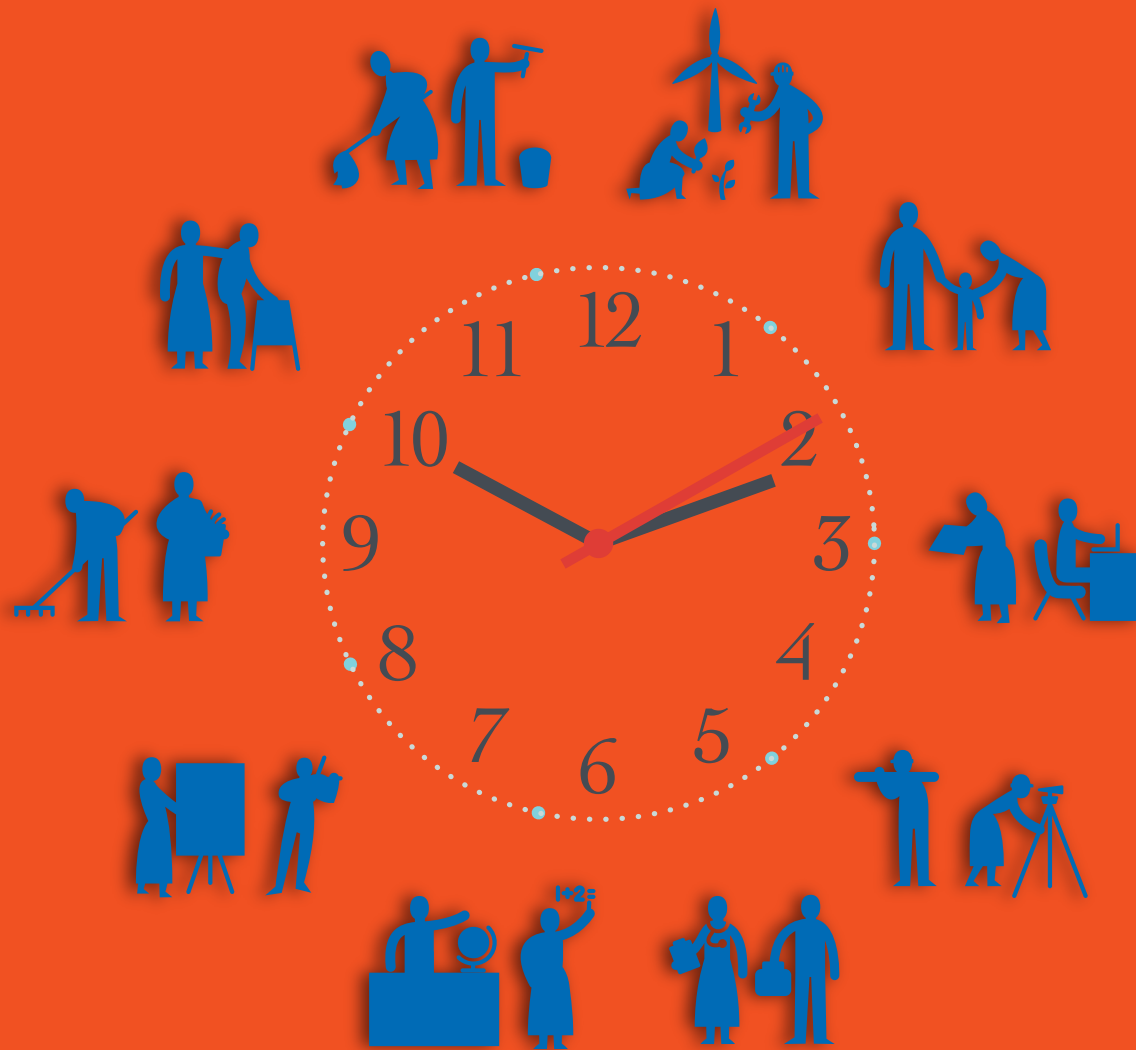




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Time-use surveys and statistics in Asia and the Pacific



A review of challenges and future directions



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Foreword

Time-use statistics were first produced in the early 1900s in social surveys reporting on the living conditions of industrial workers. The surveys were looking at the impact of long work hours on working-class families' capacity for leisure. The goal was to advocate for a reduction in working hours. While the application and objective of time-use statistics have varied ever since, this fundamental information on the work–life balance has remained the core utility.

In recent years, time-use surveys and statistics have gained importance among policy-makers for their usefulness in measuring dimensions of gender equality and human well-being. And yet, despite the recognition of their utility, time-use surveys are not yet integrated into national statistical systems, and fewer countries do implement time-use surveys as compared to other household-based surveys.

Time-use surveys highlight the unequal distribution of unpaid work between women and men, as well as help to understand the contribution of unpaid work to the national economy. The Sustainable Development Goals (SDGs) place gender equality as a separate goal as well as an accelerator for all other goals. They call for recognizing, reducing, and redistributing unpaid care work as a way to promote gender equality. Much of unpaid work is performed by women, often resulting in unequal social, economic and political opportunities for women. When the data collected are analysed as evidence, it opens up policy dialogues towards a fair distribution of household and care-related tasks between women and men.

In October 2013, the 19th International Conference of Labour Statisticians adopted the Resolution concerning statistics of work, employment and labour underutilization, which re-emphasized the importance of time-use surveys in measuring all forms of work, including unpaid work in households. The Resolution referred to time-use surveys as the main source of statistics on participation and time spent in own-use production work and volunteer work for purposes of individual-, household- and macroeconomic-level analyses. In March 2016, the United Nations Statistical Commission adopted the International Classification of Activities for Time-Use Statistics, adding the link and consistency with the System of National Accounts and with the International Conference of Labour Statisticians framework for statistics of work.

