Time Use Data and the Living Standards Measurement Study

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Time Use Data and the Living Standards Measurement Study
The Living Standards Measurement Study (LSMS) was established by the World Bank in 1980 to explore ways of improving the type and quality of household data collected by Third World statistical offices. Its goal is to foster increased use of household data as a basis for policy decision making. Specifically, the LSMS is working to develop new methods to monitor progress in raising levels of living, to identify the consequences for households of past and proposed government policies, and to improve communications between survey statisticians, analysts, and policy makers.

The LSMS Working Paper series was started to disseminate intermediate products from the LSMS. Publications in the series include critical surveys covering different aspects of the LSMS data collection program and reports on improved methodologies for using Living Standards Survey (LSS) data. Future publications will recommend specific survey, questionnaire and data processing designs, and demonstrate the breadth of policy analysis that can be carried out using LSS data.
Time Use Data and the Living Standards Measurement Study

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# TIME USE DATA AND THE LIVING STANDARDS MEASUREMENT STUDY

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INTRODUCTION

This paper underlines the need for collecting time use data for the Living Standards Measurement Study (LSMS). LSMS is an attempt to provide a better information base for measurement of living standards in general and poverty in particular. 1/ Time use data is crucial to the measurement of living standards both for developing more realistic and meaningful indicators of welfare and poverty and for providing deeper understanding of the dynamics of poverty and development. This paper is divided into two parts. The first part presents a theoretical overview as to why time data should be collected. Specifically, it is argued that time use data is necessary for measuring the real work burden and leisure of the different groups of population, for providing more accurate measures of employment and unemployment in developing countries and for studying the shift of activities from non-market to the market sector in the development process. Examples of the utilization of time use data for analysis of various aspects of development are also presented. The second part briefly reviews methods of data collection, discusses costs involved and recommends a framework for time use data collection and analysis for LSMS.

1/ See Chander, Grootaert and Pyatt, 1980.
I. THEORETICAL OVERVIEW

Time Use and the Measurement of Welfare

Time use data is relevant to the measurement of welfare directly because time is a source of utility and indirectly because it provides a valuable guide to the estimation of value generated and services performed within the household.

The utility attribute of time has long been ignored in economics. Linder's (1970) explanation of why and how this happened is lucid and instructive. At the early stages of civilization, productivity was so low that the marginal utility of goods which could be produced, say in one hour, was always greater than the marginal utility of time, if consumed directly. Therefore, time in itself did not seem to have utility. With the increase in productivity and the more intensive utilization of time, the marginal utility of goods has declined and that of time has increased. People in developed countries have now reached a point where they can afford to choose whether to enjoy time directly or to use it to produce more goods. Wealthier people in developing countries also may have reached this point. If this point is chosen voluntarily, then non-work time is a source of welfare. If living standards are to be measured in welfare terms, then they should include the utility derived from leisure, or direct consumption of time.

Leisure becomes important in the measurement of poverty because many of the extremely poor are also often overworked. Accumulating evidence from micro-level studies in Asia does not support the frequently held presumption that idleness is a key feature of rural poverty. Time use data from eight village case studies in Nepal (Appendix 1, Table 2) show that adult
men in Nepal on the average work 7.5 hours a day and women 10.8 hours a day.

Male children in the 10-14 age group work 4.8 hours a day and female children 7.3 hours. Furthermore, working hours for children are negatively related to income status of the family (Appendix 1, Table 4). 1/ Hart (1980), from her study of 518 households in a village in central Java, concluded that the landless are in a precarious welfare position not only in terms of general quality of life, but also because they worked "extremely long hours in arduous income earning activities yielding low returns to labor." Raj Krishna (1974), analyzing employment data for 487 males from four villages in Rajasthan, found that 32.6% of the sample population were poor and that only 12.2 percent were poor and unemployed--that is to say, only 37 percent of the poor had extra leisure. problem of poverty. Faruqee's (1980) conclusions from a countrywide 24-hour time allocation study of 700 households in Bangladesh are similar. He found that male heads of household worked about 10 hours per day, while their wives worked 10 to 11 hours per day. He writes, "hours of productive work 2/ increase when a person's family capital becomes smaller. Among the nonindustrial population both in the city and village, income has negative relation to productive work hours." Cain, Khanam and Nahar (1979) also find poor women working very hard. Kusnic and DaVanzo's (1980) analysis of "full income" in Malaysia

1/ No such pattern is visible in adult working hours, however. This might be due to the very conservative definition of economic strata. The relationship between income status and work burden is being analyzed further.

2/ In this study, productive work included: (a) work for cash earnings; (b) self-employment; (c) family expenditure saving work; (d) study and training; and (e) work unpaid but needed due to scarcity or external inefficiencies.
illustrates that the poor work longer than average hours. Only Mueller's study from Botswana (1979) showed a high incidence of unutilized time among all economic strata.

It is evident from the above examples that leisure cannot be ignored in the analysis of quality of life and poverty. Human beings need a certain amount of time for rest and recuperation. Some people have no time for rest while others might have an excessive amount of time for it. The amount of time available to an individual for leisure activities should, therefore, be considered as an indication of well-being and thus of a standard of living.

This is specifically important in the light of basic needs approach to development. The basic needs approach is concerned with creating conditions whereby the absolute poor may have access to a minimum of food, shelter, primary health care, basic education and clean water (Leipziger, 1981). A minimum amount of leisure is also a basic need. Development strategies should not put an excessive work burden on the poor.

At this point it is necessary to define what is meant by leisure. In classical economic theory, all non-market time was classified as leisure. In subsistence economies, however, a large proportion of total goods and services is produced within the household, and withdrawal from the market does

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1/ "Full income" in this analysis included value of all market production, production at home, domestic services and leisure. Income from leisure valued at the market wage rate, however, could be either negative or positive, depending upon whether people worked more or less hours than the average derived from the sample. Leisure income was added to income from three other sources described above in order to derive "full income." Addition of income from leisure made the poor households even poorer when compared to earlier comparisons based on income derived only from three other sources.
not always imply availability of free time. For example, in a study of approximately 1200 individuals from 192 households in eight villages in Nepal (Acharya and Bennett, 1981), we found that market employment 1/ within the village constituted only a fraction of the total working hours spent in the village. Men spent only 1.24 hours on market activities out of a total of 7.51 working hours per day. The proportion of market time (0.46 hours) in the total number of working hours (10.81 hours) for women was still smaller (Appendix 1, Table 2). According to the production data, the degree of market intermediation in the generation of per-household income varied from slightly below fifty percent for a village about 2 hours' drive from the heart of the capital, to only about 17 percent for a village in the Middle Hills. In another village (Sirsia), located near a thriving city in eastern Nepal and within 10 miles of the Indian border, only 19 percent of average household income passed through the market. 2/ Studies from Africa have shown similar results (UNECA, 1974). Thus, the classical definition of leisure as all non-market time is too broad and does not reflect the realities of subsistence economies.

At the other extreme, Linder's (1970) definition of leisure, which he terms as "direct consumption of time", includes only the time which is spent on pure passivity. According to Linder, people may spend their time in any of the following five activities: specialized production, personal work, consumption, cultural activities and passivity. Specialized production

1/ Work for wage and trading, shopkeeping, etc.

2/ It is also interesting to note that market intermediation in the generation of income seems to be positively correlated with the income status of the households (see Acharya and Bennett, 1981).
includes all activities generating income or resulting in products. Personal work consists of all kinds of services and may be subdivided into two parts: maintenance of one's own body (sleep, personal hygiene, etc.) and maintenance of goods. Consumption consists of final use of goods and services. Cultural activities include various exercises related to the cultivation of mind and spirit. Differentiating between consumption and culture time, Linder writes, "consumption goods play a central role for consumption but only an incidental role for culture time." Passivity is pure idleness.

Measurement of leisure according to Linder's classification of activities would be extremely complicated, however. It is hard to separate leisure consumption and culture time in practice. People may sleep longer, go to a movie or read a book because they have free time. What difference does it make to welfare whether people read a novel or watch movies?

For practical purposes, the classical definition of leisure is too broad, while Linder's definition is too difficult to operationalize. An alternative, more easily measurable definition of leisure was utilized in the Nepal study (Acharya and Bennett, 1981): leisure was defined as the total time available to a person, less time spent on production of goods or services, either at home or market, less minimum time required for reproductive, educational and social activities.

Furthermore, it is important to differentiate between voluntary leisure and forced leisure. The "choice" between work and non-work does not always exist for people in very poor households at low stages of technology. Therefore, if a poor person is not working, in the face of starvation he is not deriving any "welfare" from the leisure he has. Leisure acquires welfare value only when voluntarily chosen.
There has been some confusion as to how to account for leisure as an indicator of human development. There have been attempts to measure the "utility" derived from leisure in terms of foregone earnings and include it in the overall concept of income (Kusnic and DaVanzo, 1980). The attempt to attribute a value to the utility of time in terms of foregone earnings, however, is fraught with difficulties.

First, utility is measurable only if the constant marginal utility of money is assumed. Assumption of constant marginal utility of money is not plausible empirically.

Second, a foregone earnings approach seems of doubtful value for analysis of poverty because it implies valuing leisure at different prices for different people. According to this approach, value of leisure imputed to each individual's welfare will depend on his earnings. A loaf of bread is valued at its market price irrespective of by whom it is consumed, however. It is not inherently clear as to why leisure should be valued any differently.

This approach would also be misleading for derivation of aggregate welfare maximization functions. For example, A works 12 hours and earns $1 per hour and B works 8 hours and earns $10 per hour. The forgone earnings or opportunity cost approach would impute $10 to B's ninth hour and $1 to A's 13th hour. In the aggregate welfare function, B's leisure would enter with greater weight leading to misallocation of leisure among the individuals. This seems to gloss over the very question of equity, which is one of the major concerns of LSMS.

Third, valuation of leisure by the foregone earnings approach implies the existence of a market for all kinds of labor equally at all hours
of the day and all times of the year. Labor markets in most developing countries are seasonal, however. The value of leisure is overestimated in cases where there are no earning opportunities in the market.

Finally, the foregone earnings approach assumes that every action has a foregone, quantifiable value. But, in practice, many decisions are unexplainable in quantitative terms. The labor and commodity markets in the developing world are influenced by so many non-quantifiable variables that it is hard to take the market wage as a guideline for valuation of home produced goods, domestic work, child care or leisure. For example, people from higher socioeconomic groups will never join the labor force in their lifetime. What price should be attached to their leisure?

