
work for pay or profit during the slack periods?

Yes 01

No 02

6. If yes, what kind of work does he/she can do
if offered:

(Description to be office coded)

7. Besides farm work, did he/she have any non-farm work?

Yes

No

8. If yes, what kind of non-farm work?

(Description to be office coded)

9. Roughly what is the monthly income received?

In net income from farm work Rs. _____

In income from non-farm work Rs. _____

In remittances and other sources Rs. _____

Income in kind: Rs. _____

Total _____

10. Does non-farm work include any of the wages reported in questions 17a and 17b?

Yes 01

No 02

4. Non-Recurring-Probing Questions For Unpaid Family Worker Working Less Than 15 Hours A Week

1. For farm households only: Does anyone in this household helps in taking care of the livestock and poultry or helps in the field?

Yes 01

No 02

2. Who are these helpers?

Line no: _____

3. Did he/she work regularly as an unpaid family worker doing such work as helping in the field, taking care of livestock, etc., during the past 4 weeks?

Yes 01

No 02

Don't know 03

61

4. If worked regularly as unpaid family worker did he/she work more than 15 hours a week during any of the previous 4 weeks as unpaid family worker doing such work noted above?

Yes 01

No 02

Don't know 03

5. Is there any chance that during the past 4 weeks, did he/she worked at least two weeks in which he/she had more than 15 hours of work doing such things as noted above?

Yes 01

No 02

Don't know 03

5. Non-Recurring-Probing Questions To Be Asked To Casual Labourers In Urban Areas

1. How long have he/she been living in _____?

Is this since birth?

Yes 01

No 02

For last _____ years.

2. Why did he/she come to _____?

Education and/or training 01

Employment 02

Join family 03

Other (specify) 04

3. If answered employment (02) in question 2, did he/she worked before migration?

Yes 01

No 02

4. How long did he/she wait before finding the present work he/she does now?

5. Would he/she return to the place before moving to this place if better opportunities exist?

Yes 01

No 02

6. If no, why not?

Satisfied with present work 01

Attraction of city life 02

Believes more opportunities
in city 03

Other (specify) 04

6. Non-Recurring-Probing Questions To Be Asked To Educational Unemployed - e.g., Those With Above Degree

1. Does he/she believes that his/her education/training had prepared him/her for finding preferred work?

Yes 01

No 02

2. If no, in retrospect, would he/she have taken another subject course at school instead of the present one he/she completed?

Yes 01

No 02

3. What subject course did he/she have for the degree?

(To be office coded)

4. What subject course would he/she should have taken, in retrospect?

(To be office coded)

(4) Housing Characteristics, Amenities/Finances (Part IV)

This part is divided into three parts: (a) housing characteristics, (b) amenities kept by the household and (c) a summary section on household income in which the enumerator will total individual/household earnings picked up in question 17 and 18 of the Basic Core questionnaire and question 11 of the Core-Probing questionnaire.

In housing characteristics, the following questions will be asked (multiple choices possible):

1. What are primary materials used in constructing walls/roofs:

- | | |
|--|----|
| Cemented | 01 |
| Sun-dried bricks/mud walls | 02 |
| Galvanized iron sheets, asbestos, plastics | 03 |
| Thatch/Wood/Bamboo | 04 |
| Others (Specify) | 05 |

2. Tenure:

- | | |
|-----------------------------------|----|
| Owned | 01 |
| Rent free | 02 |
| Rent paid | 03 |
| If rent paid, includes utilities? | |
| Yes | 01 |
| No | 02 |

If rent paid, monthly average rental: Rs. _____

3. Is there a kitchen?

- | | |
|---------------|----|
| Yes, enclosed | 01 |
| Outside | 02 |
| No | 03 |

4. No. of bedrooms? _____

5. Water closet: Is there a water closet?

- | | |
|-----|----|
| No | 01 |
| Yes | 02 |

If yes,

- | | |
|------------------|----|
| Flush - inside | 11 |
| Non-flush | 12 |
| Outside facility | 13 |

6. Source of Drinking Water:

- | | |
|----------------------------------|----|
| Inside-running water
(piped) | 01 |
| Outside-running water
(piped) | 02 |

Hand-pump:

Inside	03
Outside	04
Wells, ponds	05
Other (specify)	06

7. Fuel used:

Wood	01
Coal	02
Kerosene Oil	03
Gas	04
Electricity	05
Cow Dung	06
Other	07

For Household Amenities:

8. Does the household own any of these?

Motor Car	01
Motor Cycle/Scooter	02
Bicycle	03
Telephone	04
Radio	05
Television	06
Refrigerator	07
Electric Fan	08
Air Conditioner	09
Sewing Machine	10
None of above	11

(5) Supplementary Questions To Obtain Information On Household Activities for Human Resource Development Planning:

There are a number of topics that could be covered in this section. However, the number of questions should be limited to a maximum of 10 questions.

Types of questions that could be asked are noted below, and these are few examples: To be asked to each household member.

Illness

1. Did he/she suffered from any illness during the previous month?

Yes 01

No 02

2. If yes, what kind of illness?

(for office coding)

(a) _____

(b) _____

(c) _____

3. Was he/she absent from normal work/duties because of illness last month?

Yes 01

No 02

4. How long was he/she sick? _____ days

5. Did he/she received any treatment for illness?

Yes 01

No 02

6. If yes, what was the source of treatment?

- | | |
|-------------------------------|----|
| Ayurvedic (Government) | 01 |
| Ayurvedic (Private) | 02 |
| Western medicine (Govt.) | 03 |
| Western medicine
(Private) | 04 |

7. Was this treatment sought as:

- | | |
|--------------------|----|
| as indoor patient | 01 |
| as outdoor patient | 02 |

8. Approximate total cost of treatment for
treatment of illness during last month? Rs. _____

Migration:

1. Did he/she live in the same dwelling one
year ago?

2. If no, what was the previous address before
he/she moved to this present residence:

i) Village _____

ii) Tehsil/Taluka _____

iii) District _____

3. Why did he/she move to this present address
from the previous residence?

- | | |
|-----------------------|----|
| Family circumstances | 01 |
| Go to school/training | 02 |
| To find employment | 03 |
| Others (Specify) | 04 |

Fertility (For married women only)

1. No. of live births?

Sons:

Daughters:

2. No. of living children now?

Sons:

Daughters:

3. How long ago was it between the date
the last live baby was born and today? _____

D. TABULATION OUTLINE

(1) Introduction

Part D is considered the most important part of the report since it spells out in some detail the rationale for asking the basic questions recommended in the proposed multi-purpose survey questionnaire. It also tries to outline the process of compiling and using statistical information for statistical research.^{1/} In many respects, the explanation of the methodology involved in developing the questions is more important than the questions themselves. If the assumptions used to formulate the questions are understood, the questions can be reworded more meaningfully from field tests and revised accordingly. Hence, it is important for the reader to critically evaluate the theory upon which the questions were devised in the proposed questionnaire format. A basic point presented herein is that the statistical information to be compiled should be considered as information investment since the main reason for its collection using expensive household surveys is to use it to assist in making better policies on manpower utilization and development. However, it may be well, at this time before going into further details to establish a framework of analysis regarding the interaction between demand and supply of statistical information. In this discussion, heavy reliance is made on S. Kuznet's article entitled "Data for Quantitative Economic Analysis: Problems of Demand and Supply" (published in the Population, Capital

^{1/} See J. B. Lansing and J. N. Morgan, Economic Survey Methods, University of Michigan, 1971, for an excellent reference.

71

and Growth, Norton, 1974) and his Quantitative Economic Research: Trends and Problems (NBER, 1972).

According to Kuznets, the various uses of economic measures (summary measures such as employment, unemployment, etc., which are derived from primary statistical data collected using different sources of information, e.g., household survey questionnaires) can be conveniently divided into the following:

(a) For current orientation - e.g., an inventory of data showing what is currently happening in the economy in terms of some meaningful categories. These are data which are typically found in statistical yearbooks or abstracts.

They are used more for descriptive analyses, usually found in governmental publications, e.g., Monthly Labor Review (U.S.).

(b) For more scholarly analyses which attempt to investigate generalizations and/or possible modifications of formal economic and social theory. These analyses are typically found in professional literature.

(c) For policy modifications and adjustments, which are policy-oriented investigations. Statistical measures are used in staff studies for making policy recommendations.

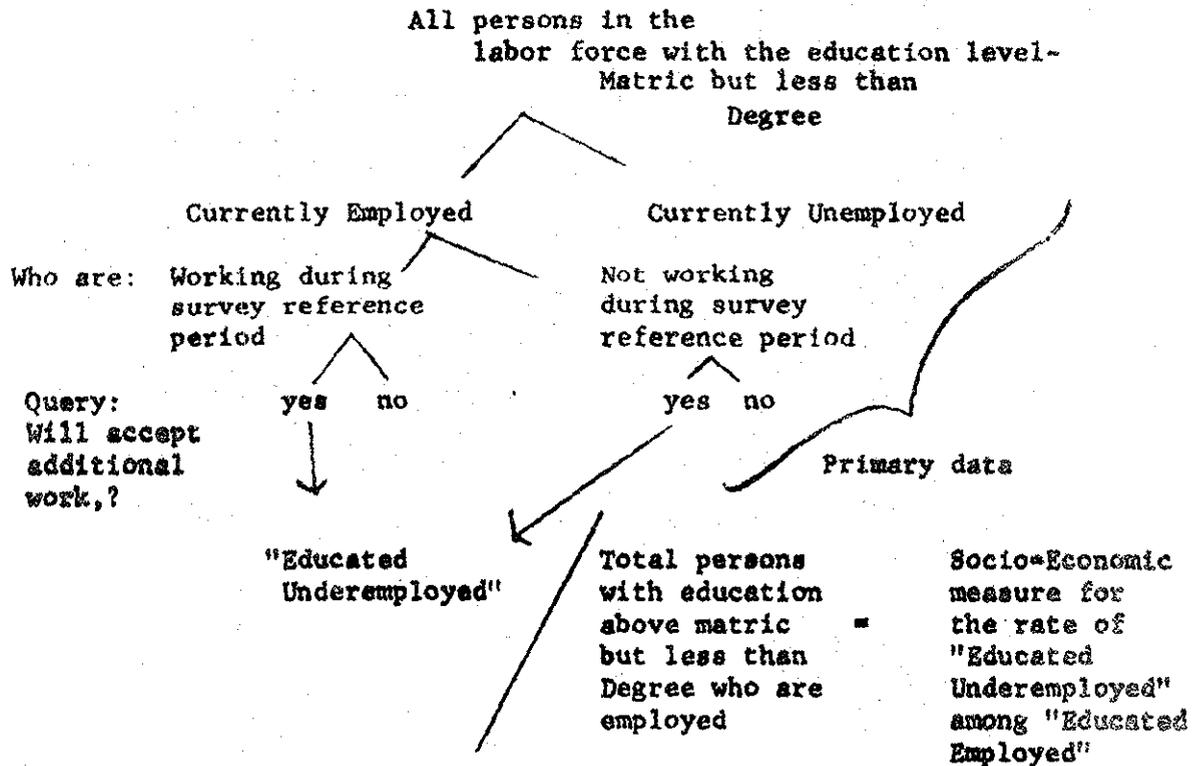
This, of course, assumes that it is possible to modify and/or direct current economic performance toward a more desirable and satisfactory level.

Obviously, these three categories of end-use of socio-economic statistical measures are not mutually exclusive but overlap.