Encouraged by the increased relevance of time-use statistics and the continuing challenges to their systemic collection, the International Labour Organization (ILO) and the United Nations Development Programme (UNDP) commissioned a review of time-

use surveys in Asia and the Pacific, including an update of the impediments to greater implementation by countries.

The review, which was carried out in 2015 and 2016, covered the literature available at that time, and the analysis covered the statistical system of most of the UN member States in the region. This summary joint report was prepared in 2017 to highlight achievements that need to be reinforced and the methodological issues that hamper the wide collection and analysis of time-use statistics, as well as issues related to the capacity of practitioners and policy-makers to collect and utilize such statistics.

The report will with no doubt contribute to the ongoing methodological work on time-use statistics by the United Nations and the ILO and the development of guidelines for implementing the 19th Resolution on work statistics. The featured initiatives on how to tackle these issues should be particularly useful.

It is our hope that this report will not only help increase much greater awareness among policy-makers and the statistical community in Asia and the Pacific on the importance of time-use statistics but that it ultimately leads to the increased production of harmonized time-use statistics, which can help monitor progress towards achievement of the 2030 Sustainable Development Agenda.



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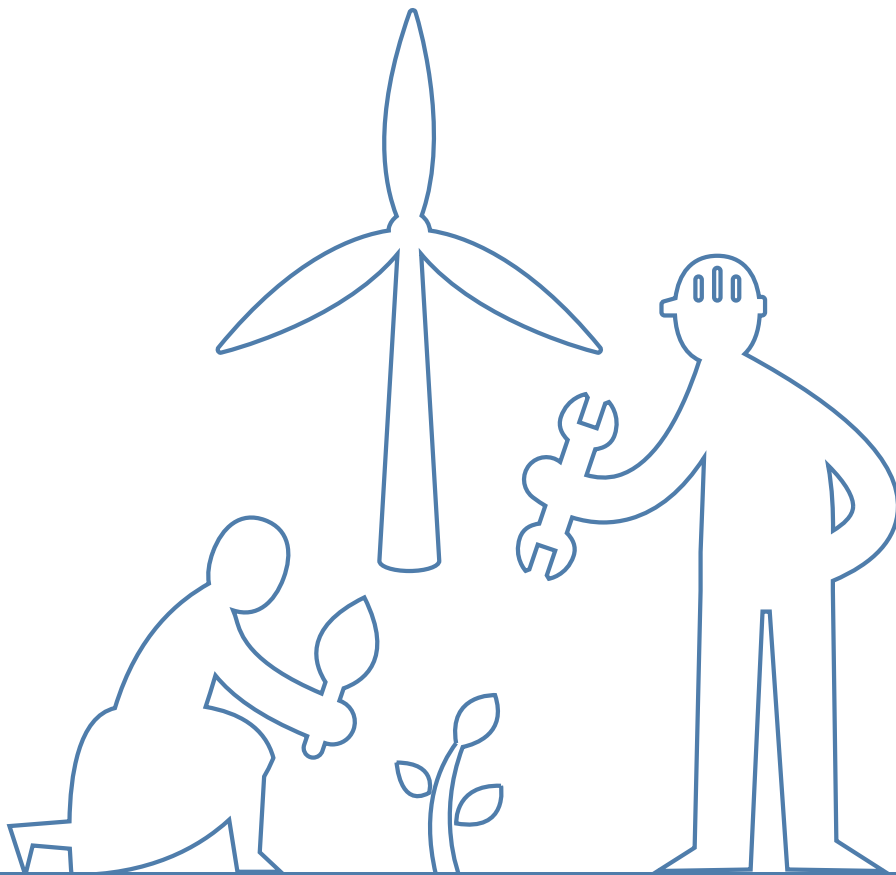
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Abbreviations

ECA	United Nations Economic Commission for Africa
ECE	United Nations Economic Commission for Europe
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization of the United Nations
ICATUS	International Classification of Activities for Time Use Statistics
ICLS	International Conference of Labour Statisticians
ILO	International Labour Organization
INSTRAW	International Research and Training Institute for the Advancement of Women
KBS	Republic of Korean Broadcasting System
LSMS	Living Standards Measurement Study
NSO	national statistics offices
PSU	primary sampling units
SNA	System of National Accounts
TUS	Time Use Survey
UNDP	United Nations Development Programme
UNSD	United Nations Statistics Division



Introduction

Time-use surveys provide comprehensive and detailed information on how individuals spend their time on different activities, on a daily or weekly basis. These are activities within the Production Boundary of the System of National Accounts (SNA)¹ as well as outside that parameter but within the General Production Boundary² and those that are personal and non-delegable.³ Time-use statistics are quantitative summaries of time allocation by men and women. As the United Nations Statistical Commission described in its 1979 report, *Status of Work on Time-Use Statistics*, time-use surveys provide social, demographic and related economic data not otherwise obtainable on human activity.

Time-use statistics have three major components: (i) information on major socioeconomic characteristics of households and individuals (for whom data are collected) through a background schedule or through the main schedule (if a time-use survey is a module in a broader survey); (ii) time spent by individuals on SNA and non-SNA activities and personal services; and (iii) the context in which activities are carried out.⁴ This survey technique opens up immense opportunities for understanding critical concerns of an economy and society.

Time-use statistics were first produced in the early 1900s in social surveys reporting on the living conditions of working-class families. The objective was to estimate the long working days and short leisure time of industrial workers, which was a concern of organized labour groups that wanted to advocate for a reduction in working hours. Over the past decades, time-use surveys have travelled a long journey in terms of their objectives, methods, analysis and use. Initially, the data illuminated lifestyles and living conditions of industrial and agricultural workers; in the 1960s and 1970s, the data were used in planning for transportation and for social policies and by broadcasting companies to understand how people spend their leisure time and to thus better organize their programming. As newer uses of the data were discovered, along came newer analytical tools.