Becker (1965) introduced and Gronau (1977) expanded the concept of "full income" as a measure of total welfare. Although the existence of a household utility function and its maximization by the average household is a plausible assumption, there is no way the arguments of the utility function could be captured fully. The alternative is to assume proportionality of utility to measurable concepts like "full income" and to construct "full income" maximization models for households. But the role of other factors is too strong in household decisions to be ignored in this way.

The alternative of deriving a shadow price of leisure from the household production function (Deaton, 1980), though not free from other defects, would yield a closer estimate of real productive value of leisure for the household. The idea is to derive a shadow price of leisure from a household's production maximization function where time enters as a resource. This, however, implies that the price of leisure will depend upon the productive assets of the household. Productivity of labor depends on technology
and technology depends on the availability of capital. Low-capital households will end up with a lower shadow price of leisure and vice versa. Use of these shadow prices in the aggregate welfare function will once again result in inequitable distribution of leisure.

There is a simpler, although theoretically less attractive, way of taking account of leisure in the measurement of living standards: Time use data can be used for deriving the real amount of voluntary leisure enjoyed by households. The proportion of time spent on voluntary leisure could be added as one more indicator of the standard of living, along with other indicators, such as schooling, health status, etc. (U.N., 1975). Generally, one would expect that societies at higher stages of development would be able to spend a greater proportion of their time on leisure. At the individual level, however, people in developed countries seem to be devoting a larger proportion of their time to income earning activities. But at the aggregate level, this might not be so if leisure is defined so as to include time spent on consumption, recreation and other cultural activities. Time spent on education and research activities could be another useful indicator of levels of development.

An overall time balance could also be used for analysis of national or group welfare. Feldheim, Patrushem and Manz, in their respective articles on time use (Szalai, ed., 1972), have illustrated how the proportion of time allocated to different groups of activities could be taken as a yardstick of human development and used for socioeconomic planning. For example, development may be defined as a process in which time needed for the production of basic human needs declines progressively. As such, the time devoted to production of basic needs by society as a whole may be taken as an indicator
of the levels of development and social productivity. A country at an advanced level of development might be expected to devote a minimum of its social time to the fulfillment of basic needs and services, while a poor country might devote all of its time to such activities. It would also be useful to compare the time allocated to producing the basic needs of life among different population groups within a country. Some groups might be devoting all of their time to the production of goods and services without being able to fulfill their basic needs, while others might be devoting minimum amounts of time to income generating activities. This kind of analysis would require time use data classified by type of goods, however, which may be beyond the scope of the LSMS.

From a policy point of view, the question of attainable levels of welfare for households and nations at given levels of productivity and a given socioeconomic structure is crucial to analysis of many aspects of human capital development. Examples from Nepal, Upper Volta, Guatemala and Indonesia show that the reason why poor children do not attend school is not because their parents do not want them to or are calculating some low future return on the capital invested in education, but simply because they are not able to support the child through school. Income and productivity of the poor must increase before they can make substantial investment in human capital.

In the Nepal study, for example, it was found that children in poor households had to work longer hours than children in wealthier households if the family was to meet its subsistence needs (Appendix 1, Table 4). Poor households could not afford to send their children to school. Similarly, need for their labor at home was first among the reasons given by parents for not
sending their children to school (Acharya and Bennett, 1981; Nag, White and Peet, 1980). In their evaluation of the Project on Equal Access of Women and Girls to Education in Upper Volta, McSweeney and Freedman (1980) concluded that "after the age factor, the fact that children helped with the work was cited as the most important obstacle to schooling and it was cited more frequently with reference to girls than to boys." Hart (1980), in her study on Indonesian villages, also confirmed that poor families cannot afford to send their children to school. From a study of four villages from eastern Guatemala, Clark (1981) concluded that for some children work opportunities may compete with education.

Employment Concepts and Time Use

Time use data is a valuable complement for deriving realistic measures of employment and unemployment in developing countries.

In conventional employment surveys, the category of employed includes all persons who work in the organized market sector or are self-employed in a family enterprise, with or without pay, during the reference period. The unemployed includes those who are seeking work as well as those who have never worked before but are looking for jobs. Economically active includes both of these categories.

The categories of work for which information is collected are ill-defined and biased toward market activity, however. Work is generally defined as receipt of cash or in-kind income in the form of wage, salary, or profit for activities in agriculture, trade, industry (usually defined by sectors such as weaving, sewing, iron works) or services (teaching, portering, domestic services for pay, etc.). Unpaid domestic work is specifically excluded
from the definition of work in U.N. census manuals (U.N., 1968). But nowhere is domestic work defined. As a result, it becomes a residual category including, besides cooking, child care and domestic services, all food processing, kitchen gardening, animal tending, fuel and water collection, fishing, hunting and gathering and manufacturing for home use, activities generally performed on a large scale within the household in the subsistence sector.

This restrictive definition of employment has resulted in an underestimation of the amount of work performed in the subsistence sector in general and the work done by women and children in particular. Time use studies from Nepal (Acharya and Bennett, 1981), Indonesia (Hart, 1980), Bangladesh (Faruqee, 1980), Philippines (Quizon-King, 1978) and India (Jain and Chand, 1980) illustrate that non-market activities represent a substantial percentage of work time in poor households.

For example, the 1971 Nepal census reported an economic activity rate for population aged 10 years and above of approximately 83 percent for males and 35 percent for females. In contrast, the time use study of eight villages in Nepal cited earlier (Acharya and Bennett, 1981) reported that adult females spend 4.62 hours daily on activities which fall within the conventional definition of employment, while men spend 5.81 hours on these activities (Appendix 1, Table 2). Anthropological literature on Nepal describes Nepalese women performing most of the farmwork. There seems to be no consistency in defining 83 percent of the males as economically active and only 35 percent of the females so. Thus, economic activities performed by

\[1/\] For a review of anthropological literature on division of work in Nepal see Acharya, 1979.
women and children are greatly underestimated in conventional employment statistics. Jain and Chand (1980) compared the employment figures reported by the Indian National Sample Survey with time disposition studies from six villages in two states and came to similar conclusions. These findings point not only to the urgent need for refining the concepts of employment and economic activity rates, but also to the value of time use data in measuring employment in the subsistence sector.

In recent years the inadequacy of the present definition of these concepts of employment has been discussed widely. Some consensus has emerged on the need for making employment categories more realistic (U.N., 1978; The Asia Society, 1978), but there is still a great reluctance to introduce conceptual changes in the definition of employment and unemployment used in census work. The U.N. approach in this respect has been to emphasize the elimination of bias in practical aspects of data collection, such as interviewer and respondent bias. Improvement in the conceptual framework is still left to the experimental studies undertaken by specialized agencies like FAO and ILO. In this context it is important to collect more realistic measures of employment in the household surveys proposed under LSMS.

From a policy point of view, the importance of deriving realistic employment data cannot be overemphasized. Incorrect perceptions usually result in incorrect policies. The Nepal case may be cited once again to illustrate this contention. Since it is assumed that Nepal is a labor surplus country, low-technology labor-intensive programs are emphasized. This is particularly true for programs devised for women. Most of these programs have failed to attract the necessary labor; an influx of Indian labor is evident
in all branches of the economy. Time allocation data from eight village
case studies reveal that, given the level of technology, labor surplus is only
seasonal. The major problem is that of long hours of work and low productivity.
Consequently, only projects of higher productivity will be attractive for
Nepalese labor. The macro-level question, therefore, is whether to import
low-productivity labor or high-productivity capital rather than whether to
employ more domestic labor or imported capital. The policy importance of
deriving time-based unemployment figures for India has been well illustrated

**Poverty, the Subsistence Sector and Time Use**

Time is the basic resource for a poor subsistence household and
all major household decisions are linked to the allocation of available
time. In subsistence households, the bulk of goods and services are produced
and consumed within the household. Capital plays a minor role in the produc-
tion process. The total time available to the household from its members is
the major source of income. Consequently, household decisions on marriage,
fertility, education and other investments in human capital and supply of
labor to the market, all matters of vital importance to the nation, are
influenced by considerations of time.

Time puts an absolute limit to all human activity. Labor, which is
equivalent to working time, has always been considered as one of the basic
factors in production. In the macro-level one-sector models used for invest-
ment planning, the work force is an important aspect of discussion. Given the
size of the working age population, labor time is a fixed resource in the
static models. With the transition to two-sector models, however, this
important constraint on human resources is relaxed. The analysis centers on the market sector on the assumption that there exists a free pool of labor in the traditional sector waiting to be drawn into the modern sector. Given the very low productivity of labor in the traditional sector and comparatively high productivity in the modern sector, the cost of transfer of labor to the modern sector seems negligible to planners. This is the demand side of the story.

The value of time, however, is quite different to those who supply labor, the subsistence and poor households. Poor households often face a scarcity of both time and material resources. Failure to understand this basic fact of poverty has resulted in erroneous policy conclusions in the past.

In recent years, this time constraint has been recognized by the school of new-household economics, which, despite several measurement problems discussed earlier, has made an important contribution to understanding household behavior. In classical economics, households are considered only as consuming units. In the new-household economics, households are viewed as mini-factories which combine time and market goods to maximize household utility. The time of the household members and capital stock constitute the major constraints in these models. Several examples of this kind of maximization model constructed for developing countries can be found in recent literature. Questions studied in these models include: market supply of female and child labor (Quizon-King, 1978; Rosenzweig, 1981); demand for child services, investment in schooling and child leisure (Banskota and Evenson, 1978); and nutrition levels and women's work (Popkin, 1978; DaVanzo and Poh,
All of these models, however, are based on the assumption of an unlimited market for labor, which is true neither in developed nor developing countries (Deaton, 1980; Deaton and Muellbauer, 1980). The conclusions derived from application of these models can be taken only as tentative at present.

Moreover, the data requirements for household models are more complex than for overall time balance, mean or average analysis. Time use studies completed so far have not been able to generate data that are accurate enough for this kind of mathematical analysis (Engle and Butz, 1981). More accurate data needs could only be satisfied by extended observation, which is not possible on a large scale given the limited institutional framework of most developing countries.