For this discussion, they represent the product demand for primary statistical information. We shall analyze these categories more specifically in a later section. There are feedbacks from the demand (or user) side to the supply (or producer) side requiring the latter to produce different and better types of primary data to be collected in household surveys. This in turn necessitates users to sharpen their concepts in order that producers can meet their needs. Through this give and take, better information is ultimately generated for users.

As an example of this dialectical process, policymakers and analysts may want to know the relative number of the "educated underemployed" in the economically active population at a certain point in time. The number of the "educated underemployed" is an economic measure since it is an quantitative summary expression of "analytically oriented concepts and categories" (in Kuznet's words). In turn, the analyst's concept of the "educated underemployed" has alternative cutting (or threshold) points which must be operationally defined in order that primary statistical data derived from responses obtained in the household survey can be converted into such measures. Thus, "educated" must be defined by the analyst. This group will consist of those in the household survey who responded as having more than a particular level of education, e.g., those who answered having passed the matriculation examination ,

but having less than the degree, in the household composition part of the questionnaire. The next item to be defined is "underemployed". This category could be designated as including (1) those who responded "yes" to question 13: Would he/she willing to work more hours regularly at the same pay in his/her principal line of work? and (2) those who responded that they were employed (had a job) during the survey reference period. Hence, a simple formulation of the socio-economic measure "educated underemployed" from primary statistical data could be devised using the following classification scheme:



Since the primary statistical information is the raw material used to devise socio-economic measures, the relevance and meaningfulness of the latter depend upon on (1) how the summary measures are defined as formulated by the analyst (or recoded in the statisticians' jargon) and (2) the degree of accuracy (including precision) of the primary statistical data. This is the explanation for Kuznet's statement (see pg. 10 of his NBER essay) that "at any given time, economic research is bound by the limitations of the supply of primary data, the gaps in their coverage and the poor quality of some of them."

He further notes that research economists can have a marked influence on the supply of primary data, "for his analysis can indicate the magnitude of the problem to which the lacking data are relevant, as well as the least costly devices by which such data can be secured."

From another point of view, one can apply concepts of communication theory to this simplistic demand/supply model. In communication theory, the primary concern is to transmit information (conveyed in the concept of the socio-economic measure) as efficiently as possible from one point (person) to another point (person) some distance away. According to Middleton: "... associated with message is noise, which may be generalized to include any unwanted message in the presence of a wanted message." 1/

1/ David Middleton, Introduction to Statistical Communication Theory (New York: McGraw-Hill, 1960) p. 1

25

Noise, of course, depends upon the purpose of the exercise and upon the adequacy of the inputs (or raw materials) making up the particular socio-economic measure.

Further, as Morgenstern pointed out, the accuracy and acceptability of a particular summary measure are linked to the theory or model to which the data are to be applied. ^{1/} Once we know roughly how the data are to be used, we have some idea of the tolerance or threshold level of the noise which is associated in generating the message. In many instances, the net information result after deducting for the unwanted information may be too small to warrant the cost of continuing a particular survey. This is the task of evaluation.

A particular socio-economic measure consists then of two parts: (1) inputs from the demand or user side regarding its definition which in turn depends on how it will be used and (2) inputs from the supply or producer side regarding its relative accuracy from the standpoint of statistical errors and biases (or noises) associated with that particular measure.

The framework has been established. The next step is to systematically explore these two sides in more detail

^{1/} Oscar Morgenstern, On the Accuracy of Economic Observations, (Princeton, 1963) p.4.

so that we have a fairly good idea of the problems involved in developing a multipurpose survey questionnaire (and hence resulting in better concepts and procedures, hopefully).

We first skim over the demand side to see what role it plays in the formulation of socio-economic measures. Next, we then very briefly attempt to analyze the supply side involved in developing socio-economic measures used for manpower analysis. In investigating the supply side, we make certain recommendations regarding the proposed questionnaire format. We also note the institutional constraints involved in the implementation of the survey operations. In the final section, we provide examples on how to develop summary socio-economic measures and cross-tabulations from data covered in the proposed questionnaire. Part 2 outlines the more important elements to be considered in developing the proposed tabulation plans.

At this point, we should have some idea of what is meant when we talk about a particular socio-economic measure or statistical measurement. As previously noted, these measures have different end-uses and they are not mutually exclusive. In essence, statistical measures represent a bridge between theory and data since these measures are quantitative or empirical expressions of theoretical classifications or abstractions. Furthermore, they are definitional identities, akin to the various measures used in the economic accounts.

Thus, the classification "the educated underemployed" represents the union: (Educated). (Under-employed)

In the definitional process, the analyst has developed these concepts based upon his understanding of the underlying behavioural pattern which is associated with the particular universe. Thus, the target population group: "educated under-employed" has policy-oriented interest to the manpower analyst.

The "educated" group as used here represents an important body of high quality current and potential labor energy flow. Underutilization of this valuable human resource is unproductive and costly. Underlying the act of classification or concept-making by the analyst is the theoretical understanding of the reason(s) for combining certain statistical elements or primary data used to formulate the concept. This is the basis of consistent aggregation. A fundamental problem of quantitative research in this regard is misclassification or category mistake or misidentification. In this regard it may be useful to point out that there appears to be a confusion on what is considered important by the economist as compared with the demographer. The economist's interest is in measuring economic flows (e.g., value added) while the demographer's interest is more toward measurements of stocks (counts of persons). The characteristics of individuals are only relevant to the economist as they indicate the current/potential

"value added" flow produced or items purchased. We are interested in the potential earning power of population for economic planning.

To repeat: socio-economic measures or statistical measurements serve as a communication device by which primary statistical information (the inputs) are used in constructing theoretical concepts. The rationale for their formulations is provided by social and economic theory. This point, applicable for micro data sets also, is made by Stuvell as follows: "Taken by themselves these identifies are no more than a framework for a consistent description of the economic activity of a nation, or similar group of economic transaction, during a given period of time. They cannot explain why this activity took place or, in other words, why economic transactors acted as they did and not otherwise. To provide such an explanation is the task of economic theory. 1/

Hence, although socio-economic measurements link theory with data, theory must come first since it underlies the formation of these socio-economic measures. What are the conditions associated with the demand side for socio-economic measures? How are specific socio-economic measures formulated with respect to the analysis of labor and supply and utilization? These are the next topics of discussion.

1/ G. Stuvell, System of Social Accounts, (Oxford, Clarendon, Press, 1965) p. 6.

As noted by Kuznets, there are four conditions which influence the demand for socio-economic measures "representing important aspects of economic performance and components of economic structure". 1/ These demand conditions are (1) recognition by individuals that their livelihood depend on others in their society (2) acceptance of meaningful categories which reflect economic performance and structures (3) recognition that different aspects of economic performance and structure can be measured and expressed in quantitative terms, and (4) belief that social and economic institutions can be eventually modified to reach higher and better levels of economic and social performance. The interaction of these four conditions determines the speed of statistical development in a particular society. In Kuznet's words, "these four conditions produced a demand for economic measures that varied in scope in the past among countries at different level of economic development and with different social and political structures. The spread of the demand for economic measures among the population assuming that they recognize their membership in and dependence upon a wider economic system-is partly a function of their belief in the possible uses to which the more tested knowledge can be part". 2/

1/ Kuznets, Population Capital and Growth, p. 243.

2/ Kuznets, op. cit., pg. 245.

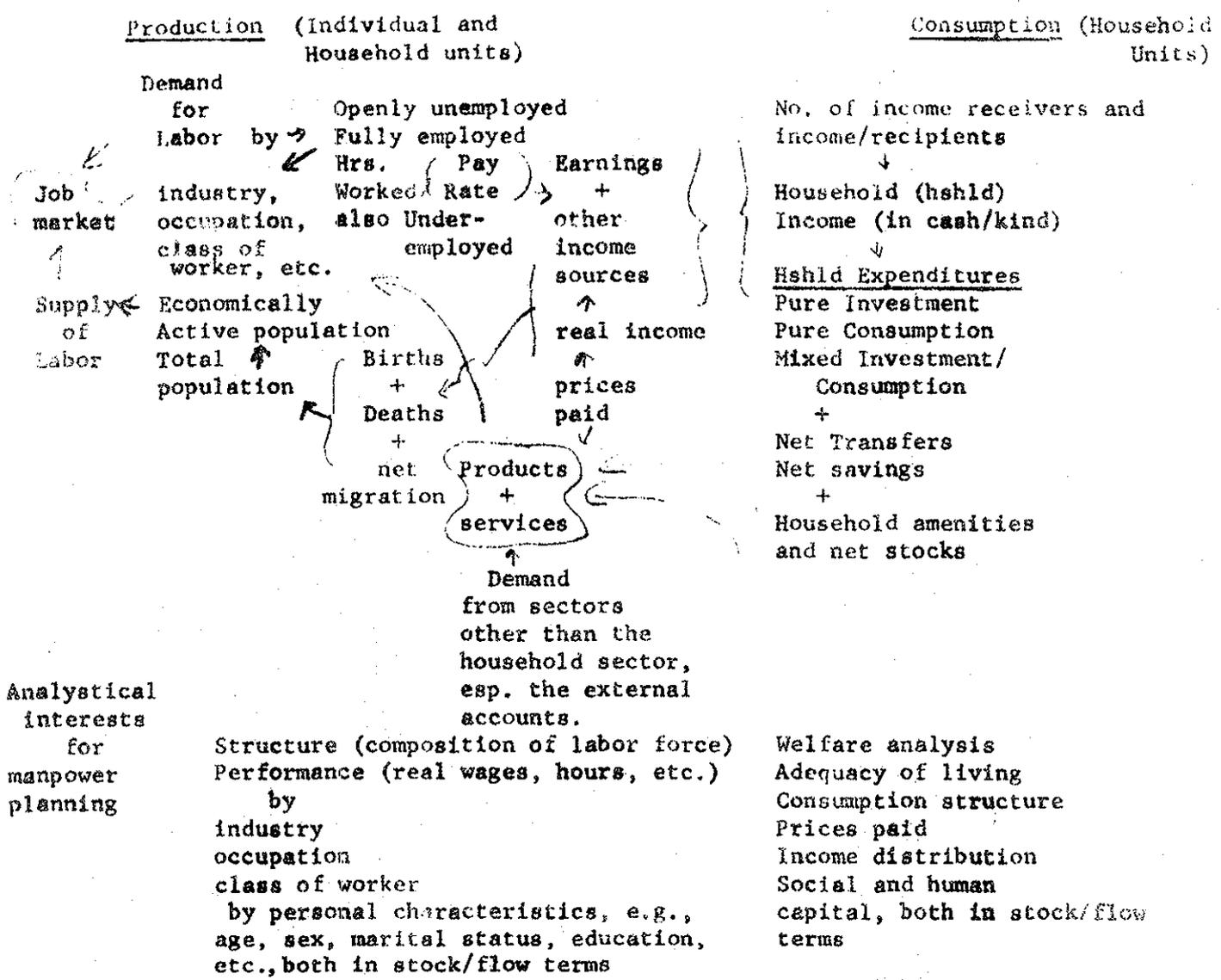
As noted previously, the initial formulation of these measures is essentially a process of theoretical classification. In turn, classification can be considered an exercise in subjective probability. Thus, we have conditional degrees of belief with respect to the recurrence of operating characteristics. Based upon the observation of consistent behaviour, we form hypotheses that certain types of economic units react differently from others. For example, we differentiate and classify household units by different socio-economic classes because we assume that they have different behavioural patterns. In this development of classification types and their quantitative expressions as indicated by socio-economic measures, we have in mind some analytical model that we are interested in investigating. 1/

In the same way that the industrial analyst can disaggregate the structure of a manufacturing industry into several sub-production sectors (e.g., in interindustry studies) the manpower analyst can also divide the population into many homogenous groupings with certain behavioural patterns, e.g., the economically

1/ There are many references on the formulation of socio-economic groupings of target populations. See, for example, Chapter 14, Socio-economic achievement: A System for Measuring Social Statistics and Social Mobility in Principles of Demography, Donald J. Bogue, Wiley, New York, 1969.

active population (those who supplied as well as those who are willing to supply their labor for the production of goods and services) and the economically inactive population on the supply side and the manpower needs on the demand side. In turn, the employed could be divided into these fully employed, those underemployed, and those unemployed. Also, persons not in the labor force can be divided into a number of subcategories depending on their responsiveness to ~~enter~~^{enter} into the labor market. In formulating this model, one can divide the analysis into two parts: (1) production, (2) consumption activities. It can also identify flow and stock measures. The unit of analysis can be individuals, families or households. How these different elements interact in a highly simplified macro model can be shown in the following diagram: 1/

1/ For another approach applicable to developed countries, See, W.C. Bowen and T.A. Finegan, The Economics of Labor Force Participation, Princeton University, 1969, pp. 16-36. See also various studies completed by the Survey Research Center, Institute for Social Research, University of Michigan, e.g., Five Thousand American Families, Patterns of Economic Progress, 1975.