Since the mid-1970s and the rise of the women's movement, the data have been useful in understanding gender-based inequalities, in estimating the contribution of women's unpaid work to national well-being and in designing policies for women's empowerment. The data are also used to understand concerns related to the work–life balance, older persons, child development, persons with disabilities, education, health and nutrition. And the data are used to complement labour force estimates, particularly for informal employment and subsistence work, and for understanding issues related to poverty, including time poverty, unemployment, underemployment and human development.

1 These constitute the activities included in national income accounts.

2 Non-SNA activities are not included in national accounts but are covered under the General Production Boundary and cover all delegable production of services not covered under the national income accounts.

3 Personal services cannot be delegated to others, such as sleeping and watching television.

4 The context variables in time-use statistics usually refer to the location where an activity took place (where), the presence of other people when the activity took place (with whom), the beneficiary, person or institution of the activity (for whom the activity was carried out) and the motivation of the activity (whether the activity was paid or unpaid).

More recently, scholars find the data useful for understanding the total economy that constitutes paid (SNA) and unpaid (non-SNA) work. In short, time-use surveys provide a rich database on a range of socioeconomic concerns in developed and developing countries.

For developing and emerging countries today, time-use statistics are becoming an important tool to not only address development-related concerns but also the multiple dimensions of gender-based inequalities and the socioeconomic life of people.

It is now well accepted that time-use statistics have a range of uses: They give visibility to all forms of work, remunerated and non-remunerated; provide visibility to the care economy by enabling estimates of paid and unpaid care work; help improve estimates of employment and understand its characteristics and cast light on informal jobs that may be scattered and/or sporadic in nature; aid the measure of socioeconomic change by describing variations in levels or types of paid and unpaid work and how such work is shared among different socioeconomic groups and over time; illuminate the nature of poverty and human well-being; explain the dynamics of intra-household sharing and gender inequalities; enable the valuation of unpaid non-SNA work and estimates of total well-being; and provide a more complete picture of the total economy (consisting of paid and unpaid work). This richness is invaluable for macroeconomic policy-making and monitoring. This last function has emerged as an important use only recently, now that there is realization that paid and unpaid work are closely interlinked with each other and that macroeconomic policies need to be formulated and monitored for their impact on unpaid work. In short, time-use statistics are critical for designing policies for inclusive growth.

Despite the multitude of functions, the concepts and methods for conducting time-use surveys, especially for developing and emerging countries, are not harmonized or integrated into national statistical systems. Although many developed countries have their mainstreamed time-use survey into their national statistical system and harmonized their concepts and methods, their model is not always suitable to developing countries due to specific constraints and objectives. The developing and emerging countries have established their own methods and adapted activity classifications from the guidance produced by the United Nations,⁵ the United Nations Economic Commission for Africa (ECA)⁶ and the Economic and Social Commission for Asia and the Pacific (ESCAP).⁷ A few of them have also attempted to use the guidelines from Eurostat (the statistical office of the European Union).

The United Nations guidebook deals with five components for conducting time-use surveys: (i) planning and organizing; (ii) design specifications – types of time-use

5 See United Nations: *Guide to producing statistics on time use: Measuring paid and unpaid work* (New York, Statistics Division, 2005).

6 See ECA: *Time use studies, national accounts and national budget* (Addis Ababa, 2003).

7 See ESCAP: *Guidebook on integrating paid and unpaid work into national policies* (Bangkok, 2003).

surveys, background questionnaires, sampling and survey instruments; (iii) collecting and processing data; (iv) classification of time-use activities; and (v) dissemination of data. The detailed discussions in the guidebook are extremely useful, despite the limitation that the background schedule, context variables and classifications recommended need modifying due to recent developments: The guidebook is no longer relevant for implementing the Resolution of Work Statistics adopted in 2013 by the 19th International Conference of Labour Statisticians, ICLS).

The ECA publication is good for general discussions and guidelines but is incomplete because it does not cover how to conduct a time-use survey (types, objectives, background questionnaire, sampling, data collection methods, content variables, classification and analysis of the data). The ESCAP guidebook has five modules, only two of which deal with conducting time-use surveys. Even though it discusses integration of unpaid work into national polices and valuation, it is not practical as a guidebook due to the absence of methods on surveying.

Essentially, these international guides have not harmonized the methods and classification for time-use surveys. For example, while an updated International Classification of Activities for Time Use Statistics (ICATUS) was issued in 2016, practical tools for its national adaptation and implementation have yet to be developed. Additionally, there is no internationally agreed methodology for valuation of unpaid work in satellite accounts.⁸

It is frequently argued in the context of the Global South that there is no one way of conducting time-use surveys because each situation is unique (see, for example, Esquivel et al., 2008). Each country should have freedom to choose its own methods and classifications. This argument, however, is unacceptable because: (i) like labour force and national income estimates, time-use data should be comparable across countries for understanding global conditions and designing global policies; and (ii) it is necessary to produce quality data using standardized concepts and methods, which should be harmonized. This does not preclude flexibility in the methods to allow countries to incorporate their specific concerns and needs within a globally accepted framework (as is the case with other surveys). Standardized and harmonized concepts and methods for national time-use surveys also do not preclude small-scale time-use surveys conducted by social scientists or private researchers to study sector-, region- and issue-specific concerns.

This paper reviews time-use surveying in 37 countries of the Asia-Pacific region to see how well it has produced sound data and how far the data are useful in designing national policies. The paper offers a study of the strengths and weaknesses of the

8 Discussions with UNSD staff.

concepts, methods and classifications used by these countries in conducting time-use surveys and then explores the need for their standardization and harmonization. The paper did cover countries with no time use survey at all, but has also examined why some countries have not yet conducted a national time-use survey and why countries that have conducted such a survey have not mainstreamed the practice into their national statistical system – what are their constraints and problems and what support do they need.