After a review of studies completed on Laguna households in the Philippines, several researchers involved in the study (Evenson, Popkin and Quizon-King, 1979) concluded that "the understanding of the behaviour of rural households is not so complete that simple and seemingly unsophisticated analysis does not have much to tell." There are simpler and more meaningful frameworks for analyzing time use data. A well thought out time balance for households or nations, for example, would provide valuable insight into the development process and help to clarify the policy implications.

The Nepal study (Acharya and Bennett, 1981) is an example of this type of analysis. In the Nepal time-use analysis, activities were divided into four categories: (1) conventional economic; (2) extended or subsistence economic; (3) domestic; and (4) leisure.
Conventional economic activities are those activities which are conventionally included in the economic activity rates, at least conceptually (see Appendix 1, Table 2).

Extended economic activities include food processing, fuel and water collection and manufacturing for home use, i.e., all activities which result in increasing material resources within the household. In industrial countries, the major part of food processing, fuel and water collection and home construction are performed outside the household and, hence, are considered income generating activities. The fact that these same activities are often performed within the household in Nepal and other developing countries is not sufficient reason for excluding them from the definition of economic activities. In the Nepal study, food processing alone accounted for 16 percent of the physical product generated in the household. 1/ Current census practices in developing countries recognize agricultural work, either for market or domestic use, as economic activity. By the same logic, food processing, manufacturing for home use, and fuel and water collection, as well as services, should be included in the economic analysis of the household. Products generated from these activities could be valued easily on the basis of market cost or "replacement cost" basis.

1/ The valuation procedure used was rather conservative, however. First, immediate pre-cooking processing was not included. Thus, while parboiling, post-parboiling, milling and husking were considered as food processing, pre-cooking cleaning of rice was included in cooking rather than in food processing. Second, the value added from one unit of food processing was considered equal to the local market price of similar processed product, less the local market price of the raw materials used and other costs involved, such as milling cost for paddy.
Domestic activities include cooking, cleaning, child care and all other work not included in economic or extended economic activities and conventionally termed as services. The valuation of these kinds of services is still very controversial. If valued and added to GDP, they might double the GDP instantly (see U.N., 1977). Valuation attempts are still at the experimental stage (see Kusnic and DaVanzo, 1980). Moreover, the controversy regarding the valuation of domestic activities seems to be irrelevant to the development issues facing Nepal at this stage. The immediate choice before poor households is producing subsistence goods at home or in the market. Services play lesser roles in this choice. Only the material production process is amenable to immediate intervention from outside the household and capable of yielding direct results in terms of increases in productivity and income. Therefore, we decided to keep the category of domestic activities separate in our time use analysis.

The fourth category in our classification—leisure—includes education, personal maintenance, socialization and passive time.

The purpose of the Nepal study was to highlight the role of women in Nepalese society. The analytical framework concentrated on the analysis of division of labor within and without the household. The results of the study and policy conclusions for Nepal are summarized in Appendix 1.

For LSMS, a new framework is needed because the questions of concern are slightly different. The time balance constructed must provide adequate information for assessment of welfare status of individuals and countries and for understanding the dynamics of poverty.
II. A FRAMEWORK FOR DATA COLLECTION AND ANALYSIS

a. Analytical Framework

LSMS analysis should start with the construction of a time balance sheet for the nations under study and the average households in different economic strata. For analysis of poverty, a time balance should have four vertical and two horizontal classifications of activities. The four vertical classifications should be the following: (1) specialized production; (2) services; (3) reproductive activities; and (4) leisure. Horizontally, activities should be divided between market and non-market activities. The detailed content of each group of activities is discussed in the next section. A brief description and logic for this classification will be dealt with in this section.

Specialized production should include all work which results in products, irrespective of whether it is performed at home or in the market. People in poor countries, in general, may be expected to be devoting a much larger proportion of their time to production of goods than people in wealthier countries. Production of goods needs to be analyzed separately from production of services because, for development, creation of goods has a different significance than creation of services. No one can survive on services alone: one must be able to exchange them for goods. Development policy has often ignored the fact that production of goods is the basis of human development; in many cases, concentration of efforts on services has resulted in inflationary situations.

Services are important in improving the quality of life and for human survival. Services include three groups of activities: (1) maintenance of body, if performed for others (e.g., barbers' services); (2) maintenance of
goods; and (3) professional, cultural and entertainment services performed for income. Maintenance of body and maintenance of goods should be separated for analyses of time use because, while time spent on the first kind of service may not vary much with the stage of development, time spent on maintenance of goods will rise quickly with the increase in the amount of goods available for consumption. Cultural, educational or professional activities, if performed for income, have to be included in services because they are direct income generating activities for individuals, although they generate income only indirectly for society. From society's point of view, there is no difference between a cultural activity undertaken for income and one undertaken for enjoyment. However, for an individual there is a big difference in these two kinds of activities.

The third group—reproductive activities—should include all activities concerned with maintenance of self, e.g., time spent on personal hygiene, eating, sleeping, childbearing, illness, education, socialization, etc.

Leisure, as defined in the first section of this paper, should exclude time devoted to specialized production and services, and exclude a minimum of time spent on reproduction and socio-political activities. The problem is how to define this minimum. There is no difficulty in ascertaining minimum time needed for basic education, but for sleep and socio-political activities, some subjective criteria has to be used. The other alternative is to define leisure broadly as all time other than that spent on specialized production, services and a minimum of reproductive activities necessary for physical survival (i.e., exclude education, socialization and political
activities from this latter category and include them in leisure). These questions could be resolved at the analytical stage, provided the data is detailed enough for regrouping.

Time, however, has to be further divided into market and non-market time for a meaningful analysis of the subsistence sector in developing countries. Developing economies are predominated by household production of both material goods and services. Market intermediation in consumption and cultural activities is also negligible. The development process is associated with a deeper and deeper penetration of the market into the subsistence sector. This process might have positive as well as negative effects on work distribution, consumption and nutrition within the household. It is also related to the demand for and supply of goods to the modern sector. Any analysis of time use data for developing countries would be incomplete and misleading if it did not deal with the market and non-market distribution of time.

b. Data Requirements

Although all data collection is problematic, data on time use are considered to be more difficult to generate. Human activity has both temporal and spatial dimensions. Comprehensive data on time use should contain information on all dimensions of time use: timing, duration, sequence and frequency of the activity, place of the activity and form of organization within which the activity takes place. All dimensions of time use are interesting in themselves and useful for various types of analysis (see Szalai, 1972), but generating data on all of the above aspects of time use can be very complicated. We do not need data on all dimensions of time use for LSMS.
Information on duration, seasonality, timing and place (market/non-market) of the activity are the most important aspects of time use from the LSMS point of view, i.e., for programming purposes in the host countries and for project work in the Bank. This discussion, therefore, will be limited to generating the data on these four dimensions of time use.

(i) Activity List

The methods and instruments used to collect data on the four aspects of time use relevant to LSMS—duration, seasonality, timing and place of work—will depend on the details of the activity breakdown wanted. A structured, comprehensive activity list is a must for all time budget studies in order to minimize the chances of mis-definition of activities into work and non-work and to derive accurate employment figures.

An activity list must have four features. First, activities must be classified according to the type of activity and whether or not the activity is performed in the market. For example, work at home, such as food processing, should be matched with similar work in the market, given comparable primary codes and assigned to similar analytical categories. A separate code should designate whether the activity is performed in the market. Moreover, activities in the household sector should be specified to the same level of detail as those in the market sector. Only then will LSMS be able to provide an adequate data base for an accurate assessment of the actual employment status of the population and an analysis of the shift of activities from the non-market to the market sector in the process of development. A study of this shift is necessary for evaluating the real increase in goods and services generated in the economy in the process of commercialization. A second
important requirement is that the activity list provide enough information for a cross classification of time use by the four categories outlined above and into market and non-market orientation of specialized production and services. Third, the activity list must be comprehensive enough to serve as a guide for the field survey. Finally, it must be precise enough to be amenable to different groupings, because different groupings may be necessary for answering different kinds of questions.

Whatever the format of the form for the interview, there must be an activity list so that the effect of perceived value judgments on the part of both interviewer and interviewee is minimized. The major problem in current employment data, apart from conceptual vagueness of the definition of work, is the effect of cultural value judgments. This effect can be minimized only if a pre-defined activity list is provided to the interviewer. The time oriented form, i.e., where the observer writes down the activity as it is observed in a sequence without a predefined activity list, also reduces the effect of value judgements to a certain extent by pinning down the use of time, but the activity list is a better instrument for minimizing this kind of error. In addition, a precoded structured list of activities reduces both the cost of subsequent processing and the inconsistencies in recording due to the differing perceptions of the interviewers.

In order to capture the division of labor within the household, most productive activities must be subdivided into processes; division of labor by sex and age often corresponds with processes rather than products or sectors. Therefore, to be useful for programming purposes as well as for assessing the economic role of women and children in the household economy,
the list of activities should be detailed enough to capture this division of labor within the household. In the modern sector, it is easy to assess the contribution of women and children through labor and income statistics. For the subsistence household and unorganized small enterprises, study of the division of labor is the only way to do so.

Market/non-market classification of activities is very difficult. Goods produced at home as a result of a series of activities are often neither completely for market nor completely for home use. Part of the product enters the market, while another part does not. The proportion between marketed and non-marketed parts will vary from household to household depending upon its orientation (subsistence or non-subsistence). The practical solution to this problem is recording the activity according to the place of work, unless the work is explicitly performed for wages. Market/non-market orientation of the product should be handled at the analytical stage. Similarly, transportation time presents another difficulty. It seems reasonable to include time spent on transportation of goods in the category of specialized production. Passenger transportation time might be included in services.

It is very difficult to draw a universal list of activities applicable to all countries. The activity list presented below is intended as an example (Figure 1). The concrete shape of the listing will depend on the nature of the economy.
Figure 1. Activity List

I. Specialized Production

1. Animal husbandry and poultry
   (a) Market
   (b) Non-market

   Herding
   In-shed care
   Fodder collection
   Other (shearing, butchering, milking, etc.)