This diagram provides an overview on how various types of socio-economic measures can be formulated to analyze the structure and performance of the economy covering manpower supply and demand. The circular flow starts off initially with a given population stock (which in turn is related to hshld income and other variables). This is then classified into the economically active and inactive population by various social-demographic characteristics, e.g., age, sex, marital status, education, etc. The economist is interested

among others, not too much in the "stock" values but more in the potential value added flows associated with these characteristics. This issue will be discussed in more detail in a later section.

In this breakdown, we compute labor force participation rates, by age, sex, etc. We also investigate for the economically active population, how its labor energy flows are channeled into various types of industrial and occupational activities to meet the derived demand for output of goods and services, including intervening variables. These are related to current performance and (potential) possible expansion of the economy's production boundary. A key problem in developing countries is the unbalanced mix of shortage of skilled labor and the surplus of unskilled labor, resulting in labor price distortions (and unequal income distributions). It would be important for manpower analysts to investigate what types of training is required to reduce the current or potential skills gap. This, in turn, depends on the mix of planned industrial (and occupational) expansion for manpower needs as derived from the increased demand for products and services, from both domestic and foreign sources. This type of demand analysis would be estimated from interindustry studies, and the supply aspects would be covered under manpower developmental planning studies. Under this type of production demand and supply analysis, we would want to know, within the economically active population, who are and who are not being utilized effectively, what needs to be done to raise their productivity,

where are they located, what are they doing, how long they were in that particular situation, their desires and aspirations, etc. We would also want to know their earning rates (both nominal and real), hours worked, etc. These data provide the analyst on how manpower resources are being utilized effectively (or ineffectively) and also where governmental inputs can efficiently rectify current or potential misallocation of resources. This is all viewed from the production side of manpower analysis, and the target population covers individuals. For economic planning, we are interested in increasing both the quantity and quality of persons with skills, training and experience critical to the expansion of the production base of the economy. Quality relates to higher potential productivity. This also ties in with the macro-economic accounts from the income side (by industry) since the largest source of value added flow comes from labor. In addition, to this type of macro circular flow analysis, we can formulate rather simple identities such as those below 1/=

$$\frac{\text{Months Worked}}{\text{Pop}} = \frac{\text{Employed}}{\text{Pop}} \times \frac{\text{Months Worked}}{\text{Employed}}$$

$$\frac{\text{Income}}{\text{Pop}} = \frac{\text{Econ Active}}{\text{Pop}} \times \frac{\text{Employed}}{\text{Econ Active}} \times \frac{\text{Hours Work}}{\text{Employed}} \times \frac{\text{Income or}}{\text{Hours Worked}}$$

$$\frac{Y}{P} = \frac{L}{P} \times \frac{E}{L} \times \frac{H}{E} \times \frac{I}{H} \quad (\text{Reference: Connel and Lipton})$$

1/ It should be noted here that these models have only limited applicability to developing countries since they emphasize labor productivity and not household productivity (e.g., productivity per land area in agriculture) but they do provide examples on how they can be used to formulate questionnaire items for use in statistical surveys.

Economic welfare = Demographic structure x Participation x Duration x Productivity. With respect to data needs for village studies, Connel and Lipton (Assessing Village Labour Situations in Developing Countries, IDA Discussion Paper No. 35, Institute of Development Studies, University of Sussex, August, 1973, pp. 27-35) break them down as follows:

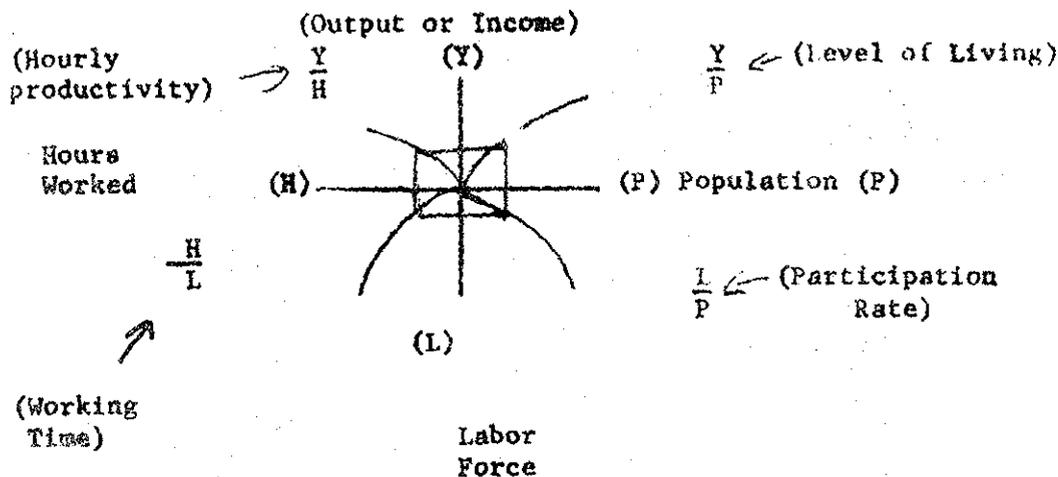
(1) Demographic Structure, e.g., the age and the sex structure, household composition and structure, fertility and mortality rates.

(2) Participation, e.g., contribution of work input by all household members. They point out that "because of the failure to identify the work contribution of women and children, the "time" participation rates are not always recorded."

(3) Duration - They note that these data must be supported by good data on participation and on the activities involved. They also express the need to examine why some persons of working age do not work and why duration of work often covers a short period of time.

(4) Productivity - According to them, efficiency and productivity do not mean the same thing. Efficiency is related to stamina, health, incentives, education, training, leisure-income preference, etc., while productivity is conditioned by factors external to quality of individual workers, e.g., capital disposal and technology. They note that participation and productivity can be trade-offs as less trained workers enter into the work force. There are other forms which can be used to relate

interactions between and among different components, such as those noted by Streeten: ^{1/}



Streeten also shows policy proposals under the following types:

Policy Implementation Using

<u>Measure</u>	<u>Compulsion</u>	<u>Permission</u>	<u>Persuasion</u>
Output/Hour	Pay depends on minimum output	Less union restrictions	Piece rates
Hrs/Labor Force	Fix 8 hours day	Improve diet	Overtime rates
Lab Force/Pop	Poll Tax, etc.	Raise demand, Provide equip- ment	Raise wages, Supply incen- tive goods

Furthermore, there could be summary production measures formulated such as the "exclusion" index which attempts to "measure the extent to which the labor market does not provide the needed

^{1/} Paul Streeten, "The Use and Abuse of Models in Developmental Planning" in The Teaching of Development Economics, edited by K. Martin and J. Knapp, Aldine Publishing, Chicago, 1967, p. 81.

number of adequate job and thereby precludes opportunities for individuals to engage in steady, productive work." ^{1/} This index for use in developed countries covers all individuals and appears to be viewing subemployment from the production side of the analysis since it is used primarily to modify job characteristics rather than worker characteristics. The authors hypothesize that the problem of low income workers stem from deficiencies in the production structure rather than from the shortcomings of workers. The total number of adequate jobs needed in the denominator in this index is approximated by taking the total number of persons in the labor force and the number of discouraged workers not in the labor force. The numerator (representing the total number of jobs which are missing) is the count of individuals who are unemployed, discouraged workers, involuntary part-time workers, or full-time workers earning substandard wages.

However, all of the above is viewed from the production side of the accounts. The end target of economic production is to provide adequate household consumption level, which in turn represents one of the final demand domestic sectors for the production of goods and services. Income received whether in cash or in kind provides the purchasing power to buy or enjoy goods and services consumed. We find that production and consumption overlap.

In this case, for analytical purposes, the unit of analysis

^{1/} T. Vietorisz, R. Mier, and J. Giblin, "Subemployment: Exclusion and Inadequacy Indexes" in Monthly Labor Review, May 1965.

is typically the household consumption unit. In the household sector production analysis, the primary target population is usually the individual since data on household production efforts are difficult to estimate.

Also, it is noted that because of the preponderance of household industries (in combination with agricultural pursuits) in developing countries, the household becomes an important unit of production analysis which should be developed further in statistical tabulations.

In this regard, the breakout of information by household relationship status (e.g., the household head) becomes very important, especially for the rural areas. Coming back to consumption activity, a very rough indicator of the economic welfare of the population is per capita income. Nevertheless, as noted, a more meaningful measure is per household income/expenditure levels. In this analysis, various types of questions need to be answered to analyze the distributional aspects of economic development. Who are the economically destituted households? What are their characteristics? Is their present situation temporary or permanent? To what degree are their actions voluntary or involuntary? What policies are needed to effectively assist these households? Various types of statistical measures can be formulated to investigate these household units. The simplest is to use a cutoff, e.g., 300 Rs per month, modified by family size. This problem will be discussed in more detail later. In any event the point is made. The analytical model or classification scheme should be developed initially by the demand side or users of the

primary data. Theory comes first, with help from the statisticians to determine whether the proposed measures are feasible or not from the standpoint of statistical survey methodology.

With respect to the supply side, primary statistical data are quantitative information regularly obtained in Nation-wide household surveys and usually do not represent small-scale experimental data. Hence, compromises are made since the scope of large-scale survey work cannot provide the fine details needed for micro-behavioral experimental studies. These data in large scale surveys in Pakistan are collected from household heads typically using the group interview method. They are also collected using probability sampling methods. Under these circumstances, data are subject to much potential errors, and hence, their quality will vary not only by population characteristics but also by geographical space and over time. In developing countries, the institutional culture often makes large scale surveys very difficult to implement properly since the demand conditions previously noted necessary for producing accurate primary data do not fully exist. As Kuznets pointed out, primary data will be provided by respondents truthfully only if they realize that doing so will benefit themselves. It is a key point in the development of any statistical operation survey. Respondents must be made aware on how the data are to be used if meaningful results are to be collected. 1/

1/ This point was also emphasized by Dr. Wheeler, Deputy Director, USAID, Islamabad, in the meeting held with staff members of USAID.

