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Recent Initiatives in Improving the Collection of Time-use Data for Measuring Work: Some Issues

by

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ABSTRACT

Time-use data are expected to help in understanding and addressing critical socioeconomic concerns including gender inequalities in a country. The data also help in integrating gender into economic analysis and economic policy making to promote inclusive development. Against this rising demand for time-use data, the supply of quality time-use data is not coming forth, particularly in low- and middle-income countries. The problems faced by developing countries are basically of two types: those related to survey design and its different components and those pertaining to the collection of time-use data. The first type of problem can be resolved largely by compiling a comprehensive guidebook by UNSD—which is already done. The second type of problem requires radical changes in time-use data collection methods. This paper presents the recommendations made by UN Women, UNSD, the World Bank, ILO, and other experts, and makes an assessment of these recommendations. The paper argues that a light time diary, recommended by these organizations does not particularly help in accessing quality time-use data. The paper recommends that though a time-use survey is a complex survey, particularly in a country where literacy is low, the survey is feasible if adequate care is taken by the National Statistical Office (NSO).

JEL CODES: AJH

KEYWORDS: Time poverty, LIMTIP, time deficits, unpaid family labor

INTRODUCTION

As is well-known, time-use surveys (TUS) provide comprehensive information on how individuals spend their time—on a daily or weekly basis—on different activities like economic activities that fall within the production boundary, activities that fall within the general production boundary but outside the production boundary—like unpaid household services, care and voluntary services—and personal activities that fall outside the general production boundary, and are non-delegable, like eating, sleeping, watching the television, etc. TUS is the only survey technique available to us today for collecting comprehensive data on all three types of human activities.

In the initial stages (i.e., the early decades of the twentieth century) time-use data were collected for understanding the life styles of people, and assessing the burden of work on agricultural and industrial workers. In the 1960s and 1970s, the data were used by broadcasting companies to design their programming schedules on the basis of free time (mainly by Japan and South Korea), and for transportation planning, etc. Since the mid-1970s the data are also used in estimating the contribution of women's unpaid work to national well-being, and for designing policies for gender equality social issues such as problems of the elderly, caring for patients with HIV/AIDS, work-life balance, and others, as well as for understanding environmental pollution problems.[1] Since the 1990s, the data are also seen as useful for measuring and understanding informal and subsistence work, for planning for employment and for understanding the roots of child labor and issues concerning health, nutrition,[2] and education of the poor as well as time poverty and other socioeconomic concerns of the countries. In addition, time-use data are viewed as a tool to understand the impact of macroeconomic policies on the paid and unpaid work of women and men, and to design macroeconomic policies and modelling.

[1] Time spent in polluted environments can be used to estimate the adverse impact of pollution on human health with the help of dose-response coefficients. The US and Japan have used this context variable to estimate the impact of pollution on people and in designing a suitable policy to address the problems.

[2] It is argued that the burden of paid and unpaid work together, on the one hand, and low food/nutrition intake of women (due to poverty and patriarchal distribution of food) on the other, are responsible for the under-nutrition of women in India.

Levy Economics Institute's contribution is particularly worth mentioning here. The Institute has developed an innovative concept called *the Levy Institute Measure of Time and Income Poverty* (LIMTIP). This measure presents not only a two-dimensional income and time poverty, but as Zacharias (2017) has shown, it accounts for intra-household disparities between women and men. Levy scholars have developed a LIMTIP for several countries, such as Turkey (Zacharias et al. 2014), Ghana and Tanzania (Zacharias et al. 2018), and others. Ilkkaracan et al. (2021) have completed another interesting study entitled "The Impact of Investing in Social Care on Employment Generation, Time-and Income-Poverty and Gender Gaps: A Macro-Micro Policy Simulation for Turkey." The paper observes that employment creation through increased social care spending does not have only the potential to generate a substantial number of jobs in a gender-balanced manner, but also helps to alleviate time and income poverties and improve gender equality.

Against this rising demand for time-use data, the supply of quality time-use data is not coming forth, particularly in low- and middle-income countries (LMICs). This paper discusses the factors behind this low supply, presents the recommendations made by several global organizations and experts to increase the supply, and assesses in brief the recommendations.