2. Agriculture and allied operations
   (a) Market
   (b) Non-market

   Land preparation
   Fertilization
   Planting
   Weeding
   Harvesting, transportation of harvest, post harvest threshing and cleaning
   Irrigation
   Horticulture and vegetable gardening (including kitchen gardening)
   Seed selection
   Fertilizer preparation
   Other

3. Fishing, hunting and gathering (including fuel collection)
   (a) Market
   (b) Non-market

4. Food processing
   (a) Market
   (b) Non-market

5. Manufacturing
   (a) Market
   (b) Non-market

6. Construction
   (a) Market
   (b) Non-market

7. Other
   (a) Market
   (b) Non-market
II. Services

1. Maintenance of body

   (a) Market
   (b) Non-market
   - Cooking, cleaning, sewing, etc.
   - Child care
   - Shopping
   - Caring for the sick, grooming, etc. (other than self)
   - Other

2. Cleaning and maintenance of goods

   (a) Market
   (b) Non-market

3. Professional services

   (a) Market
      - (Including religious, political and social work for pay)
   (b) Non-market
      - Voluntary religious, political and social work
      - Teaching and research
      - Medicare
      - Entertainment and culture
      - Other

4. Passenger transportation

   (a) Market
   (b) Non-market

III. Reproductive Activities

- Childbearing
- Grooming and personal hygiene
- Sickness and treatment
- Eating
- Education
- Sleeping
- Ritual and religious activities
- Visiting and socialization
- Self transportation for these activities

IV. Leisure: Entertainment, play

- Cultural activities for enjoyment
- Self transportation for these activities
- Passive time
(ii) **Time Breakdown**

The most problematic question in collection of the time use data is perhaps the time breakdown. Time breakdown required would depend on the degree of details wanted on activity. For example, "hour" would be a sufficient unit of breakdown if the information wanted is on just work and non-work. If we want to break down the category of work between market and non-market activities, "hour" as a unit of time measurement might still be acceptable. But if the information wanted is on breakdown of non-market work on agriculture, animal husbandry, cooking, child care, food processing, fuel and water collection, etc., the hour would be too gross a unit of measurement, for it would tend to minimize the chances of reporting activities which take less than an hour per day. Half an hour or even a 20-minute breakdown would be more acceptable for this kind of activity. Further, if information on personal hygiene and on-the-job rest is also required, the unit of measurement might have to be 5 or 10 minutes. The unit of time adopted, however, also depends on the method of survey to be used.

What should be the unit of temporal recording for LSMS? Choice of analytical framework and activity list, in a way, leads to choice of the appropriate time interval. Given the activity list cited above, a 30-minute recording is necessary.

(iii) **Other data requirements**

The kind of analysis proposed above requires many other kinds of data besides those on time use. It is assumed that other parts of LSMS would generate data on:

1. Age/sex distribution of the sample population.
2. Spatial distribution of the sample population.
3. Income status of the households and the population.
c. **Methods of Data Collection**

Time use data may be collected by recall, observation or diary keeping. In the recall method, the respondents are asked to report what they did during the reference period, which may be a day, week, month or year. For observation, the interviewer has to record the activities of a single person chosen or of all household members. In the diary method, respondents are asked to keep their own diaries. The diary method is out of the question for developing countries, where literacy rates are very low.

Several variations of the recall method or observation method, or a combination of both, may be adopted. Most technical and anthropological studies record information by observation, while most economic and sociological information is generated by interviews. Time use surveys have used both methodologies. Mueller (1978), Quizon-King (1977) and White (1976) have observed that the data generated by observation tend to be more accurate than those generated by recall. The recall method of interview, by definition, relies on the recollection of the respondent. There is always a lapse of time between the occurrence and the recording of an activity. This creates problems of memory lapse and of selective recall on the part of the informant. Activities of a recurrent nature but of shorter duration tend to be underreported. This is specifically so for activities connected with domestic work and personal hygiene. Observation would eliminate errors due to memory lapse of the respondent, but the costs of large-scale observation are huge.

In the Nepal study, a combined method of survey and observation techniques was adopted. This method was used earlier by Erasmus (1955) and Johnson (1975). In this method, what is observed is a frequency of people performing different activities at a predetermined, randomly chosen moment.
The interviewer is provided with a form which has precoded activities listed vertically, a list of sample households and a chart of randomly chosen moments for observation of each household. He is asked to write the names of the household members across the horizontal axis at the top of the form. He visits the household at the predetermined randomly chosen moment and marks the activity observed for each person in the household. He goes to the next household included in the sample and repeats this exercise. The time distribution per activity is derived from the frequency of observations. 1/

The question of observation versus recall should also be considered in the light of the LSMS survey machinery visualized. If the LSMS is going to be a one-round survey, there is no question of generating time use data by observation because the pattern of time use varies with the time of the day, the day of the week and season. Besides, there needs to be one observer per person, or at least per household, per day. Therefore, a sample of 4000 would require at least 4000 simultaneous observers for one day. Training this number of observers for one day would be too expensive and wasteful. If the LSMS is conceived as a multi-round survey (at least four times a year), hiring the same observers for all rounds of the survey would be desirable but not practical. Therefore, observation as a method of data collection is ruled out if the period observed has to be continuous and sequential and at the same time cover a large sample.

In the Nepalese study (Acharya and Bennett, 1981) this problem was solved by adopting a method of frequency observation rather than longitudinal observation. This method, however, can be applied only if the survey

1/ This method is described in detail in Appendix 2.
period is long enough so that there is a high probability of covering all hours of the day in random sampling. All days of the week and all seasons must also be covered by observation. The frequency observation method is very simple and the training needs of the interviewers are minimal. It can generate data on four dimensions of time use—time, duration, frequency and seasonality of the activity. There is, however, a major assumption in derivation of duration of activity from frequency of activity. It is assumed that distribution of observations is equal to distribution time use. This method, moreover, cannot be adopted as a one-time or two-time survey.

The method of data collection chosen will also depend on staffing arrangements. If the LSMS utilizes a permanent household survey staff, training and supervision needs are greatly reduced. But even in this case, adoption of an observational method for collection of time use data becomes very expensive for a reasonably acceptable sample. The interviewer is tied up for the whole day with one individual or with one household. But a method of frequency observation becomes feasible if there is a permanent household survey staff. Since the method of frequency observation is very easy to supervise and takes only one or two hours per day, it could serve as part time employment for local people, e.g., primary school teachers or secondary school students.

d. Survey instruments

The instruments for LSMS should be simple and easily comprehensible. Many of the instruments utilized for time use surveys have been too complicated for the interviewer (see Forms B, C and D in Appendix 2). Interviewers in developing countries are usually high school graduates or people with minimal
education. The majority of them will never have seen a calculating machine. From my experience, it is unreasonable to expect an interviewer with a high school or lower level education to fill out these complicated forms correctly, no matter how much training they are given.

There is also a huge time cost involved in the use of unnecessarily complex forms, both for the interviewers and the respondents. For example, according to my estimates, completion of forms such as those proposed by Anker or those used in the Malaysian Family Life Survey (Forms B and C in Appendix 2) with reasonable accuracy would take at least 2 hours per interview, not per household. In many cases, too much information is sought on one instrument, adding to its length and complexity. Often, less than half of the data obtained is used in the analysis. The form used in the Philippines (Form E) must have taken considerably less time. The Indian form (D) would take about an hour per household. The information requested on these last two forms is very limited and not adequate for welfare analyses, however. The LSMS activity list needs to be somewhat more extended.

Fortunately, some of the information required for the LSMS can be obtained by methods other than household questionnaires. Data on wages and other payments are easier to collect at the community level, and the rates usually do not vary from person to person. Variables such as work organization and labor contract systems are usually community-specific in developing countries and would be more easily observable at the community level. This kind of collection is less intensive in time and training.

The merits and demerits of using different kinds of forms for data collection on time use have been discussed in detail by Mueller (1978) and Anker (1980). These studies divide the forms into those oriented towards time and those oriented towards activity. In the time-oriented forms, the
hours are printed sequentially and the respondents are asked to describe their activities sequentially. In the activity-oriented forms, activities are printed and the respondent is asked whether he/she performed any of them during the reference period. In case of positive answers, the respondent is asked how long he/she performed that activity. Examples of instruments utilized in a number of time use studies are provided in Appendix 2.

For LSMS, it is necessary to generate data on two temporal dimensions of time use—duration and timing—and one spatial dimension—place of work. Except in the frequency method of observation, it would be inconvenient, though not impossible, to record duration and timing if an activity-oriented form is adopted. A time-oriented form will easily provide information on duration and timing, as well as on the sequence of activities. Information on place of work can be accommodated on either type of form by providing market and non-market classifications for all activities and by providing a specific code for each.

A time-oriented form seems preferable to an activity-oriented form on considerations of cost and convenience. It enables recording the time use of several persons in a household on the same form. If an activity-oriented instrument is used, each member of the household must be supplied with one form in order to collect information on both timing and duration. If this is not done, the information on timing and duration would have to be precoded and the coding may become rather complicated.

From my experience, the time-oriented form seems to stimulate the process of recall. Often it is argued that people in agricultural societies have no time orientation (Szalai, 1972). This statement is true
to the extent that agricultural societies do not measure time by the same scale, i.e., the clock. But according to my observation, they have their own time scale, which aids them for daily activities. On visiting the fields in Asia during cropping or harvesting season, one finds people doing almost the same thing at the same hour every day. For example, in the Nepal Terai or in North India, during the harvesting period people wake up early before dawn, perform hygiene in the early hours and go to the fields. In the late morning, around 7 or 8, it is usual to see the same persons carrying the food to the fields. One finds them having a mid-day meal at noon and resting about one hour. Without a conception of daily time distribution, it is hard to perform these activities with such accuracy. White (1972) reported that people in the Javanese village studied by him had a fairly accurate sense of time. It seems to me that translating the scale of daily timing used by the rural society to our scale of timing, i.e., the clock, is less problematic than overcoming the inaccuracies introduced by long periods of recall and dates.

The type of form to be used for the interview also depends on the period of recall desired. If the period of recall is more than a day in one round of the survey, it becomes difficult to use the time-oriented form.

Both the time breakdown and the details of the activity list can be flexible from country to country, provided the information collected can be grouped afterward under the same major headings and time intervals. In other words, there is a limit to aggregation of activities as well as time reference, but there is no limit to disaggregation. The degree of disaggregation could be decided by each country according to its programming needs and the resources available.
A sample time-oriented form for collecting time-use data is presented below (Figure 2). Each hour is broken into four 15-minute intervals. The interviewer would be given a precoded activity list in addition to this form. He would record the code of activity reported in the appropriate space against the person's number listed on the top line. Simultaneous activities can be recorded concurrently in the same space. Whether an activity is for market or non-market may be indicated by a letter or a number code. Similarly, the primary or secondary status of the activity may also be identified by providing a special code for them.