Overall status of time-use surveys in selected countries

This paper is based on a desk review in 2015 of available material on the time-use surveys in the selected 37 countries. This includes the websites of the national statistics offices (NSOs) of those countries, the websites of other global agencies that store time-use data, such as the United Nations Statistics Division (UNSD) and the Centre for Time Use Research, as well as the international organizations that have sponsored time-use surveys, such as the World Bank (the Living Standards Measurement Study, or LSMS), the Food and Agriculture Organization of the United Nations (FAO studies under the Righting the Wrongs programme to give visibility to women's work in agriculture and promote them in decision-making), the United Nations Development Programme (UNDP) and UN Women. In addition, the analysis drew from numerous research reviews (Hirway, 2010; UNDP, 2010 and 2008; Budlender, 2007) and other papers (refer to the references list at the end of this paper).

Although the review accessed a large number of sources, there are still no much information on some countries, such as Myanmar, Sri Lanka and Viet Nam.

Of the 193 member countries of the United Nations,⁹ about 130 of them have conducted at least one (small or big) time-use survey to date (2015). This is a positive development because it reflects the wide reach of the technique. However, far fewer countries have conducted such a survey nationally, i.e. only about some 40 countries worldwide (in 2015).

Time-use surveys were generally introduced into the Global North (United States, Canada, parts of Europe, parts of East Asia and Australia) during the second half of the twentieth century (a little earlier in some countries). But not all of them have mainstreamed the practice within their national statistical system. According to Mrkic (2006), eight countries had not conducted a time-use survey before 1990 (Estonia, Greece, Ireland, Republic of Korea, Lithuania, Luxembourg, New Zealand and Slovakia). Nearly all countries of the Global North have now such a survey.

Of the countries in the Global Republic (Africa, Latin America, developing Asia, including the Middle East), the situation is quite different. Of the 54 countries of the African Union, around 30 countries, or 57 per cent, have carried out at least one time-use survey; of the 44 member countries of the United Nations Economic Commission for Latin America and the Caribbean, 18–20 countries, or 42–45 per cent, have conducted at least one survey.

If one considers all countries in Asia and the Pacific region, 24 of the 53 countries reviewed have conducted at least one time-use survey.

The Asian-Pacific countries in this review are highly heterogeneous in terms of their time-use surveys. On one extreme, the four developed countries (Australia, Japan,

9 Independent sovereign countries in the world.

Republic of Korea and New Zealand) have mainstreamed a time-use survey within their national statistical system. These countries conduct a survey regularly, at an interval of three to ten years, and analyse the data for different uses. On the other extreme, seven countries (Afghanistan, Brunei Darussalam, Maldives, Marshall Islands, Myanmar, Palau and Singapore) have never conducted a time-use survey. Between these extremes, 24 developing and emerging countries (out of 31) have conducted at least one time-use survey (small or big), but many of them have not mainstreamed their time-use surveying (see Annex I for a review of the varying levels of practice).

Of those 24 countries, nine (Fiji, Kiribati, Malaysia, Papua Guinea, Samoa, Solomon Island, Sri Lanka and Vanuatu) have only conducted small-scale surveys covering households in a few villages or an urban centre. The NSO in Philippines piloted a survey in 2000 and the Islamic Republic of Iran conducted two surveys covering only urban areas; however, both countries have never carried out a national survey.

As shown in table 1, only 16 of the 24 countries have done a national survey. Of them, ten countries used a national modular survey attached to their LSMS, Labour Force

Table 1 Status of time-use surveys in the selected 37 countries

Status	Countries
Developed countries where time-use surveying is mainstreamed	Australia, Japan, Republic of Korea, New Zealand
No time-use survey conducted	Afghanistan, Brunei Darussalam, Maldives, Marshall Islands, Myanmar, Palau, Singapore
Small time-use survey only	Indonesia, Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Sri Lanka, Tuvalu and Vanuatu
Pilot time-use survey only	Philippines
Only rural or urban time-use survey	Islamic Republic of Iran – only urban time-use survey
National modular time-use survey	Bhutan, Cambodia, Cook Islands, Kyrgyzstan, Lao People's Democratic Republic, Malaysia, Nepal, Timor-Leste, Viet Nam
National and large time-use survey using time diary	Bangladesh, China, India, Mongolia, Pakistan, Thailand

Source: Summarised from Annex I in annexures.

Survey or Household Income and Expenditure Survey. There are only six developing and emerging countries in the region that have conducted national or large time-use surveys using 24-hour time diaries. Of them, Bangladesh, China and India have only done so with a pilot survey. But they are included here in the category of national surveys because each covered a large part of the country. It is interesting that of those six countries, only Mongolia and Thailand have conducted more than one survey: Mongolia has conducted four national time-use surveys (most recently in 2015), and Thailand has conducted four national time-use surveys. In other words, only two countries have mainstreamed this type of survey within their national statistical system. Of the 10 countries that have conducted national modular time-use surveys, only three have mainstreamed the practice into their national statistical system: the Lao People's Democratic Republic, Timor-Leste and Viet Nam have each conducted three to four time-use surveys.

1.1 Time-use surveys in developed countries

Australia, Japan, Republic of Korea and New Zealand have each mainstreamed time-use surveys within their national statistical system. Because this paper focuses on developing and emerging countries in the region, there is no in-depth discussion on the time-use surveys in developed countries. These countries conduct a national and stand-alone time-use survey regularly, at an interval of four to six years.

Australia is a pioneer in time-use studies. The first time-use survey in Australia was conducted in 1976 by the Australian National University. It followed the famous method of Szalai¹⁰ in two urban centres in Australia. This survey was systematic in the sense that randomly selected respondents (one from each selected household aged between 18 and 69 years) filled in two 24-hour time diaries along with details of simultaneous activities and context variables (with whom, location, mode of transport) and an elaborate background questionnaire. The survey covered 1,491 respondents in the two cities.