WHY IS THE SUPPLY OF QUALITY DATA LAGGING BEHIND?

Several reviews of time-use surveys in LMICs have been conducted by different scholars and experts (ILO 2018; Seymour, Malapit, and Quisumbing 2017; Charmes 2018 and 2021; Hirway 2010 and 2018; Esquivel 2018). One important common finding of these reviews is that many LMICs find conducting time-use surveys complex and difficult.

Most countries find time-use surveys complex and difficult because most of the National Statistical Offices (NSOs) lack the expertise to conduct this survey successfully, finding it time-consuming and expensive. They face two major problems: (1) due to relatively low levels of literacy, they cannot canvass the self-reported time diaries with a short time slot of 10 to 15 minutes, and (2) in remote areas of developing countries, some people do not use watches or

time pieces, as a result of which they are not able to report their time-use in minutes. These countries therefore depend largely on interview-based, 24-hour time diaries for time-use data collection. Under this approach, the burden of the survey is high on interviewers as well as on respondents. Again, many NSOs are not able to enforce the various components of time-use survey meticulously.

Consequently, the time-use data collected by many countries lack cross-country comparability. Due to non-standardized and non-harmonized concepts and methods, the overall quality of the data is less than satisfactory. The policy makers of these countries therefore are hesitant to use the data for mainstream policy making or further analysis.

Table 1 Regional Coverage of Time-use Surveys

	No .of Countries	**% coverage**
Africa	14	25.9
Latin America and Caribbean	15	41.7
Arab States	4	36.4
Eastern Asia	5	62.5
South Eastern Asia and the Pacific	4	13.8
Southern Asia	3	33.3
Northern, Southern and Western Europe	24	70.6
Eastern Europe	6	60.0
Central and Western Asia	5	45.4
Northern America	2	100.0
Developed Countries (high income)	35	52.2
Emerging Countries (middle income)	41	34.7
Developing Countries (low income)	6	20.0
World	82	38.1

Source: Centre of Excellence on Gender Statistics (CEGS) paper by Jacques Charmes

Table 1 shows that all 82 countries have conducted national (or at least urban) time-use surveys, using time diaries and stylized questions. The table shows that only 20 percent of developing countries (low income) and 34.7 percent of emerging countries have so far conducted national time-use surveys (Charmes 2021). However, only a fraction of the countries in the Global South use time diaries and produce quality time-use data. In other words, the supply of countries producing quality time-use data is extremely low.

The Two Critical Problems of LMICs

A close look at the problems faced by developing countries suggests that these problems can be broadly divided into two categories: (1) problems related to survey design and its different components and (2) problems pertaining to the collection of time-use data.

The different components of a time-use survey are objectives, sampling of households and household members, time sampling or fixing reference period, data collection, classification of time-use activities along with collecting data on simultaneous activities and context variables. All these components are interrelated. For example, the objectives of the survey design the contents of the background schedule. If the valuation of domestic unpaid services and unpaid care in satellite accounts is an objective, the background questionnaire will have to collect data on the assets of the household and ownership of assets by gender. Somehow these linkages are missing in most time-use surveys.

Each of the components has a special role and therefore must be designed carefully. In 2005, UNSD produced its first *Guidebook to Producing Statistics in Time-use: Measuring Paid and Unpaid Work.* UNSD has now revised the guidebook that supplements the older version (UNSD 2024). These UNSD guidebooks, together, provide instructions on designing a time-use survey and its components. In addition, ILO and UNDP (Bangkok) have produced a document entitled *Time-use Surveys and Statistics in Asia and the Pacific: A Review of Challenges and Future Directions in 2015.*[3] These guidebooks provide detailed instructions on how to design the different components of time-use surveys. In short, the first category of problems faced by LMICs can be more or less resolved with the above guidebooks.

[3] The present author was the chief consultant to this report.

Problems Pertaining to the Collection of Time-use Data

The second category of problems is more serious and more difficult for developing countries.