Instructions should be provided to enumerators so that analysts should also understand the problems involved in compiling primary statistical data in order that they know and appreciate to what extent summary measures derived from household survey information could be utilized for analytical purposes.

To continue, once socio-economic measures have been specified by the analyst, the survey design and/or measurement system will have to be worked out in detail with the following clearly spelled out:

1. The objectives of the survey are formulated in detail.
2. The statistical data operationally used to develop the socio-economic measures or concepts are defined carefully. The population units to be covered are also clearly identified. The sampling errors and the degree of reliability needed are mutually agreed with no possible misunderstanding.
3. The methods for obtaining the statistical information are carefully designed and pretested.
4. Every step in the processing and final publication operation is carefully detailed and tested to avoid potential errors in its implementation.
5. Every possible check is feasibly made to minimize various types of potential statistical errors.

Once these and other elements of the measurement system are considered operational, (under given time and cost constraints) we can then assume that collecting the targeted statistical data are possible. That is, if the specified measurement system were to be applied repeatedly under the same operating

90

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conditions, we should obtain from the probability distribution of estimates, an average value which is the expected value for the particular characteristics under investigation. In a sample survey, the expected sample value is the weighted means of the sample. Quantitative values (generated from a probability frequency distribution) is used as the operational value of the population parameter computed from the given measurement system. The variance or the change or variable error, is computed by taking the summation of the net squared difference between the mean and the sample values divided by the number of observations. The square root of the variance is the standard deviation. The basic idea of variable (or chance) error is that they do not tend to be weighted toward any one direction but fluctuate randomly in either direction. For these random errors, their magnitude decreases inversely with the square root of the number of observations, other things equal. Thus, doubling the sample size results in a reduction of the sampling error, not by half but by less than a third. Quadrupling the sample size would result in cutting the sampling error by half.

The precision of the sample estimate depends upon the size of the sampling or chance error. The smaller the chance error, the greater precision or reliability of the estimate. However, there is another type of statistical error which is more difficult to control - biases. These are systematic errors. An estimate can be precise yet inaccurate because of biases. Of course, biases occurring in one direction may be offset to some degree by biases going in the opposite direction but this is uncommon. For

evaluation purposes we are interested in gross differences and not net differences in order to rectify procedures causing biases.

Variable or chance errors can be usually controlled by the sample design including the sample size. However, biases are very difficult to control because they arise essentially from human mistakes.

Repeat: A statistic may be precise but it may not be accurate because of its biases. An accurate value has minimal total error - including sampling (or chance) and biases (or systematic errors).

Check data can be used to test the accuracy of a measurement. Zarkovich noted several requirements for developing check data used to determine accuracy. First, the check data must be independently derived from original source information and secondly, the check data must be a superior source of information. (This point will be further expanded in the discussion in checking data on the female labor force participation rate in Pakistan). He also listed the properties of accurate data as follows:

1. Zero bias.
2. Stability - no large deviations among data obtained from different studies dealing with the essential problem (external consistency).
3. Internal consistency - the elements of the data are compatible with each other.
4. Reconciliation with existing knowledge on the subject.
5. Correct procedures used in developing composite estimates.

6. Product of accurate measuring instruments, e.g.,
questionnaire design. 1/

How are biases generated? They may result from poor sample design, coverage and observational errors, measurement and processing errors and analytical errors.

According to Deming, biases in statistical survey can result from:

1. Failure to state problem carefully and to decide just what statistical information is needed.
2. Failure of the questionnaire, e.g., failure to recognize difficulties of acquiring the data; ambiguity in question - different meanings; leading questions; and lack of clear printing and layout.
3. Failure to define the universe with enough precision and to provide satisfactory frame thereof.
4. Faulty instructions and definitions.
5. High nonresponses.
6. Errors in response, voluntary and nonvoluntary, e.g., illegible entries, memory bias, refusal to give correct answer, answering wrong questions, response conditioning, etc.
7. Bias from interviewers, leading questions.
8. Bias from Auspices, e.g., reaction to government sponsored surveys.
9. Sampling bias, e.g., getting into wrong area, population coverage, etc.

1/ S. S. Zarkovich, The Quality of Statistical Data, Rome, FAO, 1966, p. 55-56.

10. Bias from unrepresentative data, processing errors, interpretation errors, etc. 1/

Kish noted the following groups of biases:

1. Frame biases-sources located in the selection procedures.

In probability sampling they can usually be corrected with proper estimation procedures. Frame biases tend to follow failure to adjust the estimate for unequal selection probabilities.

2. Nonsampling biases - biases of observation - caused by obtaining and recording observations incorrectly, including -

1) Response biases - arising in the field performance of observation, may cover interviewing, enumerating, counting and measuring.

2) Processing biases - as is in coding, tabulating, and computing. 2/

Furthermore, we can regroup the different type of biases in the following categories:

A. Errors arising out of poor preparation of interviewers, e.g., they may not have studied the instructions adequately or have not been instructed properly.

B. Situational errors, e.g., particular interviewing circumstances surrounding the survey work may not have been suitable to obtain the data properly as in the case of hostile respondents.

C. Accidental errors, e.g., because of fatigue or other reasons, interviewers may make mistakes in filling out the questionnaire forms.

1/ W. E. Deming, Some Theory of Sampling, N.Y. Wiley & Sons, 1950, pp. 31-47

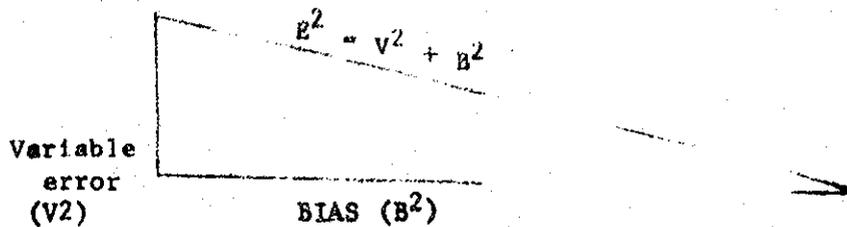
2/ L. Kish, Survey Sampling (New York, J. Wiley & Sons, 1965) p. 519.

D. Errors from inadequate design or procedures:

1. Sampling design may be incorrectly designed.
2. Questionnaire design errors, e.g., use of leading questions etc.
3. Respondent errors, e.g., mistakes in recalling certain events, voluntary evasion in answering correctly, etc.
4. Processing and interpretation errors.

Thus, we have procedural errors, interacting with situational errors, e.g., a interviewer may have a poorly worded questionnaire which irritates the respondent and this combination results in difficult group interviewing situations causing mistakes in recording answers by the interviewer, etc. In other words, even with well developed procedures, biases will still occur because of situational difficulties. The degree to which this type of problem is correctly handled in the field depends on the interviewer's intellectual ability, previous experience and training in group interviewing. In sample survey work, biases are more difficult to control than variable or sampling errors.

In summary, total survey errors can be divided into variable sampling (or chance) errors and biases. While the former can be reduced by increasing the sample size and better designs, the latter still exists because of the human equation. The ultimate goal is to have accurate measures. The relationship between these two types of errors can be shown in the following form:



$$E = \sqrt{V^2 + B^2} \quad \frac{1}{}$$

What is the relevancy of the above discussion on sample survey errors with respect to the development of a household statistical survey system in Pakistan? Among others, there are three important points that need to be considered. The first relates to difficulties in establishing adequate sampling frames, e.g., with respect to urban areas because of high births and deaths of dwelling units and difficulties in tracking dwelling units of migratory workers who typically live in temporary tent shelters located in the outskirts of towns and in open areas in rural areas. These temporary shelters are obviously not part of the sampling frame and hence information covering those workers are presumably not included in the primary statistical information compiled in the current sample household surveys. Special studies on these migratory workers should be examined in detail since current data could be seriously understated with respect to the number of these migratory households. Secondly, there are serious response biases resulting from the group interview situation typically found in developing countries, and it appears that Pakistan is no exception. Responses are given covering other household members as to what the household

1/ Deming, p. 129

head thinks he should be responding. Hence, the quality of given response are based, depending among others, on the trust and friendship of the household head toward the interviewer and of the possible assistance of the village head and others who may participate in the interview. This point was emphasized to this writer by Dr. Kahn of the Academy of Rural Development, Peshawar, who considers the survey interview process as a bargaining relationship whereby the quality of information to be provided is a function of how the respondent feels that the information provided will be useful to his needs. According to Dr. Kahn, the more the trust between the interviewer and the respondent, the more accurate will be the response to the questions.

Otherwise, responses may be those which the interviewer would like to receive. He also pointed out the need for activity oriented questions instead of person-oriented questions, e.g., asking whether the household has livestock and poultry initially and then asking who takes care of them, after which, more information on number of hours worked as unpaid family worker can be obtained. The third point here is that typically in developing countries, the differences in the institutional culture, including economic activity, vary rather widely by geographical areas. This variation causes very difficult problems in forming questions having the same meaning to respondents. Thus, with respect to the query whether any female member of the household did any work last week, the response would tend to be heavily understated especially in rural areas for two reasons: (1) differentiation between

housekeeping duties and work (typically defined as actively creating value added) is very difficult indeed and (2) the social ethic which restricts female members of the household doing any work outside of the enclosed area of the household (a good overall reference is Living Conditions of Rural Families in Pakistan, Herbert Albrecht, Institute of Rural Development, Georg August University, (Published by the Embassy of the Federal Republic of Germany, Islamabad in cooperation with USAID, Pakistan, 1974. See pp. 28-31.)

These are the more important problems which result in biased primary statistical data collected in household sample surveys.

The main issue being emphasized herein is rather clear. The analysts and statisticians must work closely in defining and formulating questions for household surveys. To repeat: Theory comes first, data collection comes afterwards. The usual situation is the reverse. This planning would reduce misunderstandings and misinterpretations (and frustrations) after the data are collected. This type of consultative planning would materially improve the effectiveness of collecting data to develop socio-economic measures used for policymaking purposes.

Moreover, as noted, it is also very important for the analyst to evaluate carefully the relative accuracy of the primary statistical data from which the socio-economic measures are derived. This requires that the statisticians and analysts meet for periodical evaluation of the primary data collected.

Hopefully, as these measures are used by analysts to examine certain phases of economic performance, or to test particular hypothesis for policy decisionmaking, they may suggest recommendations to producers resulting in the creation of better statistical information. In Kuznet's words, "It is by affecting demand that quantitatively oriented economic analysis affects the supply of primary data - and hence, the possibility of securing the raw material for an adequate flow of economic measures."

This may be one of the main reasons for Dudley Seers' remark that "what an economist really needs is at least a year's work in a statistical office. Only by having to face, hundred of times, the minor problems of tabulating trade returns, arranging departmental series for publication, and reporting surveys or census does one acquire a genuine "feel" for the reliability of data, and therefore from what can and cannot be done in applied economics". ^{1/} Hopefully, there will be opportunities to make possible interchange of technicians to shift from the demand to the supply side and visa versa, in the future.

In summary, it has been emphasized (and recomphasized to the point where it has become repetitive) that the demand side and supply side must interact closely in the formulation of socio-economic measures. However, as insisted many times, the analyst must take a leading role in initially formulating the analytical model of the socio-economic measurements needed.

^{1/} Dudley Seers, "Limitations of the Special Case" in The Teaching of Development Economics, op. cit., p. 23.