One very specific problem in this kind of interview is the difficulty of capturing the precise time distribution of very frequent activities. How many minutes of an eight-hour workday are taken by consumption and personal maintenance? Is the time devoted to consumption and maintenance activities during working hours included in work or personal maintenance? Is it possible to classify this time into a separate category from work and collect information on it? Can the reported time spent on personal maintenance ever be accurate? This kind of information cannot be captured except by direct 24-hour observation or diary keeping. For data collected by all other methods, it should be kept in mind that the reported time on personal maintenance is most inaccurate and probably always less than actual.

e. Reliability, Validity and Cost of Data Collection

The reliability and validity of any data collected in developing countries—particularly that which is obtained by recall—may be questioned. The reliability of time use data has been discussed extensively (see Boulier, 1977; Mueller, 1978; and Engel and Butz, 1981). It is true that it is much more difficult to remember which activities you did yesterday or last month
Figure 2. A Time-oriented Form for Collecting Time Use Data

Household Number: ________________________________________________________

<table>
<thead>
<tr>
<th>Household Members</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>... etc.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hour</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>05–06(AM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06–07(AM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–21(AM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
than what you earned, if your income is received as a lump sum. But for a poor household, whose source of income is precarious and irregular, it is equally difficult to remember what was earned during the month or the year. For example, in an experimental study in Nepal (Campbell, Shrestha and Stone, 1979), in 38 percent of the sample households the income reported to two groups of interviewers by the same respondents differed by more than ten percent. Discrepancy in the total reported income for these same households amounted to 233 percent. We do not discard the use of income data, however. They are the best approximates available. Similarly, data on time use should be taken as the best approximation of reality and treated accordingly.

All of the doubts about the reliability of time use data, i.e., inaccuracy of reported duration, influence of the interviewer on the respondent, intentional distortion by the respondents, are equally relevant to other types of data collected in developing countries. For example, the age reporting in demographic surveys in developing countries is a subject of constant concern. Still, it is not considered appropriate to abandon all demographic analysis based on age breakdowns. These analyses have been quite useful for practical purposes. Similarly, time use data, though imperfect, would be very useful for clarifying certain development issues. The effort, therefore, should be concentrated on improving the reliability and validity of the data rather than discarding it.

The reliability of data, besides the nature of the data itself depends on the complexity of the instruments used as well as willingness of the respondent to answer the questions correctly, the possibility of minimizing memory lapse on the part of the respondents, and the training level and understanding of the interviewers.
f. **Sampling**

   (i) **Size and scope**

   The sample size depends on the purpose of the study and the variety of the situations to be covered. The purpose of LSMS is to generate more accurate data for designing and monitoring development policy in general, and specifically those policies related to poverty, basic needs and income distribution. For this kind of study, the sample must be large enough to be meaningful for disaggregated analysis of different groups of the population. A cross-classification of time use data by climatic region and socioeconomic group is necessary for formulating development plans and programs. As such, all occupational groups, climatic regions, and major social and racial groups within the country must be covered by the sample. The sample size must be big enough for a comparative analysis between the subgroups. The sample should also include both sexes and all age groups in the population. Finally, market/non-market classification of activities is crucial to the whole analysis of poverty and development. The sample size should be big and extensive enough to generate information on all types of activities to make possible cross-classification at the analytical stage.

   (ii) **Unit of sampling**

   What should be the unit of sampling for time budget study—households or individuals? An individual's time use pattern depends very much upon what other members of the household do. If the unit of study adopted for other aspects of LSMS is the household, would it be appropriate to do the same for time use? Many of the questions on time use are related to the household as a whole but some are also related to the individual. For example, a mother's time spent on child care may be dependent on the children's time spent on the same activity. Does data generated on the household level introduce bias into
the study of mothers' time use or children's time use? In the Nepal study, we examined the time-use pattern of mothers-in-law and daughters-in-law from the same households. Was it valid to make a statement such as: mothers-in-law spent on the average xm hours on the activity while daughters-in-law spent xd hours on the same activity? Or should we have chosen daughters-in-law and mothers-in-law in separate samplings?

(iii) Respondents

It has usually been noted that time recording should be first hand, in other words, that the respondents should report only for themselves. In the recall method, however, it is not possible to interview young children. The reporting has to be by a third person. In such cases, mothers would be in a better position to report on activities of young children because they are more closely associated with their activities.
Appendix 1

Summary of Findings from the Nepal Time Use Survey
and Policy Recommendations 1/

The findings presented here are based on a time use study conducted among the Baragaonle, Lohorung Rai, Kham Magar, Parbatiya (Brahman, Chetri and low caste Sarki), Newar (Jyapu), Tamang, Tharu and Maithili ethnic communities in eight villages representing all ecological zones of Nepal. The studies utilized an integrated methodology, combining elements of qualitative observations, key-informant interviews and quantitative surveys. Findings on time use and policy implications therefrom are summarized below.

Data Base

Time use data was collected for 192 households consisting of about 1,200 individuals (Table 1). Half of these people were observed for six months and the other half for one year. The methodology is described in detail in the note to Form A in Appendix 2.

Findings on Pattern of Time Use

Females were found to work longer hours than males in all age groups (Table 2 and Figure 1). In a 16-hour day, adult women work an average of 10.81 hours, while men work only 7.51 hours. Female children in the 10-14 age group work 7.31 hours, almost as long as adult males. Boys in the 10-14 age group work considerably less, about 5 hours per day. Once again, female children 5-9 years of age work longer hours than males in the same age group—3.39 hours for girls against 2.33 hours for boys.

1/ Acharya and Bennett, 1981.
Appendix 1

Table 1. SAMPLE POPULATION BY AGE AND ECONOMIC STRATA*

<table>
<thead>
<tr>
<th>Economic Strata</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>top</td>
<td>middle</td>
<td>bottom</td>
</tr>
<tr>
<td>0-4</td>
<td>17</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>5-9</td>
<td>15</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>10-14</td>
<td>16</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>15+</td>
<td>87</td>
<td>90</td>
<td>99</td>
</tr>
<tr>
<td>Total</td>
<td>135</td>
<td>133</td>
<td>174</td>
</tr>
</tbody>
</table>

* Sample for the time allocation study. This pertains to seven villages only. Figures for the sub-sample population of the eighth village are not available in Washington at present.
Appendix 1

Table 2. COMPARATIVE TIME USE PATTERN FOR MALES AND FEMALES BY AGE GROUP
(For 6 Villages, hours per day)

<table>
<thead>
<tr>
<th>Activities</th>
<th>Age Group/Sex</th>
<th>Above 15 Years</th>
<th>10 - 14 Years</th>
<th>5 - 9 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Both</td>
<td>Male</td>
</tr>
<tr>
<td>Animal Husbandry</td>
<td>1.43</td>
<td>0.97</td>
<td>1.17</td>
<td>2.46</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2.73</td>
<td>2.74</td>
<td>2.72</td>
<td>0.90</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.42</td>
<td>0.45</td>
<td>0.44</td>
<td>0.03</td>
</tr>
<tr>
<td>Market Activities</td>
<td>1.24</td>
<td>0.46</td>
<td>0.81</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>(In-Village)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Labor Force Participation</td>
<td>5.81</td>
<td>4.62</td>
<td>5.15</td>
<td>3.63</td>
</tr>
<tr>
<td>Hunting and Gathering</td>
<td>0.17</td>
<td>0.05</td>
<td>0.11</td>
<td>0.08</td>
</tr>
<tr>
<td>Fuel Collection</td>
<td>0.24</td>
<td>0.38</td>
<td>0.32</td>
<td>0.15</td>
</tr>
<tr>
<td>Fetching Water</td>
<td>0.07</td>
<td>0.67</td>
<td>0.40</td>
<td>0.23</td>
</tr>
<tr>
<td>House Construction</td>
<td>0.25</td>
<td>0.08</td>
<td>0.16</td>
<td>0.06</td>
</tr>
<tr>
<td>Food Processing</td>
<td>0.18</td>
<td>0.97</td>
<td>0.62</td>
<td>0.12</td>
</tr>
<tr>
<td>2. Subsistence Economic</td>
<td>0.91</td>
<td>2.16</td>
<td>1.60</td>
<td>0.64</td>
</tr>
<tr>
<td>Cooking/Serving</td>
<td>0.27</td>
<td>2.05</td>
<td>1.25</td>
<td>0.15</td>
</tr>
<tr>
<td>Cleaning Dishes and Pots</td>
<td>0.03</td>
<td>0.39</td>
<td>0.23</td>
<td>0.03</td>
</tr>
<tr>
<td>Cleaning House/Mud</td>
<td>0.04</td>
<td>0.46</td>
<td>0.27</td>
<td>0.04</td>
</tr>
<tr>
<td>Laundry</td>
<td>0.02</td>
<td>0.15</td>
<td>0.09</td>
<td>0.01</td>
</tr>
<tr>
<td>Shopping</td>
<td>0.24</td>
<td>0.17</td>
<td>0.20</td>
<td>0.06</td>
</tr>
<tr>
<td>Other Domestic</td>
<td>0.04</td>
<td>0.13</td>
<td>0.09</td>
<td>0.05</td>
</tr>
<tr>
<td>Child Care &amp; Rearing</td>
<td>0.16</td>
<td>0.69</td>
<td>0.45</td>
<td>0.22</td>
</tr>
<tr>
<td>3. Domestic</td>
<td>0.79</td>
<td>4.03</td>
<td>2.57</td>
<td>0.55</td>
</tr>
<tr>
<td>I. WORK BURDEN (1 + 2 + 3)</td>
<td>7.51</td>
<td>10.81</td>
<td>9.32</td>
<td>4.83</td>
</tr>
<tr>
<td>4. Education</td>
<td>0.43</td>
<td>0.10</td>
<td>0.25</td>
<td>1.72</td>
</tr>
<tr>
<td>5. Personal Maintenance</td>
<td>1.45</td>
<td>1.12</td>
<td>1.27</td>
<td>1.35</td>
</tr>
<tr>
<td>6. Social Activities</td>
<td>0.31</td>
<td>0.16</td>
<td>0.23</td>
<td>0.12</td>
</tr>
<tr>
<td>7. Leisure</td>
<td>6.30</td>
<td>3.81</td>
<td>4.93</td>
<td>7.98</td>
</tr>
<tr>
<td>II. Total IN-VILLAGE ACTIVITIES</td>
<td>16.00</td>
<td>16.00</td>
<td>16.00</td>
<td>16.00</td>
</tr>
</tbody>
</table>

Source: Acharyya and Bennett, 1981.
HOURS/DAY

16
14
12
10
8
6
4
2
0

15 YEARS AND ABOVE
10 - 14 YEARS
5 - 9 YEARS

LEISURE

CONVENTIONAL ECONOMIC ACTIVITIES

SUBSISTENCE ECONOMIC ACTIVITIES

DOMESTIC AND CHILD-CARE ACTIVITIES

FIGURE 1

MEN WOMEN

BOYS GIRLS

WORK DISTRIBUTION BY AGE/SEX

BOYS GIRLS
Women on the average devote 4.62 hours a day to conventional economic work, while men spend 5.81 hours daily on these activities. The conventional census practice of classifying a majority of women as economically inactive while classifying men as active, therefore, has no empirical foundation. If subsistence economic activities are included in the definition of economic activity, women spend roughly the same amount of time (6.78 hours) in sustaining the household as men (6.72 hours).