The major methods of time-use data collection are (1) the self-reported 24-hour time diary with 5–10 minute time slots, which is used in the countries with very high literacy; (2) the interview-based 24-hour time diary method—which is used where the literacy levels are low (since respondents are not in a position to fill in the time diary, interviewers fill in the 24-hour time diary with the help of the respondents); (3) the observation-based method, where investigators observe the respondents to fill in the time diaries. That is, each interviewer personally observes the designated respondent for recording her time-use during the past 24 hours—the observation could be a participant observation or a non-participant observation, where the observer observes and records time-use of the respondent without any involvement; and (4) methods based on stylized questions where the survey is carried out as a module of a multi-purpose national survey, such as a labor-force survey, income and expenditure survey, or living standard measurement survey. Under this method, respondents are usually asked to report the time they spent on the listed activities during the reference day (usually the previous day), week, or even a month. Usually the list is short, as it would be difficult to manage a long exhaustive list. Other methods such as the light time diary will be discussed later on.

As agreed by experts, the self-reported 24-hour time diary is the best instrument to collect time-use data given the accuracy and granularity of data collected. Some of the LMICs have adopted the second-best solution, i.e., an interview-based, 24-hour time diary. It is believed that this method works when literacy is not complete.

How Do LMICs Manage Time Diary-Based Data Collection?

The first step usually is to prepare a detailed instruction manual for interviewers, to show them how exactly to collect time-use data chronologically. The next step is to provide intensive training on how to implement the manual and how to ask questions to respondents regarding their time-use.

After this, the problem is establshing rapport with respondents so they cooperate in filling in a time diary, and how to get data that is as accurate as possible from people, particularly from people from remote rural areas where some do not use a time piece or a watch regularly. For the first question, many countries employ a team of investigators (usually a man and a woman) to stay in the location for filling in the background questionnaire with the selected respondents and explaining the importance of the survey to them. After the data is collected, a strong follow-up is usually organized by NSOs to see that the survey was implemented well in the field. In short, the utmost care is taken by all concerned to see that the data collection runs smoothly. In remote areas, interviews make use of the *Arati* time of the local temple or *Azan* time at the local mosque, office time, or even television programs or the local clocktower. As we will see later, with the large-scale use of mobile cell phones, this problem has lessened significantly.

Despite these efforts by NSOs, some respondents faced several problems, as noted by the reviews above:

- ***Poor recall*****:** in several cases respondents are not able to recall the exact time spent on different activities of the past 24 hours; some also fail to report the chronology of events; with the results some events were missed out. There is a need to reduce this burden on respondents as well as on interviewers and to improve recall.
- ***Inability to implement data collection****:* The reviews also show that some countries are not able to collect data on simultaneous activities or divide the total time between the simultaneous activities. This is because (1) they these countries do not appreciate the importance of simultaneous activities, (2) they find it difficult to get responses to this from respondents, or (3) they find it difficult to get responses on the primary and secondary activities from respondents. Detailed instructions are needed here.
- ***Short cuts:*** Many NSOs therefore depend on short cuts: some NSOs divided equally the total time in a time slot by number of activities conducted and thereby failed to report the minutes spent (even approximately) on different activities. For example, if there are three activities listed in a 30 minute slot, they allotted 10 minutes to each activity arbitrarily. Secondly, some countries decide to report only those activities on which 10 or more than 10 minutes are spent, as a result of which, all activities where less than 10 minutes are

spent are all excluded from the time-use data. Thirdly, in some cases NSOs reported *average* time rather than the relevant time on the selected day.

- ***Other Concerns:*** In addition, there are concerns about high costs in conducting a diary-based TUS, and low technical expertise with NSOs. There is clearly a need to reduce the cost of conducting a TUS as well as make the survey easy for NSOs while providing some training to NSOs when needed. There is a need for NSOs to understand the utility of TUS data in designing national policies so as to be enthusiastic about conducting the surveys and using the time-use data collected.

ALTERNATIVE APPROACHES PRESENTED BY GLOBAL ORGANIZATIONS

Several global organizations and experts have attempted to address the weaknesses of these LMICs and have recommended different solutions. We discuss these below.