Our next step in this discussion is to give an overview of the possible types of socio-economic measures that can be used for quantitative analysis of labor supply and utilization. As noted before, the analyst implicitly or explicitly has an analytical model in using primary statistical data. Furthermore he has some idea of the end-purpose in mind-- whether for current orientation, theoretical analysis or for policy-oriented research. This will determine the level of accuracy needed in using the primary statistical data to derive summary measurements. It would be indeed highly presumptuous (and out of scope of this work) for this writer to attempt to go into great detail in defining and explaining socio-economic measurements needed or to be formulated since this formulation depends upon many variables. However, we can explain some of the mechanics involved and provide few examples on how summary measures can be constructed from primary data collected in the proposed questionnaire. This is done in the next section. In many respects, explanations of the model used in developing the questions in the proposed questionnaire has been previously discussed.

However, it needs integration and this is intended in later sections. Moreover, the general types of policy oriented information required are already indicated in Chapter 1 (Human Resource Development), Chapter 4 (Rural Development), Chapter 14 (Socio-Economic Reforms) and especially Chapter 15 (Social Development) in the Pakistan Economic Survey. Also, review of published statistical literature indicates that they are fairly standard - including structural and performance indicators. In any event,

2 7.1

it may be still useful to outline some of these standard socio-economic measures of labor demand and supply, utilized for policy use.

As noted before, there are standard statistical indicators of labor formation, availability and performance. These include such items as the population inside and outside of the economically active population (labor force), the number employed, underemployed and openly not unemployed, those employed in terms of their occupation, industry, class of workers, hours worked, earnings (if available), etc. We would want to cross these elements by such characteristics as sex, age, marital status, education and migration status, and especially household relationship since those characteristics are associated with certain amount of current and potential value added flow.

We also would want to cross these by geographical location. These are the types of primary statistical information typically found in statistical publications.

Moreover, if information is available, we would want to disaggregate the underemployed into those underutilized by hours worked, by educational level and possibly by actual income received relative to average income received. We would want to know in Smith's word - "know what cause the

101

underutilization, what form it assumes, where it is found, when it is found, and whom it affects. 1/

We also would like to know how long it continues for certain individual groups, e.g., the educated underemployed.

With respect to these types of analysis, we should specify in detail how we defined underutilization measure and the quality of the primary data that were used to develop the summary measure(s). Furthermore, if information were available, analysis would include comparisons by period, sex, age, marital status, household relationship, location, class of worker, occupation, industry, possibly crossed by educational attainment and income.

Moreover, with respect to the unemployed, we would want to know more in detail the extent of open unemployment, who make up this group, why are they unemployed, their aspirations and reservation price, if any, and their personal and socio-economic characteristics such as education, training, age, sex, etc. Also, we wish to know how they are looking for work, how long they have been out of work, whether they are new jobseekers or experienced workers, and other information which will be useful for the planners and analysts in the Manpower Division.

Another important information for policymakers cover those not in the labor force. We would want to know more about the discouraged workers, the characteristics of unpaid family workers in this group (working less than 15 hours a week), the students,

1/ A.D. Smith, Concepts of Labor Force Underutilization,

International Labor Office, Geneva, 1971, p. 21.

and the characteristics of the labor reserve (i.e., those who are now not in the labor force but who can be called upon to provide crucial short-supply work experience and work skills.

In the next section, we shall go into more detail on how proposed questionnaire items can be used to formulate socio-economic measures or indicators for policy-oriented analysis.

(2) Socio-economic Measures and Cross-tabulations

(a) Introduction

As previously explained, theory must precede data collection. Hence, in this section we outline the general framework of analysis which underlies the questions included in the proposed multipurpose questionnaire. Next, we formulate the questionnaire system and briefly explains how the questions are used to obtain primary statistical information needed for the theoretical model. Finally, we indicate how crosstabulations can be created to meet certain informational needs for manpower policymaking purposes. In all of this, the emphasis is on a stepwise description of the rationale and methodology involved. Using these procedures, readers should be able to probe further into creating better measures and survey questions to meet their analytical model(s). In Joan Robinson's words: "In all this, I should emphasize that economic theory, in itself, preaches no doctrine and cannot establish any universally valid laws. It is a method of ordering ideas, and formulating questions. For this reason, I should pay a good deal of attention to method."^{1/}

^{1/} Joan Robinson, "Teaching Economics," Collected Economic Papers, Vol. III, Basil Blackwell, London, 1965, p. 5.

(b) Framework of Analysis

A convenient starting off point in establishing the empirical concepts of labor-supply, utilization and earnings which can then be transformed into operational procedures in household surveys is to formulate a labor "energy" time flow "numeraire" similarly to the analysis of current and potential consumption expenditure flows as discussed in a previous report. (See pp. 124-126 of this writers' A Feasible Method for Collecting Labor Utilization, Earnings, and other Social and Economic Data in Southeast Asian Countries, a Report to the U.S. Agency of International Development, Program and Policy Coordination Bureau, July, 1973).

Measurement of labor/non-labor activity is considered as a empirical analysis of how this energy time flow (weighted by appropriate earning values) is utilized in work/non-work production activity and how it is "regenerated" in consumption activity. From this point of view, a person can be envisioned as a carrier of this bundle of human energy. There is a stock (an inventory of potential labor energy) and a flow (the release of this labor energy as measured by

time periods). 1/ This flow can be appropriately weighted in terms of its value added to the production process. Stock refers to the labor agent, the individual person. Capacity can relate to a stock of available time energy flow or can relate to a stock of valued (weighted by potential earning values) time energy (earning power). Full utilization or underutilization of labor energy (or weighted labor energy) depends on what the individual perceives to be the relationship between what could be generated against what has been generated (in terms of either time spent in activity or in terms of weighted time spent in activity (weighted by earning values)). Thus, in calculating aggregates at a point in time, we could develop measures using flow concepts only, e.g., divide total time spent in activity over a period of time by average time spent in activity over a period of time (which generates a count of persons e.g., full time equivalence) or we could develop measures using stock and flow concepts e.g.,

1/ According to Gardner Ackley "A stock variable has no time dimension, a flow variable does" See Macro-Economic Theory, Macmillan, New York, 1961, p. 6.) In Don Patinkin's words "stock is time-dimensionless, while a flow has the dimension of 1/time (see his Money, Interest, and Prices, Harper and Row, New York, 1965, p. 515.) Discussion on stock/flow models are found in John Hick's Capital and Growth, Oxford, New York, 1965, and R.G.D. Allen's Macro-Economic Theory, St. Martin's Press, New York, 1967. Another useful study is Irving Fisher's The Nature of Capital and Income, 1905 Reprint, Kelley, New York, 1965. Simply put the discount factor converts flows (income/time) into stocks(capital).

Number of persons at a point of time (stock measure) multiplied by the average time spent in activity over a period of time or we could develop measure using stock concepts only, e.g., value on hand at a point in time. Population counts are measured at points in time (stock) while value added is usually measured over a period of time (a flow) since production takes time. Hence, in deriving aggregate labor value added, the number of workers is multiplied by the average earnings received per worker over a period of time. Thus = aggregate labor value added = (No. of workers) . $\frac{\text{Total labor value added}}{\text{workers}}$

(No. of workers)(Worker productivity) = (No. of workers) .

$\frac{\text{Hours worked}}{\text{Workers}} \cdot \frac{\text{Earnings}}{\text{Hours worked}}$

However, we are interested in the overall performance of the economy as a whole covering all of the population. We would want to know what proportion of the population is being utilized in the production of goods and services. We also would like to know whether they are being productively utilized in terms of both time and earnings received over a period of time. Except for some key extensions, the basic framework is the same identity discussed by Connel and Lipton:

STRUCTURE

$$\frac{\text{Value Added(Labor)}}{\text{Population}} = \left(\frac{\text{Not in Labor Force}}{\text{Population}} \right) \cdot \left(\frac{\text{In Labor Force}}{\text{Not in labor Force}} \right) \cdot \left(\frac{\text{Workers}}{\text{In labor force}} \right) \cdot \left(\frac{\text{Workers(Flow)}}{\text{Workers(Stock)}} \right)$$

(Participation Rate) (Employment Rate) (Adjustment Factor)

DURATION

PRODUCTIVITY

$$\left(\frac{\text{Months worked}}{\text{Workers}} \right) \cdot \left(\frac{\text{Days Worked}}{\text{Months worked}} \right) \cdot \left(\frac{\text{Hours Worked}}{\text{Days worked}} \right) \cdot \left(\frac{\text{Earnings}}{\text{Hours worked}} \right)$$

Full/part year worked rate (Full/part worker rate) (Full/part time worker rate) (Earning Rate)

CONSUMPTION

INVESTMENT

$$\left(\frac{\text{Income Earnings}}{\text{Income}} \right) \cdot \left(\frac{\text{Consumption Expenditures}}{\text{Income}} \right) \cdot \left(\frac{\text{Investment expenditures}}{\text{consumption expenditures}} \right) \cdot \left(\frac{\text{Value added(Labor)}}{\text{Investment expenditures}} \right)$$

(Consumption rate) (Investment rate) (Output/Investment rate)

An important addition to the above identity is the adjustment factor which correlates current (stock) status to usual (flow) status. This adjustment may not be necessary in developed countries where this relationship is almost one-to-one but in developing countries where seasonal variation and shifts in work activity during the month predominates, it is important to evaluate this difference, especially in rural areas.

The above framework represents the production, consumption and investment aspects of the household sector accounts. As noted previously, since the end use of labor activity is social and economic welfare, we need to examine consumption and investment variables involved in household activity. We need more information on adequacy of living levels, distribution of household consumption and investment expenditures and status of health, nutrition, education, etc., related to human capital expenditures.

In this analysis, we need more and better socio-economic measures which show the interrelation between the production and consumption sides of the household accounts.

(c) Rationale of Questions Included in the Proposed Questionnaire

1. The first set of questions attempts to screen out persons who are in the economically active population from those not economically active in the total population. (Grouped as "structural" questions). The screening is based on the labor force approach, i.e., covering a survey reference period of seven days, essentially a point in time concept. These data are used to determine the labor force participation rates of the population. This screening process takes the following steps:

(a) We ask what was he/she doing most of the time last week in question 1a. Those working and those with an assured job but not at work are classified as being in the labor force.

We probe further into the latter category (having a job but not at work) in question 1b. Those not working nor with a job are further screened in question 2a by asking whether they did any work last week (as compared with most of last week in question 1a.)

If the answer is yes, he/she is considered as working and in the labor force. In many countries there is a "duration of work" requirement for a person to be considered as employed. According to Oshima and Hiyadat ("Differences in Labor Utilization Concepts in Asian Censuses and Surveys and Suggested Improvements", Draft paper presented to CAMS Committee I Meeting on Labor Force, September 25-27, 1973, Manila, p. 14), Japan, Taiwan (and the United States) require one hour's work during the reference week. Hong Kong and Singapore require at least 15 hours, Malaysia requires at least one day and Indonesia requires at least two days. Pakistan (also Sri Lanka, Thailand, Philippines, S. Korea) have no minimal time requirements.