Women are involved in all types of conventional economic activities: they are engaged to a greater degree in agriculture and manufacturing and to a lesser degree in animal husbandry and outside income earning activities. Economic need and suitable opportunities appear to play an important role in drawing women to market activities within the village. Women become involved in market activities even in those communities where women's seclusion is idealized. Only when market participation involves overnight stays away from home do cultural patterns start to have a noticeable effect. Thus, the two villages with the greatest participation of women in market activities within the village displayed markedly different cultural characteristics: one was strongly influenced by Hindu concerns with sexual purity and the ideal of female seclusion (Bakundol), and the other, a Tibetan-speaking Buddhist community, exhibited minimum concern for female purity (Baragaun). Among the villages in our sample, both Bakundol and Baragaun had the best employment opportunities for women. Bakundol is near Kathmandu, the capital, and Baragaun is on an important tourist route. When employment outside the village is considered, however, only the women from Tibeto-Burman group (Baragaun, Thabang and Katarche) showed a significant level of short-term migration for employment (Table 3).
Table 3. EMPLOYMENT OUTSIDE THE VILLAGE
(For Population of 15 Years and Above)
(In person days)

<table>
<thead>
<tr>
<th>Communities/ Village</th>
<th>Total Days Observed</th>
<th>Out for Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tibeto-Burman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baragaon</td>
<td>3849</td>
<td>3549</td>
</tr>
<tr>
<td>Pangma</td>
<td>5787</td>
<td>7333</td>
</tr>
<tr>
<td>Thabang</td>
<td>7343</td>
<td>8312</td>
</tr>
<tr>
<td>Katarche</td>
<td>2644</td>
<td>3057</td>
</tr>
<tr>
<td>Indo-Aryan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bakundol</td>
<td>7448</td>
<td>7614</td>
</tr>
<tr>
<td>Bulu</td>
<td>2854</td>
<td>2935</td>
</tr>
<tr>
<td>Sukrawar</td>
<td>5205</td>
<td>5783</td>
</tr>
<tr>
<td>Sirsia</td>
<td>4320</td>
<td>4088</td>
</tr>
<tr>
<td>All villages</td>
<td>39450</td>
<td>42671</td>
</tr>
</tbody>
</table>

- 44 -
Women in most villages are engaged in trading and keeping of food and tea stalls. Bulk trading and visits to far-away markets are mostly undertaken by men. Cottage industry products, either for sale or domestic use, are produced jointly by men and women, each sex specializing in certain processes.

As elsewhere in the world, the major part of domestic work is women's responsibility: women spend 4.03 hours per day on domestic activities, including child care, compared to only 47 minutes (0.72 hours) spent by men. Child care takes about 41 minutes of a woman's time per day. A division of labor between male and female for domestic work is distinct in the Indo-Aryan group of the villages (Bakundol and Sirsia). Men in these villages seem to specialize in shopping, while in the Tibeto-Burman group (Baragaun and Thabang) no such specialization is apparent (Acharya and Bennett, 1981).

From aggregate data, economic strata 1/ does not seem to make much difference to the work burden of the adult population in the household. Productivity is very low and all have to work hard. 2/ On the average, men of all economic strata work about 7 hours per day, while women work about 10 hours daily (Table 4). The work burden for children, however, does indicate an inverse relationship with the economic status of the family.

1/ National per capita income (US$100) was taken as the yardstick for defining economic strata. Households earning less than 75% of national per capita income were classified as bottom strata, those earning 75-125% of national per capita income were considered as middle economic strata, and households earning over 125% of national per capita income were put in the top strata.

2/ This might be a result of either too low productivity of Nepalese agriculture, so that even in relatively better off households all members have to work very hard for subsistence, or a conservative definition of top economic strata. We are exploring this question further.
### Table 4. WORK BURDEN BY ECONOMIC STRATA AND AGE GROUP (hours)

<table>
<thead>
<tr>
<th>Economic strata</th>
<th>Ages 5 - 9 years</th>
<th>Ages 10-14 years</th>
<th>15+ years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Top</td>
<td>1.73</td>
<td>2.95</td>
<td>4.05</td>
</tr>
<tr>
<td>Middle</td>
<td>2.60</td>
<td>4.45</td>
<td>6.54</td>
</tr>
<tr>
<td>Bottom</td>
<td>3.34</td>
<td>4.31</td>
<td>5.46</td>
</tr>
</tbody>
</table>
Female children in the 10-14 age group spend a greater proportion of work time on conventional economic activities than adult women. They also spend more time (4.17 hours) on conventional economic activities than male children in the same age group (3.63 hours). The same is true for subsistence economic activities and domestic activities. Animal husbandry and agriculture seem to be the major fields of activity for both girls and boys. Girls spend more time on water supply, fuel collection and food processing than do boys. Children in the 5-9 age group spend the largest proportion of their time on animal husbandry and agriculture. Compared to their total time input in economic and subsistence economic activities, they spend less time on domestic work. Thus, their contribution to household production is more direct than indirect. 1/

Adult men seem to spend more time on personal maintenance than adult women. Participation in education is lower for females in all age groups. This corresponds to the fact that women carry a larger daily work burden than men and have less leisure.

Policy Conclusions and Implications for Development

Surplus Labor and Development Strategy. In recent years, planners and aid agencies in Nepal have been paying some attention to questions of integrating women in development. Their plans and programs, however, seem to emanate from two assumptions, namely: (1) that women are only partly employed; and (2) that women do little economically productive work.

1/ This conclusion is only tentative because the work moment in our definition is very strict. For example, if a child of 9 is playing with her sister of 5, it is not considered child care.
In light of the time allocation data, both of the above assumptions seem to be unfounded. The question is not one of providing more work for women but of making their work more productive. The assumption that a pool of unemployed labor exists in the rural areas needs to be reexamined from several points of view. First, is there extra time available for new employment opportunities, given the constant level of technology and organization of production? Average working hours for adults is 9.32 hours per day. Given a more egalitarian distribution of work within the household, there seems to be no scope for asking people to work harder. Second, the workload is divided very unequally between the sexes and people of different economic strata. Workload also depends upon the season, more so for men than for women. A concentration of work at certain times of the day is also observed. Irrespective of economic strata, women's workload remains very high. Only the nature of the work differs: women from wealthier households devote relatively more time to in-household activities while women from poorer families participate to a greater extent in outside employment.

Before deciding upon the choice of development strategy, these questions need to be considered carefully. Technologies conducive to more even distribution of workload throughout the year and leading to a reduction of the work burden of women seem more appropriate than those technologies which increase the workload at the peak seasons of the year.

It should be noted that, although the marginal productivity in the subsistence sector is very low, it is not zero. Some earlier case studies presented statistical evidence that the marginal productivity of
labor is above zero in the areas studied. The current study shows that people prefer to devote a large part of their time to household production, even though in some cases outside employment opportunities are available in nearby cities. Many of the outside employment programs offered are not productive enough to compensate for the production foregone by not working at home. Therefore, new employment programs must be more productive than household subsistence work and provide more income than the corresponding income foregone at home.

Women seem to be more than occupied, and it is necessary to introduce innovative labor-saving technology for household production so that these women can participate in more productive income generating activities and other development programs.

**Fertility and Work.** Comparison of time allocation and fertility data showed no relationship between women's participation in economically productive work and fertility decisions. Women in all communities work very hard and participate in all kinds of activities to a certain degree. But only in those villages where they have alternative role models and channels of power (Baragaun and Thabang) do women have lower fertility rates. Fertility behavior seems to have been affected via two intermediate variables: age at marriage and proportion of never-married women who remain single throughout their lives. It was only in Baragaun, Thabang and Kataarche, villages with

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alternative role models for women, that we found unmarried women above 25 years of age. Moreover, the percentages of never-married women in the population of 26 and above was quite significant for Barabaun (14.3 percent) and Thabang (10.2 percent).

**Education and Training.** It is evident from the time allocation data that children from poorer families, particularly those in the 10-14 age group, work as many hours in combined conventional economic and subsistence activities as adults. 1/ It seems futile to expect that families at low levels of income would be willing to forego the earnings of children and support their children far beyond the minimum necessary age. They have no economic capacity to do so. Girls in the 10-14 age group are made to work much harder than boys in most communities and, therefore, have even less of a chance to go to school. Throughout Nepal, patrilocal residence and patrilineal inheritance patterns with consequent transfer of girls to their husbands' households, further reduce the likelihood of girls' parents making much investment in their education.

Some fundamental rethinking is needed as to how to draw rural girls into schools in Nepal. It is necessary to study the work schedules of these children and devise special educational programs for them that may be different for boys and girls. We saw from the time allocation data that for these children working life starts very early. To take them away from their work for educational purposes is counter-productive. It is hard to convince the poor of the need for this kind of education. In one of the villages

1/ Centre for Economic Development and Administration, Status of Women Project (Tribhuban University, Khatmandu), unpublished data.
covered in our study (Bulu), parents take their five to nine year old children to work in order to teach them the skills they practice. Sending them instead to the formal school system would only aggravate the problem of educated unemployment, since education is looked upon as a stepping stone for getting out of manual work. These children should be taught reading and writing in special schools that operate during off-work times, 2 or 3 hours a day. On the completion of such a program, the brighter ones may be drawn into a vocational school with architecture or engineering careers ultimately open to them.