1. **CEGS, UN Women, 2021**

Jacques Charmes in 2021 conducted a study for CEGS, UN Women, entitled "Measuring Time-use: An assessment of Issues and Challenges in Conducting Time-Use Surveys with special emphasis On Developing countries: Methodological Inconsistencies, Harmonization Strategies, and Revised Designs."

The central questions raised by the author are how to enable more countries to conduct regular time-use surveys that produce quality data, how to improve cross-country comparability of the data, as well as how to promote standardization and harmonization of the concepts and methods of the survey in developing countries.

After presenting a brief history of the notion of work, the author presents the ILO's new definition of work and the different categories of work including own-use production of services (OPS) or unpaid domestic services and care. Time-use surveys are expected to collect data on OPS. Charmes (2021) observes that, so far (since 1995), about 82 countries have conducted national time-use surveys using time diaries and stylized questions, and only about 44 countries

have repeated the survey. Most of these surveys suffer from several weaknesses related to the concepts and methods used in conducting the surveys.

The author observes that the major problems of conducting time-use surveys in developing countries are as follows: these surveys are resource intensive and costly; conducting the survey is time consuming and tiresome, conducting the survey also causes fatigue among the respondents and interviewers; and consequently, the quality of the data produced by most countries is poor. Another problem in time-use data collection here is the low literacy of the population and low use of watches or time pieces in some remote areas.

His major recommendation is the use of a light time diary for data collection. About 30–35 activities, based on IATUS (2016), should be selected in a light time diary for data collection. In addition, stylized questions should be used to collect data on secondary and tertiary activities including supervisory care. Charmes believes that this approach will help LMICs produce much better time-use data.

2. The World Bank on Time-use Data Collection

The World Bank started collecting time-use data under living standard measurement surveys (LSMS) in 1980 to explore ways of improving the type and quality of data collected by "third world" NSOs (Acharya 1982). Acharya did a small time-use survey of 142 households and 1,200 persons in Nepal. This small survey was pertained mainly to agriculture and allied activities in Nepal, and was non-representative of the Nepalese economy. The survey, however, found no clear evidence on the differences between time diaries and stylized questions in terms of results.

In the recent years, however two experts from the World Bank wrote interesting papers and made some useful recommendations about improving the time-use survey. Beegle (2022), the lead economist on the Human Development team of the World Bank, wrote a paper entitled "Collecting good time-use data with less cost and less complexity*."* According to Beegle, a time-use survey is widely recognized by LMICs as a survey that is difficult to collect, expensive, complicated, and time-consuming. However, the survey is critically required for estimating all income-generating activities in the economy, particularly women's paid work, and the unpaid

services of men and women. She observed that there is a huge gap between the demand for time-use data and the supply of the data. Filling in this gap requires innovative new methods that are cheaper and more reliable (Beegle 2021).

In this context, Beegle recommends use of a light time diary with a hybrid approach. About 25–30 activities should be chosen from International Classification of Activities for Time-Use Statistics (ICATUS) 2016 for diary-based data collection, along with stylized questions to get other details of data collection. She recommends that the interviewer should visit respondents every hour for 2–3 minutes so as to not to miss any details.

This approach will (1) reduce the cost of training interviewers, (2) be less time consuming, and (3) be easier to manage even in low-literacy countries. This hybrid approach would thus combine time diaries and stylized questions successfully. This hybrid approach will include open-ended, semi-structured conversation about (1) where the activity that has taken place, and (2) for what purpose the activity is undertaken (production, consumption, or both). One can also use pictures of eight major activities to help the right response of respondents. Even if, the time-use cannot be captured in minutes, it can be rounded up in minutes or potentially hours.

The testing of this hybrid approach was done in Madhya Pradesh, India. They tested three methods on a sample of households as follows. On day one, all respondents were expected to complete the gold standards; on day two, time-use was reported for the day before, and on day three, one week after day two, they are assigned randomly one of the three methods. The author concludes that the hybrid method works. However, overall, this testing in Madhya Pradesh appears to be confusing.[4] Overall, however, the author favors the light time diary for time-use data collection.