However, in the initial screening question in Pakistan (and also in the Philippines) it covers activity completed "mostly" and "most of the time last week", respectively, which imply that the person must work at least more than one hour to be defined as employed. International standards recommend that the individual must work at least one hour to be defined as employed. This duration of work requirement to be defined as employed is a fundamental problem and needs to be clarified since it determines the relative size of the economically active population. In this regard, the currently used labor force questionnaire appropriately asks, to those not responding as working, the following question: Did he/she do any work at all last week for pay or profit or worked on a family farm or business as unpaid family helper? In view of the underestimation problem covering unpaid family helpers (or workers) the writer has recommended that a separate question be asked (in question 2a) as follows: Did he/she do any work at all last week for pay or profit? This separation should help in differentiating paid work and unpaid family work for those reporting not working for most of the time last week. Question 2b asks the question:

Last week, did he/she do any work on a family farm or business as an unpaid family worker, that is, without pay on family farm work or family business, for example, tending livestock or tending the store?

The next question (2c) asks for the number of hours worked as a unpaid family worker. Those working over 15 hours are classified as being employed. In this regard, Oshima and Hiyadat note that Japan has a minimum of 1 hour, Hong Kong, Taiwan and Singapore require a minimum of 15 hours in the reference week, Malaysia requires at least one day and Indonesia requires at least two days.

Those not reporting as working for pay or profit or those not reporting doing more than 15 hours of unpaid family work are then screened in question 18 as follows: Was this person who did not work last week: Actively looking for work for pay or profit or not actively looking for work. Those who respond that they were looking for work are defined as unemployed.

In the next question (19a) we ascertain the reason for not actively seeking work. Items 1, 2, and 3 are the "hard core" group which cannot go into the labor market because of physical problems or old age.

Items 4, 5, 6, and 7 represent temporary barriers while items 8 and 9 represent competing activities.

Under current procedures, it appears that persons who are waiting for the farm season to start may or may not be included as "employed" depending on whether they were classified as unpaid family worker working more than 15 hours or whether they considered themselves not working but with a job, or whether they responded they were actively seeking work, or not seeking work due to belief that they believe no outside work is currently available. According to Oshima and Hiyadat, Indonesia, Ceylon, Thailand and Japan classify farmers not working during the reference week due to off season as "employed". Malaysia considers them to be unemployed. It may be useful at a later stage to develop a study investigating the characteristics of this particular group in Pakistan.

Under present procedures, the unemployed category covers all persons who are (1) looking for work (2) not looking because of illness (3) temporarily laid off up to 30 days and (4) waiting to report to new job within 30 days.

Under this classification, those who responded under items 4, 7 and 8 in question 19a are also

considered unemployed. Again, at a later stage, it may be useful to analyze these particular groups in more detail.

In summary, different categories are classified as such:

Employed (Items 1 and 2 in question 1a, Item 1 in question 2a, and item 4 in question 2c, and possibly item 5 in question 19a,)

Unemployed (Item 1 in question 18, and items 4, 7, and 8 under question 19a, and possibly item 6 under 19a). The main point is whether or not the individual was actively seeking work. Question 20 attempts to identify the nature of this search. A key issue that needs to be further analyzed is the concept of "discouraged workers" among those not in the labor force. They can be classified as persons in the "inactive unemployed" or the "involuntarily not in the labor force" group. Presumably those who responded that they did not actively seek work because of the belief that no jobs were available are in the same category as those who could not look for work because of temporary illness. However, the latter is considered temporary while the former is considered a more permanent and long term phenomena. It is

suggested that those currently reporting themselves as being out of the labor force but also consider themselves to be discouraged worker be not classified as unemployed because it is plausible that many family workers and students are also discouraged worker. Hence, cross-tabulation of information obtained from question 19(a), 19(b), and 19(c) should be shown in more detail.

By definition, the employed and unemployed make up the economically active population.

The balance (items 2 in question 18, and items 1, 2, 3, 9, 10, and possibly 11) consist of persons who are not in the labor force or the economically inactive population.

These three categories are used to derive the three rates, the rate of the economically inactive population to total population (the dependency ratio), the rate of the economically active to the economically inactive population (or the support ratio) and the ratio of the employed population to the total number of the economically active population (the employment rate). The ratio of the unemployed to the economically active population is the unemployment rate.

These rates all relate to data derived from information covering current status of respondents

(except those who had a job but did not work during the survey reference period). In the latter case, usual status information is used. One of the key points discussed previously relates to the weakness of the labor force approach (which is essentially not time related considering the highly seasonal and fluctuating work schedule found in developing countries) and there is a need to obtain more statistical data to take account of these variations. This multiplicity of activities must then be sorted out by using such questions covering primary and secondary activities and differentiating between usual and current status. This analysis is the key to the use of the regular probing questions in the core part of the questions covering activities of those responding as being farm workers. We need to relate the difference between usual and current status which may not be significant overall in developed countries but is important in developing countries.

Moreover, with respect to further details regarding information on the employed, questions 3a and 3b cover occupation, questions 4a and 4b cover industry, question 5a and 5b cover work establishment,

question 6a covers class of worker, question 7 covers type of farm worker, questions 8, 9, 10, and 11 cover hours worked, and questions 12, 13, and 14 cover underutilization by time. The distinction between full time and part time worker are derived from information obtained from questions 8, 9, 10, and 11. Information on the full and part year work rate (the ratio of months worked to the average number of workers over the year) is derived only for agricultural workers. Thus, in question 2a, (of the Core-probing part) the number of weeks worked during the year is asked.

As necessary, this type of question could be also be included in the supplemental questionnaires to differentiate current status work from usual status.

The rate of full month and part month workers also be calculated from data on hours worked during the week, since the survey reference week varies over the quarter.

The next measures covered relate to productivity in terms of earning received per hour worked.

These measures are derived from information obtained by asking income questions to employees and to farm workers. Questions in part III - Regular covers employees while questions in Part III- Follow-up cover farmworkers.

The ratio of hours worked to net income provides a rough indication of the productivity of farm workers. Also, taking the ratio of the net income to the cultivated land area provides some idea of land-use productivity.

For nonfarm employees' households, the rate of monthly wages/salaries received to hours worked during the month (estimated from data reported for the survey reference period) provides an rough guide of the hourly wage rate.

Questions 15, 16, and 17 relate to the amount of monthly income (both in cash and in kind) received by employee households. Question 15 leads into the income question by asking the respondent if household expenses are more than earnings. In general, it is easier to get information on expenditures than an income and this question is used, among others, to bridge expenditures into income. Questions 16 covers

earnings in cash and in kind. While question 17 covers other types of income. Question 17 also identifies those persons whose monthly amounts can be multiplied by 12 to get annual amounts.

Questions 12, 13 and 14 cover data which can be used to develop measures of underutilization of the employed by time and by skill. Thus, the combination of item 1 in question 12 and item 1 in question 13 identifies involuntary part time workers (or the visible underemployed)

Item 1 in question 14 augments this analysis by providing information on the intensity of the underutilization-whether the individual had actively look for more work last week.

Question 13 is asked to all employed persons - whether part time or full time workers. Item 1 of this question in combination with item 1 of question 14 covering full time workers indicate the number of the invisible underemployed - full time workers wanting more work.

Further analysis of characteristics of the open unemployed and discouraged workers is made by the use of questions 20, 21 , 22, 23, 24, 25, and 26. Furthermore, questions 26 through 33 cover the

work history of persons who were actively seeking work, persons not in the labor force who will accept work if offered, and persons currently in the labor force who are not looking nor will accept work if offered. With respect to the open unemployed, question 20 asks how the person was looking for work. Question 21 covers the number of days unemployed. Question 22 asks whether the person is looking for full time or part time work. Questions 23 and 24 asks about his/her preferred work and his/her decision regarding selection of work. Question 25 asks about the minimal pay rate desired. Finally, questions 26a and 26b inquire whether the individual would be willing to move if necessary to find work.

As noted previously, these questions help obtain information indicating the desires and aspirations of the unemployed and should be important in developing manpower training and employment policies.

Questions 27 through 32 relate to the previous work experience, if any, of the population covered under question 18. These work history questions investigate their previous work experience (question 27), why they left their previous work and what kind of work and industry (question 28), the class

of worker (question 29), special requirements of the previous work (question 30), and the duration (question 31 and 32). These questions are considered useful to examine characteristics of the labor reserve for manpower planning purposes.

Additional probing questions 1 through 10 (in the followup part) will be asked to those answering that they worked during the survey reference period as farm or agricultural worker in any of the questions 3, 4, 5, 6, and 7. This group represents the "population at risk" especially with respect to multiple work activities. Questions 1 through 10 attempts to investigate in more detail the characteristics of this variability.

As noted previously, question 1 attempts to compare current work (during the reference period) with usual (year round) work of the respondent. Question 2 picks up information associated with the duration and seasonality of farm work. Questions 3 obtains information on crops, estimated volume of production and cultivated land area and irrigation facilities. Questions 4 through 6 probes for the degree of labor underutilization. We ask about non-farm work in questions 7 and 8. In income questions 8, 9, and 10, we very roughly try to obtain income received

by farm workers.

The questions in section or part IV cover essentially housing characteristics and amenities which will be used in developing socio-economic typologies of households. Sections (IV) and (V) provide information that be eventually used to calculate the consumption and investment rates included in the analytical model. Questions 1 through 7 obtain housing characteristics information. Question 8 covers the availability of household amenities. Question 9 asks for estimates of the proportion of total income (including bill income in cash and in kind) spent for food item. (The Engel coefficient) Finally, question 10 is essentially summary statement of income information previously recorded in questions 17 of section (III) and question 11 of section (IV).

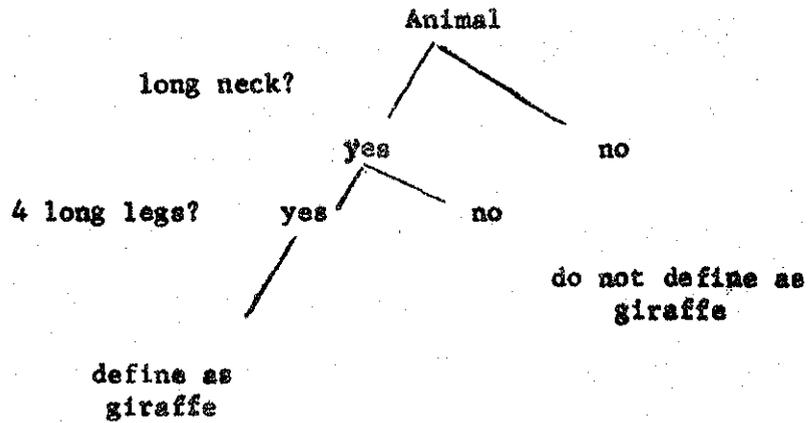
Finally, questions in section (V) cover supplementary questions to collect information for manpower resource developmental purposes. Topics covered under this section would include such subject as illness, fertility, and disability (as related to work participation, type of work, duration; and possibly, productivity), education, training, migration, community resources, etc.

(d) A Methodology For Developing Summary Measures

The technique used in developing summary measures involves working out decision logic tables. Thus, we have the following concept:

1. The conditional (if) statements, e.g., four long neck, and an animal
2. The action (then) statements, e.g., define as a giraffe.

This sequence of steps is that used in constructing tree diagrams. Thus:



This if-then sequence is shown in simplified tabular form (a decision logic table) as follows:

Condition	Rule			
	1	2	3	4
Animal?	Y	Y	Y	Y
Long Neck?	Y	Y	N	N
4 long legs?	Y	N	Y	N
Action				
Define as Giraffe	x			
Not Giraffe		x	x	x

These are rules of inductive behavior. As discussed previously, we have certain hypotheses regarding certain events evolved from observed regularities. Based on further observations, we attempt to establish of behavioral action based on the results of these test rules. These are formalized in statistical decision functions.