Australia has since conducted more than 15 large time-use surveys: (i) the national surveys conducted by the Australia Bureau of Statistics (1987, 1992, 1997, 2006, 2013), (ii) surveys conducted by government ministries and departments: Australian longitudinal surveys on women's health by the Department of Women's Health (1996–2009); a time-use survey conducted by the Institute of Mental Health as a part of the Northwest Regional Health and Social Survey (1976); a survey by the YWCA and the Department of Tourism, entitled "Leisure: An Inappropriate Concept for Women?" (1974); pilot study on Melbourne housewives by the Department of Women (1977);

¹⁰ Alexander Szalai was the first time-use expert to conduct a multinational time budget surveys in Europe. See A. Szalai: "Trends in comparative time-budget research", in *American Behavioural Scientist* (1966, Vol. 9, No. 9), pp. 3-8.

and (iii) surveys conducted by universities and research organizations: a quality of life survey in Victoria by Victoria University researchers (1981); the parent education and support survey by Melbourne University researchers (the Kids' Growth Study, 1976) and the longitudinal survey on growing up in Australia (2004–10) by a consortium of institutes led by the Australian University of Family Studies; a survey with new mothers by Australian National University and other researchers (2005–06); and surveys on travel and related activities by the Victoria Department of Transport (2007–10 and 2009–10).

These surveys are annual as well as longitudinal, focusing on specific socioeconomic issues of Australian society. One commonality is that they were conducted systematically, with sound concepts and methods that led to sound time-use data.

Japan: Time-use surveys have followed a different pattern in Japan. Two parallel streams of surveys have been conducted to date: (i) time-use surveys carried out by the Broadcasting and Cultural Research Centre of NHK, the national broadcasting (and telecasting) company and (ii) time-use surveys conducted by the Statistical Bureau. NHK conducted its first time-use survey in 1960–61 and thereafter every five years from 1970 onwards. The Statistical Bureau conducted its first national survey in 1981 and every five years thereafter. In addition, the Tokyo Institute of Technology at Hiroshima University conducted a survey in 1972 and 1991; and the Institute of Research of Household Economics conducted a time-use survey in 1993–94.

Both categories of the time-use surveys in Japan used 24-hour time diaries and followed the major steps of the established method used in the developed world. For example, the 2005 NHK survey (i) used 24-hour self-reported time diaries with 15-minute time slots and collected data on two consecutive days,¹¹ (ii) covered a large sample (12,600 persons) and (iii) developed a list of activities (28). The data, however, were collected for one week only (October 2005). An interesting part of the NHK surveys is that they have regularly updated the activity classification as the context changed. The objectives of the NHK surveys are to “investigate how Japanese people spend their time on different activities” for use in planning their broadcasting or telecasting programmes and in understanding the cultural dimensions of the population.

The time-use surveys by the Statistical Bureau collected comprehensive data on the actual state of daily life not covered by economic statistics. They covered leisure activities and unpaid work of women and valued this work in satellite accounts and produced data that are internationally comparable. The period of the surveys used to be one week but shifted to two diary days in 2006. Respondents (aged 10 years and older from selected households) filled in two diary days. The activities were classified in 20 major groups. The sample of the survey included 200,000 persons from 80,000 households.

¹¹ These days are selected based on a random method.

Republic of Korea: The Republic of Korean Broadcasting System (KBS) followed the Japanese NHK model in conducting time-use surveys. The main purpose was to collect information on people's media use, leisure activities and overall lifestyles. The first survey was conducted in 1981 and was followed by regular surveys at three- to five-year intervals until 2000. Three self-reported 24-hour time diaries were collected from each individual (aged 10 years or older) from randomly selected households. The 2000 time-use survey by KBS, for example, was conducted in October, covered 1,160 persons and collected 3,500 time diaries with 15-minute time slots.

There was a turning point in the time-use surveying in 1999 when the Korean Statistical Institute conducted a national survey covering 17,000 sample households and 46,109 respondents (aged 10 years and older). The Statistical Institute has since conducted a survey at an interval of five years. The objectives of these surveys are broad: (i) estimate quality of life, (ii) estimate time spent on unpaid work and value it in satellite accounts, (iii) formulate public policies on labour, welfare, gender, education and transportation and (iv) produce internationally comparable data.

Under these national time-use surveys (1999 onwards), data were collected for two diary days from respondents. They used an elaborate background questionnaire to collect detailed information on the selected households and individuals. The data were collected for simultaneous activities, and two context variables (location and mode of transportation) were used. The data-collection method improved between 1999 and 2012 with the introduction of (i) activities related to the use of computers, the Internet, etc., (ii) child care details, (iii) classifications comparable to the UNSD as well as Eurostat and (iv) additional context variables. And the survey is now conducted three times a year to capture seasonal variations in people's use of time.

New Zealand: The country carried out its first pilot survey in 1990, followed by a national survey in 1999. The pilot survey was conducted by the Ministry of Women's Affairs and Statistics with a sample of 627 persons. The Government then decided to run a national survey every eight to ten years.

The second survey was conducted in 2009–10 and used a 24-hour self-reported time diary filled in for one week by a sample of 9,159 respondents (aged 12 years and older) from selected households. An investigator visited them first to fill in the background questionnaire (for households and for individuals) and to hand out the time diary form and then returned to collect the completed diary. The survey looked to assess the work–life balance, estimate time spent on care and voluntary work, understand economic transformations and to value unpaid work performed by men and women. The context variables were (i) location, (ii) with whom and (iii) paid and unpaid work.