Since the number of rural women with primary or higher education is very small and mostly concentrated in the higher economic strata, the educational requirements demanded of the applicants for different kinds of training should be waived. Training women might also mean teaching them functional literacy or providing training by using only visual aids.

It is evident from their work pattern that women should be given training in agricultural extension, fuel conservation, health and nutrition, family planning, etc. These women, however, do not have the time or flexibility to leave their households for an extended period. This kind of training, therefore, must be moved to the villages.

Data on time use and the pattern of household production in the villages forms the basis of our analysis. The rural picture presented above is startlingly different from that which is usually assumed on the basis of conventional statistics and perceptions. The real situation calls for a radically different set of policies and programs than that which is usually prescribed.
APPENDIX 2

Examples of Time-Use Survey Instruments

Sample forms used or proposed for five different time-use surveys are presented in this appendix. Notes and instructions are attached to the respective forms.
Form A - Nepal, Status of Women in Nepal

**Daily Activity**

<table>
<thead>
<tr>
<th>Village No.</th>
<th>Household No.</th>
<th>Month</th>
<th>Date</th>
<th>Hour</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Activity Code and Description</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>01010 Animal Husbandry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01020 Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[1/\] For a list of the activities see Acharya and Bennett, 1981
Note Form A, Status of Women in Nepal Study

Stratified random sampling was used to select 24 households in each of eight villages for observation. A total of 192 households were covered in the survey. Stratification was based on caste groups found in the villages.

The 24 households in each village were divided into four groups of six households each. (Six households were found to be the maximum number of households which could be visited by a researcher within the specified hour.) The researcher visited two groups of households each day at two different hours which had been determined in advance by random selection. Each group of households was thus visited on alternate days for a period of six months in four of the villages and one year in the other four villages. The hours of daily visits for each group of households were selected randomly from within the universe of a 16-hour (4 AM to 8 PM) day for 26 weeks in six-month studies and 52 weeks in one-year studies. Thus, each household was visited 78 times in six-month studies and 156 times in one-year studies. The total number of observations was over 90,000.

The field workers were provided with Form A (attached) and code sheets. Form A has precoded and pre-defined activities on the vertical column and person code of the household members on the horizontal line. Field workers were asked to write the name of the household members in the horizontal line against appropriate person codes before visiting the households. They were instructed to visit the households at the predetermined hours (a chart of which was provided to them) and check the appropriate box in Form A corresponding to the family member and the activity being performed.
Concurrent activities were recorded as two separate activities. Since the activities were "moment-recorded", very few cases of joint activities were encountered in this method. Field workers were also required to complete the code sheet on the same day of the observation.

The data collected by this method represent frequency of activity observations within the time horizon used. This was taken as frequency of time distribution and the resulting time allocation data derived. There is an implicit assumption in this jump that if people devote generally more time to activity A than to activity B, they will be observed more times performing activity A than B. In other words, it was assumed that if people spend more time cooking than washing their hands, we would encounter more people cooking than washing their hands. This assumption is statistically valid, provided the group of households being visited within the hour are more or less homogeneous in their major activity patterns. Since the settlements studied were fairly small and each settlement represented only one cultural group, the assumption of homogeneity is close to reality.

Data collected by this method would tend to represent more accurately the density of working and non-working time than those collected by longitudinal recall.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Did R do activity?</th>
<th>Occupation or nature of activity</th>
<th>Amount of time</th>
<th>Mode of payment</th>
<th>If cash received</th>
<th>(If in kind or exchange)</th>
<th>Distance from dwelling to where activity was done</th>
<th>Number of children normally with R when activity is done</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Activity</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>01 Crop cultivation for family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Richard Anker, 1980
Appendix 2. Form C Malaysian Family Life Survey* (SRM 9338)

Survey Research Malaysia Sdn. Bhd.,
SRM House, Jalan Terap,
P.O. Box 2231, Kuala Lumpur.

Main Respondent: ___________________ Other Respondents: ___________________
Address: __________________________
______________________________
______________________________

Interviewer’s Name: ___________________ Number: ___________________
Witnessed By: ___________________ Number: ___________________

Call Record:
<table>
<thead>
<tr>
<th>Case</th>
<th>Date</th>
<th>Day</th>
<th>Time Started</th>
<th>Time Ended</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Language:
<table>
<thead>
<tr>
<th>Language</th>
<th>Code</th>
<th>Language</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malay</td>
<td>01</td>
<td>Mandarin</td>
<td>06</td>
</tr>
<tr>
<td>Tamil</td>
<td>02</td>
<td>Hakka</td>
<td>07</td>
</tr>
<tr>
<td>English</td>
<td>03</td>
<td>Mianese</td>
<td>08</td>
</tr>
<tr>
<td>Cantonese</td>
<td>04</td>
<td>Teochew</td>
<td>09</td>
</tr>
<tr>
<td>Hokkien</td>
<td>05</td>
<td>Other (SPECIFY)</td>
<td>10</td>
</tr>
</tbody>
</table>

"I hereby certify that this interview has been conducted honestly and to the best of my ability.

Date: ................. Interviewer’s signatures: ...............

* Page 4 is only for women.
<table>
<thead>
<tr>
<th>Activity Description</th>
<th>Proportion</th>
<th>Resp. did activity</th>
<th>Total No. including respondent</th>
<th>Prop. done by Resp.</th>
<th>Name of another person who also did this activity</th>
<th>Name of another person who also did this activity</th>
<th>Name of another person who also did this activity</th>
<th>Name of another person who also did this activity</th>
<th>Prop. done by another</th>
<th>Identification Code</th>
<th>Prop. done by another</th>
<th>Identification Code</th>
<th>Prop. done by another</th>
<th>Identification Code</th>
<th>Prop. done by another</th>
<th>Identification Code</th>
<th>Prop. done by another</th>
<th>Identification Code</th>
<th>Prop. done by another</th>
<th>Identification Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washing and ironing clothes</td>
<td>(08-10)</td>
<td>0</td>
<td>2</td>
<td>(11)</td>
<td>(12-13)</td>
<td>(15-17)</td>
<td>(18)</td>
<td>(19-21)</td>
<td>(22)</td>
<td>(23-25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparing food, cleaning up after meals</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>(11)</td>
<td>(12-13)</td>
<td>(15-17)</td>
<td>(18)</td>
<td>(19-21)</td>
<td>(22)</td>
<td>(23-25)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning house</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Caring for children</td>
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<tr>
<td>Other household activities</td>
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<td>7</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Ask resp. if he/she did activity otherwise ask about person did most activity.**

- All the time - 17
- More than 3/4 of the time - 18
- 3/4 of the time - 19
- 1/2 of the time - 20
- 1/3 of the time - 21
- 1/4 of the time - 22
- Less than 1/4 of the time - 23

**No. of weeks activity done in last 7 days (or most recent 7 days):**

- Less than 2 weeks - 24
- 2-5 weeks - 25
- 6-10 weeks - 26

**No. of hours activity done in last 4 months:**

- Less than 2-3 months - 27
- 2-5 months - 28
- 6-10 months - 29

**Observation:**

- Skip - 30
- 31
- 32
- 33
- 34
- 35
time disposition of persons in labour force during the week ended on ..............

<table>
<thead>
<tr>
<th>Serial number as in block 4</th>
<th>usual activity</th>
<th>current activity</th>
<th>Total # of days in each activity during the reference week</th>
<th>Wage and salary earnings (received or receivable) for the work done during the week (Rs. 0.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>status (code)</td>
<td>status (code)</td>
<td>operation (code) operation (code)</td>
<td>seventh day</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
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<tr>
<td>total</td>
<td>1.0</td>
<td>1.0</td>
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</tr>
<tr>
<td>total</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Note to Form D - Indian NSS, 34th Round

(Sarvekshna vol. I, No. 3, Jan. 1978)

The two Employment-Unemployment indicators i.e. distribution of persons per week and distribution of persons per day according to their broad activity status category were obtained by classifying all persons of ages 15-29 (1) according to the activity (or inactivity) in which they were engaged on each of the seven days (or on each half days in certain cases) of the reference week and (ii) according to the unique activity assigned to each person for the reference week. For this purpose, the various activities (inactivity included) were classified into a number of categories listed below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working with an employer under obligation but work not specifically compensated by any wage/salary (attached to landlord, money-lenders, landlord-cum-money lender and others</td>
<td>01-04</td>
</tr>
<tr>
<td>Worked (self-employed) in Household enterprise</td>
<td>11</td>
</tr>
<tr>
<td>Worked as helper in household enterprise</td>
<td>21</td>
</tr>
<tr>
<td>Worked as regular salaried wage employee</td>
<td>31</td>
</tr>
<tr>
<td>Worked as casual wage labor in public works</td>
<td>41</td>
</tr>
<tr>
<td>Worked as casual wage labor in other types of work</td>
<td>51</td>
</tr>
<tr>
<td>Did not work though there was work in household enterprise</td>
<td>61</td>
</tr>
<tr>
<td>Did not work but had regular salaried/wage employment</td>
<td>71</td>
</tr>
<tr>
<td>Sought work</td>
<td>81</td>
</tr>
<tr>
<td>Did not seek but was available for work</td>
<td>82</td>
</tr>
<tr>
<td>Attended educational institutions</td>
<td>91</td>
</tr>
<tr>
<td>Attended domestic duties only</td>
<td>92</td>
</tr>
<tr>
<td>Attended domestic duties and was also engaged in free collection of goods (vegetables, roots, firewood, cattle feed, etc.), sewing, tailoring, weaving, etc. for household use</td>
<td>93</td>
</tr>
<tr>
<td>Too young to work/to attend school/to seek employment</td>
<td>94</td>
</tr>
<tr>
<td>Old and disabled</td>
<td>95</td>
</tr>
<tr>
<td>Rentiers, pensioners, remittance recipients etc.</td>
<td>96</td>
</tr>
<tr>
<td>Beggars, prostitutes, etc.</td>
<td>97</td>
</tr>
<tr>
<td>Others</td>
<td>98</td>
</tr>
<tr>
<td>Did not work due to temporary sickness (for casual workers only)</td>
<td>99</td>
</tr>
</tbody>
</table>

On each day of the reference week a person was assigned any one or at the most two of the activities 01-99 depending on whether the person was engaged in one single activity or more than one activity on the day. In case the person was pursuing more than one activity, the major two activities were only accounted and the person was considered pursuing both those activities, each for half of the day. Thus, if a person worked for 4 hours or more, he was considered 'working' for the whole day and assigned any one of the activities 01-71 on which he was engaged for the day. But if he worked only one hour or more but less than 4 hours, he was considered 'working' half of the day and 'unemployed' or 'out of labour force' the other half of the day, depending on whether or not he was available for work for the remaining part of the day. On the other hand, if a person did not work even one hour but was available for work for 4 hours or more he was considered 'unemployed' for the whole day and assigned activity 81 or 82 depending on whether he was seeking work or was available for work though not actively seeking. But if he was available for work for one hour or more but less than 4 hours he was considered 'unemployed' for half of the day and 'out of labour force' for the other half of the day and assigned the relevant activity. In case a person neither worked nor was available for work even for one hour on the day he was considered 'out of labor force' and any one of the activity categories 91-99 on which he spent major part of his 'active' time, was assigned to him.