According to Neyman, "the statistical decision function of the rule R is the function $a(E)$ establishing the correspondence between the possible outcomes of the experiment and the actions to be taken in accordance with the rule R ^{1/}. The outcome of an experiment relates to observations and in the social sciences they take the form of primary statistical data and summary measures.

The test of hypotheses examines degree of probability that Rule R will lead to correct actions, e.g., if thunder and dark clouds then run for cover (because of the high probability of rain). The "if" part is the condition

^{1/} J. Neyman, First Course in Probability and Statistics, Henry Holt and Co., New York, 1950, p. 10.

while the then part is the action taken. In decision logic tabular form:

Condition (If)	Rule			
	1	2	3	4
Heavy Thunder	Y	Y	N	N
Dark Clouds				
Overhead	Y	N	Y	N
Action (Then)				
Take cover immediately	X			
Don't take cover immediately		X	X	X

Applying the above procedures in formulating socio-economic measurements becomes a challenging exercise in relating theory with observations. All of the basic decision rules should have been initially worked out from theory (which in turn is operationally based on empirical observations). We make certain assumptions regarding socio-economic behavior in developing these measures using inductive reasoning. Of course, these must be formulated within the institutional constraints of the society under study. In the work that we are doing, we are establishing systematically, certain rules of classification in transforming statistical observations obtained from questionnaires into socio-economic measurements. 1/

1/ H. Albrecht in his Study: Living Conditions of Rural Families in Pakistan, household types uses eight criteria (or conditions) to form household groupings; see p. 35)

125

(e) Developing Cross-Tabulations

A basic weakness of many statistical handbooks and manuals, is that they do not adequately explain the rationale for the recommended tabulation plans or formats. Theory must precede action.

This writer believes that the explanations for any recommended questionnaire format are more important than the actual questions included since the latter can be modified or improved upon in subsequent field tests as long as the purpose of the question(s) is understood. In this last section, we return to basic concepts and apply these ideas to develop cross tabulation plans.

As previously explained, population at a point of time represents a stock variable while a production stream over time represents a flow variable. It was also pointed out that, using the labor energy model, we can assume that certain types of population stock carries with them different bundles of potential labor energy (or earning power) to be used in work/non-work activities over a period of time. In this regard, there is associated with every population, certain discount rates which converts flows into stocks. In one type of cross-tabulation analysis, a particular population group (associated with potential earning

power, e.g., the educated) is crossed with work utilization (and underutilization) measures.

The theoretical formulation, simply put, states that the better educated on the average is to have higher earnings (other things equal) because of embodied educational investments (and other correlated inputs).

The cross-tabulation between these two sets of variables, earnings received and educational attainment indicates quantitatively the distribution of magnitudes associated with this particular theoretical model. The same information could be generated using regression analysis but it does not fully show the distributional effects shown in tabular form unless it has distributional variables. The choice of using either of these two forms, of course, depend on the scope of the investigation.

Hence, in selecting a stock variable for a particular population, e.g., by age, sex, education, etc., we have expected values which are evaluated by analyzing data in cross-tabulations. That is, these stock variables have embodied flow characteristics and by relating them to flow variables, the investigator tests his/her initial ideas regarding their interrelationships.

Another method is to use stock (or flow) variables as proxies in aggregative analysis. Thus, as pointed

out before, household production units play more important roles in economies of developing countries than in developed countries because of the former's predominant agricultural sectors. Under these circumstances information on household relationship, e.g., head of household, crossed by other variables becomes very useful in analyzing the household production sector. This, of course, depends on how information is obtained from household heads in the survey and on the economic role of household heads.

In summary the underlying rationale in formulating cross-tabulations must be made clear. The use of decision logic tables helps in the analysis. Tree diagrams are also very useful to identify classificatory variables. Essentially, these two are the same except in format. Regressions with distributional variables are also useful in developing initial analytical models. Cross tabulations, although sometimes bulky, show the full distributional relationships and provide more information in forming statistical classifications. The use of stock/flow models also help in conceptualizing relationships. Finally, in all of this, the users and producers of primary statistical information must interact and work together in formulating questions, the measures to be used, and the proposed cross-tabulations to be generated.

APPENDIX III

DESIGN OF THE PILOT SURVEY

A. INTRODUCTION

It is assumed that financial support is available for this pilot study to test out the feasibility of implementing the proposed multipurpose household sample survey. This field test involves not only ascertaining the additional time necessary to carry out the interviews but also to work out the full range of collection and processing procedures, including field editing, allocating missing information, keypunching, processing of data and final tabulations. The term "feasibility" means not only being operational but also being useful. Also, additional special field and office staff will have to be organized, trained and supervised in this field test operation. Additional administrative costs will include printing, transportation, and processing costs. It is important that costs data be compiled in the pilot survey so that an estimate of resources required for the annual survey could be computed in determining whether or not the questionnaire design should be reduced and modified to reduce costs.

B. FIELD OPERATIONS

It is proposed that the "hot house" test be conducted in three types of areas - urban, rural, and mixed urban-rural. This should provide an evaluation of the questionnaire as used under different interview situations. The sample size should be about 600 households in each area, or a total of about

1800 households. Possibly, about a third of the sample households should use the proposed questionnaire with the migration supplement. The other third should be households which would use the currently used Labor Force questionnaire. The last third should be households which would use no probing questions but will include the migration supplement only. This type of allocation would allow comparison of interviewing problems and comparison of data obtained from the proposed questionnaire and the currently used labor force questionnaire. Among others, the evaluations should include:

1. Comparing data obtained from the proposed multipurpose survey questionnaire with the migration supplement against data obtained from the currently used Labor Force questionnaire which includes information on migration. This evaluation should indicate (1) whether the time series information on the labor force has been seriously affected or not (2) the cost-effectiveness of the proposed questionnaire relative to the present questionnaire and (3) interviewing problems in using the proposed questionnaire.

2. Comparing data obtained from the proposed multipurpose survey questionnaire with the migration supplement against data obtained from the proposed multipurpose survey questionnaire without any special probing questions but with the supplement. There may be budgetary constraints which may require that the probing questions be used as special supplements on an infrequent basis. This comparison should provide some idea

of the cost effectiveness of this option. If resources permits, the analysis should compare data obtained from households included in the three areas - urban, rural and mixed urban rural. As a minimum, if resources are not available, there should be some comparison of the costs and results obtained from the use of the proposed multipurpose questionnaire against using the present labor force survey questionnaire. The review of the cost-effectiveness of these two options, should indicate whether or not the proposed questionnaire should be used or not, whether it should be used in total or whether it should be modified and reduced somewhat to meet budgetary and other possible problem areas.

APPENDIX IV

SUMMARY OF ACTIVITIES IN PAKISTAN

The writer arrived in Pakistan on June 12 and left Pakistan on July 1. Approximately 2 days were spent in Washington, D. C. on literature research and meetings with AID and World Bank officials in preparation for this assignment in Pakistan. Also 2 days were used to finish writing this report.

The first 3 days in Pakistan (June 12-June 14) were spent in Islamabad discussing with GOP and USAID personnel covering informational needs associated with the "demand" side of the proposed multipurpose sample household survey. Meetings were held with Mr. E.L. Auchter, Chief of the Division of Economic Analysis, USAID; Mr. S.Y.A. Rahim, Deputy Chief, Manpower Section, Planning Division; Dr. J. Azfar, Chief of the International Economics Division; Ministry of Finance; and Mr. A.A. Kahn, Secretary, Economic Affairs Division, Ministry of Finance, Planning and Development. An important point brought out in these meetings was that the survey proposal should keep intact the present time series information currently compiled in the quarterly labor force sample survey.

From June 15 through June 19, discussions were held in Karachi examining operational problems relating to the "supply" side of proposed multipurpose sample survey. Statistical Division personnel involved in these meetings were:

Mr. M. Yusuf, Deputy Director, Statistics Division

Mr. A. Aftab, Director, Statistics Division

Mr. N.A. Sheikh, Chief, Labor Section, Statistics Division

As the result of these discussions, it was informally

agreed that the proposed extension of the on-going quarterly labor force survey into a multipurpose household sample survey including income data was a good idea. This proposal would include supplementary questions for human resource developmental planning. However, it was repeatedly pointed out by producers that users should make more clear what and how information collected in this survey would be used. This writer agrees that unless data collected in the survey are utilized, it would be wasteful to conduct any elaborate household survey. It was also noted that information collected in surveys be framed in terms of users' needs. It was also concurred that the labor force approach should be retained with necessary supplementations such as the use of probing questions to obtain more useful information on seasonal work activity and other such information. Taking these and other points into consideration, an initial multipurpose sample survey questionnaire design was formulated and typed in preliminary format by June 19. A field test was conducted in Lahore assisted by Mr. Sharif Khan, Chief Statistical Officer of the Lahore Regional Office on June 20. A randomly selected urban household located in Lahore was used for this test. Mr. Mahmud of the Regional Office also participated in this field test.

On June 21st and June 22nd, respectively, field tests of the initial proposed questionnaire were made in Morgah, Rawalpindi (covering a rural household with both farm and non-farm activities)

and Sattal, Rawalpindi, (covering a farm household). Messrs. Sheikh and Ishtiaq of the Statistics Division participated in this field test. Discussions were also held with Mr. Riaz Ahmed, Chief Statistical Officer of the Rawalpindi Regional Office on field operations.

On June 23rd, there was a general meeting covering the initial proposed questionnaire design at the Planning Commission.

Attending this meeting were:

Mr. S.S. Hoda, Chief, Manpower Division, Ministry of Labor Health, Social Welfare and Population Planning.

Mr. S. Ahmad, Deputy Chief, Manpower Division.

Mr. J. Hamid, Chief, Industries Section, Planning Division, Ministry of Finance, Planning and Development.

Mr. S.Y.A. Rahim, Deputy Chief, Manpower Section, Planning Division.

Mr. V.A. Jafarey, Secretary, Planning Division.

Mr. J. Azfar, Chief, International Economics Section, Planning Division.

Mr. S. Qureshi, Pakistan Institute of Development Economics

Mr. D. Alverson, USAID/DEA.

Mr. T. Durrani, Research Consultant, Pakistan Academy for Rural Development, Peshawar.

Mr. S.A. Ahmed, Director, Statistics Division.

Mr. A. Sheikh, Chief, Manpower Section, Statistics Division.

On June 24th, a follow-up technical meeting on the details of the proposed questionnaire items was held. Attending this meeting were:

Mr. J. Hamid, Chief, Industries Section, Planning Division.

Mr. S.S. Hoda, Chief, Manpower Division.

134

Mr. S. Ahmed, Deputy Chief, Manpower Division.

Mr. T. Durrani, Pakistan Academy for Rural Development.

Mr. S.Y.A. Rahim, Deputy Chief, Manpower Section,
Planning Division

Dr. J. Azfar, Chief, International Economics Section,
Planning Division.

Dr. G. Rasul, Joint Chief Economist, Planning Commission.

Mr. S. Aftab Ahmed, Director, Statistics Division.

Mr. D. Alverson, USAID/DEA.

From June 25th through July 1st, the writer returned to Karachi to consult with Statistical Division personnel and to develop the preliminary report and the revised questionnaire format. At this time, various meetings were held with different officials of the Statistics Division, including meetings on the development of a possible research project to find better ways collecting income data, time measurement procedures, and analysis of low income household for socio-economic planning purposes.