The developed countries have designed more or less a standard method (including time-use activity classification) for conducting time-use surveys, with some minor

variations.¹² The details highlighted here describe the major characteristics – the objectives, sampling method, data collection method, classification system, and context variables. The data are supposed to be of standard quality and are comparable across the developed countries. The data also have been used by researchers in analysing several socioeconomic concerns and have had various uses.

1.2 Time-use surveys in the developing and emerging countries

The discussions below concern countries that have conducted time-use survey at any time in the past, including with small scale surveys. The 24 developing and emerging countries that have conducted time-use surveys can be divided into two broad categories: the countries that have conducted only small-scale surveys and the countries that have conducted national surveys. The countries with national time-use surveys are also of two types: countries that have conducted surveys as a module of a larger national survey and countries that conducted a stand-alone survey using a 24-hour time diary for data collection.

Countries with only small-scale time-use surveys

It is useful to understand the nature of these surveys and see why countries have not conducted any national survey and whether they want to conduct one. Many of these countries are island countries in the Pacific (Fiji, Kiribati, Samoa, Solomon Islands, Papua New Guinea and Vanuatu) as well as Indonesia and Sri Lanka. Brunei Darussalam, Maldives, Marshall Islands, Myanmar, Palau and Singapore have not conducted any time-use survey, while Cook Islands is the only country (among the developing and emerging countries) to have carried out a national modular time-use survey. Leaving out the more prosperous nations of Brunei Darussalam and Singapore, some of the island countries have populations with low levels of literacy and different perceptions of time, which render existing time-use survey approaches unsuitable. The NSO in Indonesia, the Islamic Republic of Iran, the Philippines and Tuvalu has conducted only a pilot survey or a small survey.

The time-use researchers, including anthropologists, in these countries had a variety of objectives for the surveys. They were primarily interested in understanding and measuring inequalities in the burden of work borne by men and women and the consequent fewer opportunities in life for women. Some of them also wanted to give visibility to women's work, mainly informal work, subsistence work, household upkeep and care, including care provided to chronically ill HIV-positive patients. The FAO conducted small time-use surveys under its Righting the Wrongs programme¹³ that

¹² These variations relate to the grouping of activities and three-digit activity lists.

¹³ This project was undertaken by the FAO in many developing countries where agriculture is predominant.

aimed at giving visibility to women's work in agriculture and allied activities to promote women's role in decision-making and their overall empowerment.

The Tourism Department in **Fiji** conducted a time-use survey in 2003 to assess the burden of work on women and to see how women could be involved in the growth of tourism. A small time-use survey was conducted in **Vanuatu** using the participatory rapid appraisal method to create awareness of the unequal sharing of work by men and women and to prepare a daily "gender calendar" to highlight the gender gaps. **Kiribati** conducted a small time-use survey to obtain "a snapshot of the day" and to see whether and how women could help in forestry and nursery promotion.

A variety of methods were used in these surveys. Participant observation was common among the anthropologic surveys, in which the researcher observed the time use while living with the families surveyed. Some researchers used community-based surveys through participatory rapid appraisals, including focus group discussions. Other methods involved: (i) non-participant observation (under which use of time was observed from a distance), (ii) random observation, (iii) community discussion (community meets and comes to a conclusion on sharing of work by men and women), (iv) a stylized activity list, with which respondents are asked about the time they generally spend on each item (sometimes they included a reference period, such as one week or one day) and (v) a 24-hour time diary, usually with a time slot of one to three hours.

The FAO time-use surveys wanted to test eight methods of data collection: rapid appraisal by checklist, interview questionnaire, participant observation, non-participant observation, group feedback analysis, group discussion using a checklist, 24-hour self-reported time diary and 24-hour recall. They concluded that the best method involves men observing men and women observing women.

The **Philippines** piloted a time-use survey in 2000 that covered one rural and one urban area, long after academic researchers had conducted small-scale surveys in 1975, 1976 and 1977.

White (1983) conducted a small survey in **Indonesia** in 1972–73 and 1977–78 to estimate gender inequalities in the time spent on paid and unpaid work. Although the reference was one year, the sample was small, consisting of 80–100 households (see Annex I for details). The Government then piloted a time-use survey in rural areas (100 villages) in 1998–99 and later in urban areas (five municipalities) in 2004 and in 2005 (four urban centres). A 24-hour time diary was filled in by respondents aged 15 or older in selected households. Because literacy is low in Indonesia, only people who could read were asked to fill in the one- to three-hour time diary.

In **Malaysia**, a small modular time-use survey was conducted by the Ministry of Women, Family and Community Development in 1990–91, in collaboration with the

FAO and other United Nations agencies. It was conducted during the agricultural season, and stylized questions were asked. The Ministry followed with another survey in 2003 that covered 15,000 households and 32,000 persons. Unfortunately, not much information was available on this exercise.

It appears from different records that a few small-scale time-use surveys were conducted in **Sri Lanka**, although there was no use of context variables, collection of data on simultaneous activities or systematic activity classification.

According to UNSD records, a small-scale time-use survey was conducted in **Viet Nam**. In addition, modular surveys (along with the national LSMS) were conducted in 1992, 1997, 2002 and in 2004.

The Statistical Centre (NSO) in the **Islamic Republic of Iran** conducted two small time-use surveys in selected urban centres in 2008 and 2009. The 2009 survey was spread over two periods: December 2008–March 2009 and June–September 2009. These pilot surveys had small coverage because the researchers thought that rural respondents would not be able to fill in a time diary. Although the surveys followed established methods – background questionnaire, 24-hour self-reported time diary with 15-minute time slots and use of activity groups (15), only the literate population was targeted.

The NSO of **Tuvalu** conducted a pilot time-use survey in 2003 as a part of its Social and Wellbeing Survey under a Participatory Monitoring and Evaluation Project to measure the impact of the Island Development Trust on the quality of life in the islands over a six-year period. Along with household and individual characteristics, time-use data were collected from selected household members (aged 18–82 years) for the week prior to the survey.