[4] One more paper from the World Bank, on time-use surveys written in 2017 was is entitled "Measuring Time-use in Development Settings" by Greg Seymour, Hazel Malapati, and Agus Quisumbling (WP 147 in 2017). After reviewing the different methods of time-use data collection, they observed that the collection of data for seven days, using stylized questions, has several problems like poor recall, misinformation and misclassification of activities. The authors therefore prefer a time diary for time-use data collection. While concluding, the authors observed that there are challenges in collecting time-use data in developing countries. Stylized questions help when subjective questions are asked in the end to assess the quality of time. The authors conclude that more research is needed to explore methodological innovations

3. UNSD's Approach to Time-use Data Collection

Realizing the importance of improving the time-use data collection methods, the UNSD set up an Expert Group (EG) on "Innovative and Effective ways to collect time-use statistics" (EGM-TUS) that made several important recommendations. Using them, the UNSD produced the updated version of the guidebook in March–April 2024 for collecting, processing, analyzing and disseminating time-use statistics. The first version was released for comments and the document was finalized in April 2024.

It is recognized that time-use data are important for measuring unpaid household services, for the enforcement of the ILO's new concept of work and work statistics, for implementing the SDGs including SDG 5.4.1, and for measuring unpaid care including passive care. In addition, time-use data are useful in guiding policies and research to change work practices, and in addressing concerns related to education and health. Thus time-use data is fundamental for design, implementation, monitoring, and evaluation of a broad range of public policies.

It is expected that the new revised guidebook will help in designing the 2025 revision of System of National Accounts (SNA), additional extended accounts. According to the UNSD revised guide book, it is important that NSOs should produce time-use data that is granule enough so as to be used in further policy formulation and respond to other users' needs. Also, TUS data should be comparable across countries.

The primary objective of these new guidelines is to produce high-quality data and time-use indicators. It is important to note that the new guidebook supplements the old one. Also, this guidebook offers a basket of options based on good practices. It is for countries to choose the correct options for them.

The first step would be to determine the uses to which the time-use data will be put, such as measurement of gender inequality, estimating time poverty, assessing quality of life and well-being of people; valuation of unpaid services in satellite accounts, and implementing the Sustainable Development Goals including the SDG 5.4.

Light Time Diary

UNSD recommends the use of a light time diary for time-use data collection, with about 25 time-use activities. These activities need to be selected following ICATUS 2016. The revised guidebook wants countries to collect data on direct and supervisory care, as this care is becoming increasingly relevant in view of demographic changes and aging populations. UNSD therefore had formed the Expert Group on Supervisory Care (2021). The group reviewed country practices and identified data use. The following definition was finalized to collect data on supervisory care:

> Unpaid supervisory care refers to the time caregiver is in hearing and visual proximity to a dependent household or family member to provide unpaid care giving services, should such need arise. Supervisory care may occur at any location where the dependent household or family member is present and in a closer proximity with care giver. There is no requirement for bodily proximity of the care giver with the dependent household or family member, such being in the same room.[5]

This definition aligns with relevant international statistical standards, namely, the resolutions concerning the measurement of working time (ILO, 2008) and statistics of work, employment and labor underutilization (ILO 2013) adopted by ICLS and ICATUS 2016. More specifically the definition draws a parallel with the concept of "on call" time related to employment and extends it to other forms of work (UNSD 2024). ICATUS (2016) has classified this activity under group 416 (minding children, i.e., passive care) and 425 (passive care of dependent adults). More specifically, (1) the care given is engaged in another parallel activity, which keeps the care given in the proximity and accessible "on call," or (2) the dependent member could be engaged in another activity alone, but the caregiver could be sleeping but in the proximity.

In order to measure supervisory care, (1) the interviewer can ask probing questions after the time-use information is collected—this is called a recovery sequence; or (2) one may use a retrospective stylized questionnaire to accurately capture the time on supervisory care (the reference period should be the previous day). The use of previous week as reference period may not work due to recall problems.

[5] Defined by UNSD. Nancy Folbre has done pioneering work in this area.

As regards the minimum and maximum ages of the children who need care, countries should use their own national laws: either using (1) the upper age of completion of compulsory schooling, (2) the law related to guardianship, or (3) the Convention on the Rights of the Child—one may use 18 years, the age until which the child needs care, including supervisory care.