6. To obtain the classification of persons on each day according to their daily activity the following procedure was adopted:

7. To obtain the distribution of persons by 'weekly activity' each person was assigned on unactivity out of the different activities pursued by him during the reference week adopting the following procedure:

If a person had worked at any time during the week for at least one hour he was considered 'employed' during the week and was assigned any one of the activities 01-71 on which relatively more time was spent. A person who had not worked even for one hour during the week, but either sought work or was available for work on any day of the week was considered 'unemployed' and assigned the activity 81 or 82 depending on whether he was seeking or was available though not seeking work. Person not considered as 'employed' or 'unemployed' was considered 'out of labor force' and was assigned any one of the activities out of 91-99 on which he spent major part of his 'active' time.
Chart 3.01: Time allocation—home production, past week

<table>
<thead>
<tr>
<th>Item</th>
<th>Father # hours</th>
<th>Father Code 1</th>
<th>Mother # hours</th>
<th>Mother Code 1</th>
<th>CHILDREN</th>
<th>Help 1 # hrs.</th>
<th>Help 2 # hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Marketing (food)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Washing of dishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cleaning backyard/house</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Cooking and preparing food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Washing and ironing clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Getting water and firewood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Mending, sewing or repairing children's clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>8. Care of children:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>0-9 yrs. old</td>
<td></td>
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<tr>
<td>0-3 yrs. old</td>
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<td></td>
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<tr>
<td>3-6 yrs. old</td>
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<td></td>
</tr>
<tr>
<td>6-9 yrs. old</td>
<td></td>
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<tr>
<td>9. Feeding other members of the family</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10. Food preservation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11. Handicraft making/repair</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

1/ Refer to household member code number given in Chart 1.01.
Notes to Form E

Laguna Resurvey 1977

Block 3:

TIME ALLOCATION—HOME PRODUCTION

ENTER REPLIES TO QUESTION IN THIS BLOCK IN CHART 3.01

3.1. How many hours last week were spent on marketing (buying) for food by the father (HH head)? By the mother (R)? By each child relative to this activity? By each of two household help? By others in the household? (Nitong nakaraang linggo ilang oras ang ginugol ninyo, ng inyong tao [asawa], ng inyong anak/mga anak o katulong para sa pamimili ng pagkain? Ng iba pang kasambahay?)

RECORD TOTAL NO. OF HOURS IN APPROPRIATE COLUMNS OF ROW 3.1 OF CHART 3.01. USE FOUR DIGITS, TWO DECIMAL POINTS FOR MINUTES, E.G., 01.30 FOR ONE AND HALF HOURS.

000 (Specific individual did not engage in such activity)
999 NAP (No such specific individual in HH)

3.2. How many hours last week were spent on dish washing by the father (HH head)? By the mother (R)? By each child relative to this activity? By each of two household help? By others in the household? (Para po sa pagliligpit o paghuhugas ng pinggang kinanan, ilan pong oras ang ginugol ninyo, ng inyong asawa, ng inyong anak/mga anak o ng inyong katulong? Ito po ay noon ding linggong nagdaan?)

FOLLOW INSTRUCTIONS AS IN Q3.1.

3.3 How many hours last last week were spent by [MENTION SAME INDIVIDUALS] in cleaning the backyard/house? (Noon din pong nakaraang linggo ilang oras ang ginugol niya/nila para sa paglilinis ng bakuran/bahay?)

FOLLOW INSTRUCTIONS AS IN Q3.1.

3.4 How many hours last week were spent by [MENTION SAME INDIVIDUALS] in preparing and cooking food? (Ilan pong oras ang ginugol niya/nila sa paghahanda at pagluluto ng pagkain noong isang linggo?)

FOLLOW INSTRUCTIONS AS IN Q3.1.

3.5 How many hours last week were spent by [MENTION SAME INDIVIDUALS] in washing and ironing clothes? (Ganoon din po sa paglalaba at pamamalantsa ng damit; ilan pong oras ang ginugol ninyo dito?)

FOLLOW INSTRUCTION AS IN Q3.1.
3.6  How many hours last week were spent by [MENTION SAME INDIVIDUALS] fetching water and firewood? (Para po naman sa pagsalok ng tubig/pag-igib/ at pangangahoy, ilan pito oras ang nagugol niya/nila nitong nakaraang linggo?)

FOLLOW INSTRUCTIONS AS IN Q.3.1.

3.7  How many hours last week were spent by [MENTION SAME INDIVIDUALS] in mending, sewing, or repairing the children's clothes? (Ganoon din po sa pananehi, pagsusuluban at pagre-repair ng damit ng mga bata, ilan oras ang ginugol niya/nila dito?)

FOLLOW INSTRUCTIONS AS IN Q.3.1.

3.8  How many hours last week were spent by [MENTION SAME INDIVIDUALS] in caring for children ages below one year to 9 years, as follows: (Sa pagaalaga po naman ng mga batang may gulang na isa hanggang siyam na taong gulo, may ilan oras ang nagugol nitong nakaraang linggo?

a. 0 - 3 years old
b. 3 - 6 years old
c. 6 - 9 years old

FOLLOW INSTRUCTIONS AS IN Q.3.1.

3.9  How many hours last week were spent by [MENTION SAME INDIVIDUALS] in feeding other members of the family? (Sa pagpapakain po naman ng iba pang kagawad ng pamilya? ilan oras ang ginugol ninyo dito noong nakaraang linggo?)

FOLLOW INSTRUCTIONS AS IN Q.3.1.

3.10 How many hours last week were spent by [MENTION SAME INDIVIDUALS] in food preservation activities? (Sa pagiintak po ng pagkain, ilan oras ang ginugol ninyo noong nakaraang linggo?)

FOLLOW INSTRUCTIONS AS IN Q.3.1.

3.11 How many hours last week were spent by [MENTION SAME INDIVIDUALS] in making and/or repairing handicrafts? (Ilan oras ang ginugol ninyo noong nakaraang linggo sa pagaayos ng mga sirang kasangkapan?)

**Home Gardening**

3.12 Is space available in your homelot for a home garden? (Mayroon po bang lugar na puedeng pagtaniman ng mga halaman?).

1 Yes (To Q.3.13)  0 (END BLOCK INTERVIEW)

3.13 How much space is available? (May ilan po bang metro kuadrado?)

_________Sq. meters.
3.14 During the past 12 months, did you or any member of the household engage in home gardening? (Sa loob po ng 12 buwan, mayroon po ba sa inyo na nagtrabaho sa paghahalaman?)

1 Yes (To Q.3.15) 0 No (END BLOCK INTERVIEW)

RECORD REPLIES TO Q.3.15 - 3.18 IN CHART 3.01 BELOW:

3.15 Which members of your household worked in the home garden in the past 12 months? (Sino po sa kanila ang nagtrabaho niton gnakaraan, 12 buwan?)

3.16 How many hours did [EACH HH MEMBER WHO WORKED] work in the garden per week last month? (Ilan oras po sa loob ng isang linggo siya nagtrabaho nitong nakaraang buwan?)

3.17 How many weeks did [EACH HH MEMBER WHO WORKED] work in the garden last month? (Ilan pong linggo?)

3.18 How many months did [EACH HH MEMBER WHO WORKED] work in the garden in the past 12 months? (Ilan pong buwan?)

Chart 3.01. Family labor in home garden – past 12 months

<table>
<thead>
<tr>
<th>3.15 HH member and code no.</th>
<th>3.16 # hrs./week last month</th>
<th>3.17 # week last month</th>
<th>3.18 # months last year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

RECORD REPLIES TO Q.3.19 - 3.20. IN CHART 3.02.

3.19 Are vegetables grown in your home garden? Fruits? Tubers? Legumes? Others (specify) (May tanim po ba kayong mga gulay, prutas -- a kموتینگ کهٔ٨، مونگو at iba?)
3.20 If the entire amount of [MENTION EACH CROP GROWN] produced during the past 12 months were sold, how much money do you think you could have received? (Kung ipinagbili po ninyo ang produkto noong nakaraang 12 buwan, magkano po kaya ang dapat ninyong napagbilhan?)

9 MAP (For crop not grown in garden)

<table>
<thead>
<tr>
<th>Name of Crop</th>
<th>3.19 whether grown in garden</th>
<th>3.20 Estimated value of produce past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Vegetables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Fruits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Tubers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Legumes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Others (specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.21 Did any person who is not a member of the household work in the garden during the past 12 months? (May ibang tao po bang tumulong sa inyo?)

(1) Yes (To Q.3.22) (0) No (END BLOCK INTERVIEW)

3.22 How many such non-member(s) of the household worked in the garden during the past 12 months? (Ilan po sila?)

___________ persons

3.23 How many hours did such non-member(s) of the household work in the garden last week? (Ilan oras po siya nagtrabaho nitong nakaraang linggo?)

___________ hours past week
3.24 How many weeks did such non-member(s) of the household work in the
garden last month? (Ilan linggo po?)

__________ weeks past month

3.25 How many months did such non-member(s) of the household work in the
garden during the past year? (Ilan buwan po?)

__________ months past year
References


LSMS Working Papers (continued)

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<thead>
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<th>No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
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<tr>
<td>44</td>
<td>The Living Standards Survey and Price Policy Reform: A Study of Cocoa and Coffee Production in Côte d'Ivoire</td>
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<td>45</td>
<td>Measuring the Willingness to Pay for Social Services in Developing Countries</td>
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<td>76</td>
<td>Schooling, Skills, and the Returns to Government Investment in Education: An Exploration Using Data from Ghana</td>
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