There is no doubt that small-scale surveys, including anthropological surveys, are useful. They provide valuable insights into the dynamics of gender inequalities, help address local socioeconomic and cultural issues and are useful in creating awareness among communities and for policy advocacy. Nonetheless, given the variety of concepts and methods used, their results are not comparable with each other. Also, they cannot be considered representative of their respective country and thus cannot be used for national policy-making.

The review found that many of these countries want to conduct a national time-use survey based on sampling methods but are constrained from doing so for various reasons. To start with, the low level of literacy in many countries has made it difficult to use a self-reporting 24-hour time diary. Second, the limited use of a time piece or clock (this is mainly the case in remote areas in some countries) does not allow detailed reporting of time use. For example, the NSO in **Indonesia** encountered several issues:

(i) rural people were not concerned with time, (ii) many of the respondents were not interested in responding to a time diary even when researchers interviewed them, and (iii) the diaries were half filled. This was the case even when the time slots are of one to three hours. Ironmonger observed that in several island countries, time does not make much sense to people (UNDP, 2005).

Some experts attribute the hesitation by many developing countries to conduct national time-use surveys to several issues: (i) statistical offices and policy-makers do not appreciate the utility of time-use data in addressing socioeconomic concerns; (ii) they do not have the required capacity to collect, process, analyse and use the data; (iii) the funds required for these surveys are not available; (iv) the data collected frequently have serious quality limitations; and (v) standardized and harmonized concepts and methods, including activity classification at the global level, for conducting the survey are not available (UNDP, 2004; Corner, 2003; Hirway, 2003; Budlender, 2003).

Countries with national time-use surveys

Most of the countries that have conducted national time-use surveys started with a small-scale exercise carried out by private researchers, including anthropologists (from the 1970s through the 1990s), that covered a small number of villages, households and/or one or two urban centres. These surveys used a variety of methods and activity classifications and investigated specific issues, sectors or regions. Though most of these countries also faced the type of constraints cited above for small-scale surveys, they somehow transitioned into conducting national time-use surveys: Bangladesh from 1974 onwards, India from 1976 onwards, Indonesia from 1972 onwards, Nepal from 1977 onwards, Thailand from 1990 onwards, Mongolia from 2000 onwards and Malaysia from 1972.

The 24 countries that have conducted national surveys experienced several constraints while using the 24-hour time diary (described previously). They became resourceful in their alternative approaches: (i) linking the use of time to major common events (such as office time, school time and timings of TV or radio programmes) to help respondents recall activity, (ii) using bigger time slots (a 30-minute to a one-hour time slot) to fill in time diaries and (iii) asking respondents to report the time spent on a list of activities (stylized questions). Being predominantly agricultural, these countries need seasonal data on time use to reflect seasonal variations. This being typically expensive to manage, many countries have done a single-day or period survey, but in doing so failed to provide seasonal variations in people's use of time.

NSO staff and policy-makers in these countries also grappled with the lack of adequate funds, lack of expertise and poor appreciation of the utility of time-use data. However, their experiences with the small time-use surveys as well as the influence of global

literature and outside consultants contributed towards improving awareness about the importance of national surveys. The 1995 *Human Development Report*, the global women's conference in Beijing in 1995 and its Platform for Action declaration as well as the United Nations' SNA 1993 release were a major source of motivation for these countries to forge ahead with time-consuming and expensive national time-use surveys.¹⁴ Financial as well as technical support from international organizations and donor agencies helped, although the result was not always ideal. As donor agencies frequently tried to minimize costs by covering a large number of countries under these surveys, many governments faced difficult trade-offs and ended up making several "pragmatic" compromises in sample size (reduced), coverage, survey design (avoiding seasons) and data collection methods (simple and short list of activities) – these compromises and short cuts are discussed further on.

14 These vents were followed by number of countries conducting time-use surveys in the developing world.



Types of time-use surveys

National time-use surveys are basically of two types: stand-alone surveys and non-independent or modular, surveys (conducted as part (module) of a national survey). Stand-alone time-use surveys collect comprehensive information on use of time by a reference population without missing out on any detail. It has three components: a background schedule that collects information for each responding household and individual; the time-use schedule or diary that collects data for a 24-hour period; and context variables, which provide information on the context of the recorded activities. Time-use surveys started out as stand-alone surveys largely because they collected information not picked up through other surveys. Modular time-use surveys are usually attached to a large or national household survey, such as the LSMS, the Labour Force Survey or the National Income and Expenditure Survey.

2.1 National modular surveys

The national modular time-use surveys mainly have been sponsored by international organizations. For example, the World Bank funded such surveys as a part of the LSMS in Nepal, Timor-Leste and Viet Nam. UNDP promoted such surveys in Malaysia (within the Labour Force Survey), Cambodia (within the Socioeconomic Survey), Cook Islands (within the Household Income and Expenditure Survey) and the Lao People's Democratic Republic (within the Consumption and Expenditure Survey). The ILO also supported a modular time-use survey with the Labour Force Survey in Nepal in 1998–99.

LSMS and modular time-use surveys: The LSMS was established by the World Bank in 1980 to explore ways of improving the type and quality of household data collected by developing country governments. The goal of the LSMS is to foster the use of household data as the basis for policy-making. The World Bank has conducted an LSMS in about 40 countries in the developing world. Because time-use data are critical for understanding the living standards, the LSMS frequently uses a module that collects time-use data of men and women in selected households.