Modernization of the Production of Time-use Statistics

Another major contribution of UNSD is "Modernization of the Production of Time-use Statistics" (UNSD 2022). The contributors to this work are economists from industrialized countries—though developing countries also need modernization of time-use surveys.

The overall object of the work is to promote critical data collection across countries, and modernize the data collection. Modern time-use surveys are suffering from decreasing response rates and increasing costs and delays the dissemination of time-use data. NSOs therefore are exploring ways to address these problems, including the modernization of time-use surveys including data collection.

Reagrding LMICs, NSOs consider time-use surveys complex and difficult to conduct to produce quality data. The challenges include high costs, the time required for the survey, and how to difficulty of implementation. Technology should reduce the respondent burden as well as the burden on interviewers, should increase the response rate, and should increase the efficiency of NSOs. The data should be digitized for easy transfer and further analysis.

The application of technologies could be helpful in the following ways: from paper-based diary to computer-based CAPI (computer-assisted personal interviewing); use of CATI (computer-assisted telephonic interview) or use of SMS (short message services); and use of this technology with (1) reduced costs and (2) reduced data collection time.

The above will also enable digitization of time-use data. Interviewers can use tablets, personal computers, or smart phone to accomplish the above tasks. Modern technology can support monitoring of the filed processes, and allow automatic transmission of data while accessing data in real time.

Why Modernize the Production of Time-use Statistics?

In short, modernization for time-use surveys could mean using digital technologies, reducing the respondent's burden, improving response rates, improving monitoring and management of data collection, improving contact and communication with respondents, and using information technology for various tasks. Use of these approaches may reduce costs, make the survey easier for NSOs to implement or easier for respondents to respond.

Use of handheld devices such as smart phones and tablets may help considerably here.

4. ILO's Approach to Time-use Surveys

The new name for *unpaid domestic services and care* given by the ILO is *Own Use of Production of Services* (OPS). The OPS is now brought within the scope of official labor statistics and international statistical standards and is included in new forms of work as a part of a labor force survey. The measurement of OPS has been accorded a new priority in official statistics.

The ILO's interest in time-use survey is in implementing the new LFS, where TUS is the add-on module. The ILO's guidelines are aligned with SNA 2008, ICATUS (2016) and UNSD's updated guidelines including the guidance on the production of SDG 5.4.1.

The ILO worked with a few NSOs and independent research institutions for piloting a series of tests. Piloting also took place in three countries (including India) during 2021–3. Data on OPS are particularly relevant in these pilot studies. The production of OPS statistics is a vital first step for recognition, reduction, and redistribution of unpaid care work, to promote gender equality, and redistribute OPS between men and women. Data on OPS can also inform wider investments in the care economy, in public infrastructure and basic services to reduce and redistribute OPS. The data can also help in valuation of OPS into satellite accounts.

The ILO also recommends hybrid diaries, i.e., interview-reported light time diaries and stylized questions. A time diary is always a preferred approach, along with stylized questions that help in estimating passive care. The ILO admits that an independent, stand-alone time-use survey, if

feasible, is always the preferred approach. Light time diaries should be used by countries where a full diary-based, independent stand-alone time-use survey is not feasible. In the standard approach for measuring OPS, the time-use survey collects data on all time-use for a given reference period. That is, data collection is not restricted to time spent on OPS, but includes other forms of work as well as non-work activities.

It is argued that, when an interview-based time diary approach is adopted, it is not easy to obtain reliable OPS data, as OPS work tends to be particularly susceptible to recall bias. This is because it is often undertaken at irregular intervals, which vary in duration, and its timing is somewhat "discretionary," to the extent that it is not typically subject to a regimented, externally imposed schedule. In short, it is argued that data on OPS are not collected well when one uses an interview-based time-use survey. For OPS, a light time diary approach along with special efforts is needed.

The LFS Add-on TUS module

The ILO therefore recommends the LFS add-on module for OPS—a hybrid light time diary format as the time-use measurement tool. This tool is for an interview-based time diary approach. It involves three core series and one optional series. The first is a light time diary, which records the timing, sequencing, and duration of activities undertaken over a 24-hour period. The second series is a stylized question series, dedicated to the recovery of supervisory care provision. The third series is short, "typical day" series, which records whether the reported diary day is unusual in any way. The fourth optional series assesses respondent facility with "clock time." It is only relevant for settings in which "clock time" is not the dominant temporal framework.