On the evening of June 28th, the writer presented a lecture to members of the Karachi chapter of the Pakistan Statistical Association, at the invitation of Mr. A. Hanif, the President of the Chapter. The title of this discussion was "Current Developments in Labor Force Measurements".

On July 2nd, after returning to Islamabad, separate meetings were held with USAID staff and members of the Planning Commission in which the writer outlined the recommended course of action. The Planning Commission meetings included Messrs. Rahim, Azfar, Hoda and Ahmad. In addition, the writer spent half a day on

July 4th to observe and to consult with the research staff at the Pakistan Academy for Rural Development at Peshawar on methods for conducting sample household surveys in rural areas in Pakistan.

On July 5th, the writer left Islamabad via Karachi to return to Washington, D.C. on July 6th.

APPENDIX V

RECOMMENDATIONS FOR STATISTICAL RESEARCH UNDER PL-480 FUNDING

A. FIELD TESTS TO DEVELOP TIME ACTIVITY DATA

A basic problem in getting adequate data on unpaid family workers and on discouraged workers in rural areas is that responses are usually made in rural areas by the household head and in certain instances with the village headman and others in advisory capacity. It is a group interview situation. Typically, answers to questions on household members are given by the respondent without consulting with any of the family members. Hence, it will be useful to compare similar data obtained from the household head with those obtained directly from household members. In this regard it is hypothesized that the labor force participation rate of female household members are seriously underreported because of bias of the household head in reporting hours worked by household members as unpaid family workers. It is believed that only until such time that a detailed time activity record is made and analysed covering those female household members in rural areas can it be known to what extent the female labor force participation rate is currently underestimated. This problem has wide application, not only in Pakistan, but also in other developing countries which presumably have the same underreporting problem. It is proposed that a number of sample households recently covered in earlier labor force sample surveys, be selected to be included in a detailed time activity study, especially for female members of

the households. The interview will be performed by women interviewers directly with the persons concerned. The data will then be compared against information previously compiled in previous surveys and analyzed. Using these data, correction factors will be calculated to adjust national data presently calculated from results of the labor force survey.

B. FIELD TESTS TO DEVELOP BETTER METHODS FOR COLLECTING INCOME AND EXPENDITURES DATA

A fundamental problem faced in designing the multi-purpose questionnaire is to find efficient ways to collect detailed and reliable expenditure and income data without overburdening the respondent. Income-in-kind data are also very difficult to collect adequately. The purpose of this research is to investigate ways by which income, expenditure and savings data can be collected efficiently in household survey through the use of summary questions. Thus, in one type of study a household will be asked income by income intervals instead of specific values. In another type of study, regressions will be used to determine what expenditure types can be used as proxies for more detailed questions on consumption expenditures. A comparison will be made of information obtained from both sets to determine the use of summary questions in providing information comparable in quality of that obtained from using detailed questions.

C. DEVELOPMENT OF STATISTICAL AND ANALYTICAL MEASURES FOR LOW INCOME HOUSEHOLDS

This project will develop socio-economic measures to identify low income households. Studies will also involve better ways to collect such data. Needs exist to formulate better methods for collecting primary socio-economic data which can be used to formulate level of living indicator. In addition, new ways to analyze low income households in developing countries such as Pakistan will be developed and tested using data compiled in the proposed multi-purpose household sample survey.

The proposed research is deemed important since the findings have world-wide applicability in formulating better methods for collecting vitally needed information on labor underutilization, earnings, etc., in developing countries.

These experiments will be carried out using the following general procedures:

(1) Collection of documentations already available covering these problem areas and summarizing them into a publication for general use. This phase of work will involve rather extensive library research and correspondence work. This may require travel to Asian countries having extensive statistical reference sources.

(2) Organization of an advisory committee for general consultation and review services.

(3) Organization of a small research staff to direct and carry out the projects considered.

(4) Formulation of alternative concepts, designing of questionnaire format and experimental selection schemes, implementing experiments and analyzing results.

(5) Presenting and publishing results of the experiments for comments. The research staff will periodically meet with the advisory committee in order to receive criticisms and suggestions before actual implementation.

Resources Required

- (1) Organization and meeting of the advisory committee
5 members for 8 meetings, including per diem
- (2) Collection and analysis of available research documentations
 - a) Local research
 - b) Foreign research including travel, correspondence
- (3) Organization of research staff and development of experimental material
 - a) Staff for 1 year
 - 1 senior statistician
 - 8 statisticians
 - 1 clerk-typist
 - Local consultant, travel, computer and other services
- (4) Field tests
 - a) Preparation of field work, field personnel, travel, followup, training, etc.
- (5) Analysis and publications
Reports, meetings, publications

APPENDIX VI
CURRENTLY USED LABOR FORCE SURVEY
QUESTIONNAIRE

Statistical Division
Government of Pakistan
LABOUR FORCE SURVEY

1. Quarter _____
2. Household Code _____
3. Extra schedule(s) attached _____

I. IDENTIFICATION

1. District	2. Tehsil/Taluqa/City	3. Village/Enumeration Block	4. Name of head of household with father's name
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II. HOUSEHOLD COMPOSITION AND CHARACTERISTICS

Sl. No.	Name(s) of the household members	Relationship with the head of household	Present or temporarily absent	Age	Sex	Marital Status	Literate	* Level of education	
					M - 1 F - 2	N.M. - 1 M - 2 W - 3 D - 4	Yes - 1 No - 2		
	b	c	d	e	f	g	h	i	
1									*Less than primary 1
2									Primary but less than Matric 2
3									Matric but less than Degree 3
4									Degree-General Education 4
5									Degree & Post Graduate Diploma other than general education 5
6									Others 6
7									Not attended any educational institution 0
8									
9									
10									
11									
12									
13									
14									
15									

III. 1977-1978 SEASONS

For each year-old member 10 years of age or more)

Name S. No.	a				b				c				d				e				f							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. What kind of work did he/she do last week?	Go to Items 3-11																											
2. What kind of business industry or service was that?	No, Go to Item 12				No, Go to Item 12				No, Go to Item 12				No, Go to Item 12				No, Go to Item 12				No, Go to Item 12							
3. What was the name of establishment where worked?																												
4. Whether he/she worked last week as: (Cross appropriate box)	1 Employer	2 Self-employed	3 Unpaid family helper	4 Employee	1 Employer	2 Self-employed	3 Unpaid family helper	4 Employee	1 Employer	2 Self-employed	3 Unpaid family helper	4 Employee	1 Employer	2 Self-employed	3 Unpaid family helper	4 Employee	1 Employer	2 Self-employed	3 Unpaid family helper	4 Employee	1 Employer	2 Self-employed	3 Unpaid family helper	4 Employee	1 Employer	2 Self-employed	3 Unpaid family helper	4 Employee
5. Whether he/she worked last week as: (Cross appropriate box)	1 Owner Cultivator	2 Share Cropper	3 Contract Cultivator		1 Owner Cultivator	2 Share Cropper	3 Contract Cultivator		1 Owner Cultivator	2 Share Cropper	3 Contract Cultivator		1 Owner Cultivator	2 Share Cropper	3 Contract Cultivator		1 Owner Cultivator	2 Share Cropper	3 Contract Cultivator		1 Owner Cultivator	2 Share Cropper	3 Contract Cultivator		1 Owner Cultivator	2 Share Cropper	3 Contract Cultivator	
6. How many hours did he/she work at this job/seasoned equivalent item - 9) last week?	XX	XX	XX	XX																								
7. No. of hours if worked at any other jobs? last week?	XX	XX	XX	XX																								
8. Total No. of hours worked last week (9 + 7)	XX	XX	XX	XX																								

143

11. What was the reason he/she worked less than 35 hours during last week? (Check appropriate box)	1 Not enough work	2 No need to work more	3 Others (specify) Go to next col.	1 Not enough work	2 No need to work more	3 Others (specify) Go to next col.	1 Not enough work	2 No need to work more	3 Others (specify) Go to next col.	1 Not enough work	2 No need to work more	3 Others (specify) Go to next col.	1 Not enough work	2 No need to work more	3 Others (specify) Go to next col.
12. Was he/she ever worked before? (Check appropriate box)	1 Yes, Go to item 15	2 No, Go to next col.		1 Yes, Go to item 15	2 No, Go to next col.		1 Yes, Go to item 15	2 No, Go to next col.		1 Yes, Go to item 15	2 No, Go to next col.		1 Yes, Go to item 15	2 No, Go to next col.	
13. How many days has he/she been since he/she last worked? (Check appropriate box)	1 Days, Go to items 16, 17, 18	2 Days, Go to items 16, 17, 18	3 Days, Go to items 16, 17, 18	1 Days, Go to items 16, 17, 18	2 Days, Go to items 16, 17, 18	3 Days, Go to items 16, 17, 18	1 Days, Go to items 16, 17, 18	2 Days, Go to items 16, 17, 18	3 Days, Go to items 16, 17, 18	1 Days, Go to items 16, 17, 18	2 Days, Go to items 16, 17, 18	3 Days, Go to items 16, 17, 18	1 Days, Go to items 16, 17, 18	2 Days, Go to items 16, 17, 18	3 Days, Go to items 16, 17, 18
14. What was the reason for not working? (Check appropriate box)	1 Employer	2 Self-employed	3 Unpaid family helper												
15. What was the reason for not working? (Check appropriate box)	1 Holiday leave	2 Temporary illness	3 Industrial disputes	1 Holiday leave	2 Temporary illness	3 Industrial disputes	1 Holiday leave	2 Temporary illness	3 Industrial disputes	1 Holiday leave	2 Temporary illness	3 Industrial disputes	1 Holiday leave	2 Temporary illness	3 Industrial disputes
16. What was the reason for not working? (Check appropriate box)	1 Bad weather	2 Other (specify)	3 Other (specify)	1 Bad weather	2 Other (specify)	3 Other (specify)	1 Bad weather	2 Other (specify)	3 Other (specify)	1 Bad weather	2 Other (specify)	3 Other (specify)	1 Bad weather	2 Other (specify)	3 Other (specify)

10

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IV. MIGRATION

(Applicable to all persons of 10 years age and above mentioned in Part II)

Name	a		b		c		d		e		f	
S.No.												
1. Did he/she ever move from his/her place of birth (Rural) to the last movement either from his/her place of birth or previous place of residence within the State?	1	Yes, Go to items 2-5										
	2	No, Go to next col.										
2. If yes, give the name of:- 1. Town/Village 2. Tehsil/Taluka 3. District from where he/she moved to this place												
3. How long has it been since he/she last moved here?		Months Year(s)										
4. What was the reason for moving from place mentioned against item 2?												
5. Has he/she been doing any work for pay or profit or as an unpaid family helper before moving to this place?	1	Yes, Go to items 6 to 8	1	Yes, Go to items 6 to 8	1	Yes, Go to items 6 to 8	1	Yes, Go to items 6 to 8	1	Yes, Go to items 6 to 8	1	Yes, Go to items 6 to 8
	2	No, Go to next col.										
6. What kind of work did he/she do before he/she moved to this place?												
7. What kind of business, industry or service was that?												
8. What he/she worked there as (Cross appropriate box)	1	Employer										
	2	Self-employed										
	3	Unpaid family helper										
	4	Employee										

1. Filled in by: Name: _____ 2. Checked by: Name: _____ 3. Edited & Coded by: Name: _____
 Signature: _____ Signature: _____ Signature: _____
 Date: _____ Date: _____ Date: _____

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14/5