The OPS add-on module is to be sequenced after the LFS core questions (the core questions include questions on employment, job search, previous employment, and own-use production of goods) where multiple add-on modules are attached to the core LFS, careful consideration of sequencing may be required. ILO has produced the document entitled "Own-use provision of services: measurement guide," which includes guidance on implementing the ILO add-on

module on own-use provision of services in national labour force surveys for the piloted studies. One assumes that ILO is satisfied with the piloted case studies in three countries.

Comments on the Recommendations by Global Organizations

The above discussion contains recommendations made by experts on filling in the gap between the rising demand and the lag in supply of quality time-use data, mainly in LMICs. It is clear that all recommendations suround applying a hybrid model consisting of a light time diary along with stylized questions. **CEGS** (Charmes 2024) recommends the need for strengthening each of the components of the time-use surveys by LMICs, and for producing quality time-use data on secondary and tertiary activities including supervisory care. The study also recommends use of light time diary, estimating and addressing time poverty, and implementing the SDGs successfully. **UNSD**, which has the custody of time-use surveys, recommends using the old and new guidelines for conducting time-use surveys. It has also made useful recommendations for modernizing data collection methods. For LMICs, it has recommended the light time diary along with stylized questions, and a focus on collecting data on supervisory care.

The experts from **the World Bank** have made recommendations for reducing the cost of conducting a time-use survey for LMICs, and for making the survey less complex. Beegle (2021) also recommends using the light time diary along with stylized questions to obtain quality time-use data. They also recommend a modified approach for data collection. The light time diary is recommended primarily to make data collection easy. Its main feature is to record time spent only for a preselected list of activities, not more than 30–40 activities. This method is also expected to reduce the cost of time-use data collection and analysis. Finally, the **ILO's LFS-TUS** model has been developed for implementing the new concepts of work and categories of work, and for conducting a modified LFS along with the add-on TUS module. It seems that three major LMICs have piloted this new approach successfully. The ILO also has recommended the use of a light time diary along with stylized questions for time-use data collection.

We have several comments on the recommendations made by these prominent global organizations.

Regarding the ILO approach, I have had the opportunity to study the case of India. Though this approach appears to be okay, a major problem is that, under this approach, both the LFS and the TUS are truncated, implying limited data availability through both surveys. The LFS survey here will not be a full-fledged LFS, but will include only the core questions: "employment, job search, previous employment and own-use production of goods" (ILO 2023). This does not include any data on the ownership of land and other assets by the men and women in the household (required for compiling satellite accounts of OPS). No adequate data are available to study the care economy as there is no data on how care is provided at the household level, by the household, the market, the government, and the CSOs. The TUS module is also truncated, mainly due to grouping the ICATUS activities. In all, there are 40 activities selected for the TUS from the total of about 165 three-digit activities. This grouping has resulted in losing the data on some important activities. For example, combining cooking, serving, cleaning, washing in one clubbed activity neglects many details of individual activities, when each is useful separately in an Indian household. There are several such cases of clubbing like this. This raises a question: when the two truncated surveys are employed simultaneously, can the LMICs get reliable time-use data? Again, the Indian pilot study collects data on only one activity in each 15-minute time slot. We show below why this may not be necessary.

Research on the functioning of the light time diary by experts in several developed countries has brought limitations to light. Paakkonen's study (2017) observes that, though aggregate results of a light time-use survey are comparable with the results of full diary time-use data, at the activity level the results vary significantly. That is, granularity of the data collected is missing in a light time diary. This may limit further analysis of the data on several important issues. Again, this truncated TUS will not help in addressing several the other critical socioeconomic concerns of LMICs, such as energy security, health, education and literacy, environment-related issues and so on. It appears that an inferior solution is offered to LMICs, largely due to their relatively low level of literacy and the poor sense of time of some people in remote areas.

This paper attempts to present below an alternative approach that is likely to enable most LMICs to conduct full diary-based time-use surveys successfully (Hirway 2021).

We have already noted that the problems faced by developing countries while conducting a time-use survey are broadly of two categories: (1) problems related to designing of the survey and its different components and (2) problems pertaining to collection of the time-use data. We also noted that the old and new guidebooks by the UNSD as well as the ILO-UNDP publication can more or less resolve the first category of problems. The second category, however, is more difficult.

Again, we have noted that a few developing countries, mainly India, have tried to manage a TUS with a full diary (pilot TUS in 1998–9[6] and all of India's TUS in 2019) by taking the following steps: (1) preparing a detailed instruction manual for interviewers for time-use data collection, (2) providing intensive interviewer training in the local language, (3) filling in the background module/questions by interviewing team consisting of a man and a woman to establish rapport with respondents, and inform them of the survey date so they are prepared to respond, and (4) conducting strong follow up in the field to oversee data collection. Despite these steps, there are several problems that need to be answered.

These problems are as follows: (1) recall by respondents of activity in the past 24 hours is dubious, (2) the survey is time-consuming and high cost, (3) the survey puts a high burden on the respondents and on the interviewers, (4) there is low expertise of NSOs, and (5) some members of the population have poor sense of time. It is to be noted that one change in most developing countries is the high use of mobile phones: in India more than 90 percent own a mobile phone and many more can use them. If the NSO distributes a mobile phone for 2–3 days, reporting time-use will be less difficult for the respondent.

The following is a broad outline of the proposed approach to conducting a time-use survey in developing countries like India.

A Broad Outline of an Alternative Approach

The background questionnaire should be well-designed and coded. Interviewers should fill in the information on a tablet from responding households and selected members of those households.

[6] The present author headed the technical committee set up for designing the survey.

Again, the ICATUS activities at all levels should be prelisted and pre-coded.[7] Interviewers should enter the time use chronologically from pre-coded activities in tablets using CAPI. The time slot will be 15 minutes, and two activities can be reported by respondents using their mobile phones.

To enable recall, (1) the interviewer will visit the respondent two times a day, at 11:00 am and at 7:00 pm in the evening to help recall, improving recall considerably; (2) since about 80–85 percent of people use mobile phones, the rest can be given a mobile phone for 1-2 days in order to obtain reliable data. Since data will be entered in CAPI, it will reduce the cost of coding as well as of data entry.

In order to make data collection easy, one person should be selected from each household randomly, and one day may be selected for data collection, again through randomization. A standard context variable should be used for additional valuable information. Collecting data on simultaneous activities should be carried out carefully by asking about primary and secondary activities.

The above steps will (1) reduce the burden of respondents and interviewers, (2) reduce the cost of data collection, and (3) improve the quality of data significantly.

A mixed-mode approach: Mixed-mode data collection methods attempt to combine the possible good points of all (or more than one) modes of data collection, and also compensate for their weaknesses at an affordable cost. The advantages of this approach are that it (1) improves the response rate of the survey, (2) improves data quality, (3) reduces the cost of conducting the TUS, and (4) improves the overall coverage of the survey. Here stylized questions should be used to supplement the time diary–based approach, particularly to collect data on supervisory care.

For collecting data on supervisory care, it will be useful to ask stylized questions after the time diary is filled in, recording how much time the respondent spends on supervision of the persons

[7] Prelisting the activities at all levels will help memory of interviewers.

who need care in the household. Another question that needs to be asked is whether the respondent assists relatives or friends in anyway. The 1998–9 TUS in India clearly underestimated this data as it is not considered “volunteer work” in the Indian culture, while globally it is a voluntary service.

There are several ways in which supervisory care may be collected. Firstly, while collecting data on simultaneous activities, one should ask “what else were you doing?” One can use an additional context variable—“in the presence of whom” or “who else was in the same room.” Another context variable that one may ask is “for whom.” Alternatively, one can also ask direct questions, subjective questions, or probing questions.

While concluding this paper, I would like to state that, though a time-use survey is a complex survey, particularly in a country where literacy is low, the survey is feasible if adequate care is taken by the National Statistical Office (NSO).

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