The details of the activity list used in a country depend on the specific needs of that country. The NSO in **Viet Nam**, for example, has conducted five LSMS versions (1992, 1997, 2002, 2004 and 2010) in collaboration with the World Bank. These surveys collected data from selected household members (older than 15) using stylized questions. Unfortunately, not many details on these surveys were accessible.¹⁵

Timor-Leste conducted an LSMS in 2001 and 2007 (concluding in 2008 due to internal conflict), with a time-use survey module in both (Timor-Leste Survey of

¹⁵ One major issue for this paper was access to information on time-use studies in several countries. Despite trying all possible sources of information, we could not get information for a few countries.

Living Standards). The survey collected limited data on respondents' use of time, however.

Other global organizations and modular time-use surveys: The UNDP approach in time-use surveys aims at giving visibility to women's unpaid work and to gender inequalities in the time spent by men and women on paid and unpaid work. It also collects information on how people spend their leisure time. UNDP has frequently used funds from the Swedish International Development Cooperation Agency to promote modular surveys. The idea is to reduce the cost of conducting a time-use survey so that it can be adopted in many more countries.

Cook Islands conducted a time-use survey in 1998 as a module of its national Household Income and Expenditure Survey, which was conducted by its NSO under the UNDP Poverty Strategies Initiative Trust Fund. The national survey, which provided major indicators of the economic health of the nation and well-being of its people, covered 15 per cent of households. The reference period was one week, and the respondents (older than 15) were asked for details on their use of time in the week prior to the survey. The activity list included ten groups.¹⁶ The survey did not collect data on simultaneous activities and did not use any context variables.

The National Statistical Commission conducted the first national modular time-use survey in **Kyrgyzstan** in 2005 and the second in 2010. The Government then decided to continue the survey every five years.

In **Malaysia** the Ministry of Women conducted a national time-use survey in August–September 2014 (with financial and technical support from UNDP) to assess women's burden of work and to recommend ways of raising the workforce participation rate of women in the labour market to boost economic growth (Ministry of Women and UNDP, 2014). The study was undertaken as a module of the national Labour Force Survey and covered 2,640 women aged 20–60 years who reported how much time they spent on listed activities during the 24 hours prior to the survey.¹⁷

The **Lao People's Democratic Republic** conducted its first national Expenditure and Consumption Survey in 1992 and has repeated it every five years. It includes a module to collect information on the use of time by men and women in the sample households.

Bhutan initiated a time-use survey in 2006 to estimate people's happiness in their unique Gross National Happiness index. A pilot study was initially conducted and,

¹⁶ It covered domestic work, child care, church and religious activities, education, personal care, social entertainment, community work, sports, hobbies, cultural activities and free-time activities.

¹⁷ The background schedule of the main survey included questions on the socioeconomic profile of individuals, work status, work–life balance, barriers and facilities to their participation in the labour market, barriers and facilities to career progression, reasons for leaving employment and attitudes towards work. It was also accompanied by focus group discussions with women.

based on the lessons learned, a larger survey covering nine districts was conducted in 2007.

Nepal also started with small-scale time-use surveys in the 1970s (and continued through the 1980s and to 1992 and 1993–94). It then launched a national modular time-use survey (by the NSO) in 1996 with the LSMS. In 1998–99, the NSO switched it to a module of the national Labour Force Survey (helped by the International Labour Organization, ILO). It continued with a modular survey in the Labour Force Survey in 2003 and 2008. The data on time use was collected using stylized questions. Nepal was one of the first countries in the developing world to conduct systematic but small scale time-use surveys. Meena Acharya, a well-known Nepali feminist economist, conducted them in the 1980s and developed a classification of activities that valued unpaid work (based on guidelines from the International Research and Training Institute for the Advancement of Women, or INSTRAW).

Cambodia conducted its first time-use survey in 2004 as a module of the national Socioeconomic Survey, which was carried out from November 2003 to January 2005. It is the only country that has ever employed a modular time-use survey using 24-hour self-reported time diaries and collecting information on the activity taking most time during each period of half hour. The activity list included six major groups and other details. The survey, however, experienced several limitations (discussed further on).

2.2 National independent surveys

As noted previously, six countries (Bangladesh, China, India, Mongolia, Pakistan and Thailand) have conducted surveys using 24-hour time diaries. Of them, Bangladesh, China and India conducted large surveys with a representative sample and are thus treated here as national surveys. They also have expressed intent to conduct national time-use surveys in the near future (see Annex V for details).

The National Bureau of Statistics in **China** piloted a time-use survey in two provinces (Yunnan and Zhejiang) in 2005. The respondents provided two 24-hour self-reported time diaries on different activities divided into seven groups. The National Bureau of Statistics followed with a larger survey in May 2008 that covered ten cities and rural areas and collected information on simultaneous activities using context variables through a 24-hour time diary for the month.

After researchers conducted two small time-use surveys in the 1970s, the Government of **Bangladesh** launched a national Labour Force Survey in 1984–85, and then again in 1990–91, both of which included a small time-use module. The Bureau of Statistics, however, did not consider the data good enough for publication. Dhaka University, with

assistance from the Canadian International Development Research Centre, conducted a small time-use survey (1,000 households) using anthropological methods (observation methods) to collect data on the distribution of expenditure by household members. In 2012, the Bureau of Statistics piloted a survey using a 24-hour time diary that was filled in by interviewers.

The first time-use survey in **Pakistan** was small but carried out from 1986 to 1989 by the International Food Policy Research Institute in collaboration with the Government, and funded by the United States Agency for International Development. The study covered 800 households in 44 villages, with the objective of informing policies related to food security and food management. As previously noted, the FAO conducted a small time-use survey in Pakistan in 1990–91 to try out eight collection methods.¹⁸ The latest iteration was a national, stand-alone time-use survey conducted throughout most of 2007 by the Federal Bureau of Statistics that covered almost the entire country (97 per cent of the population) to assess seasonal changes.

India has a history of researchers conducting small-scale time-use surveys (1976–77, 1980, 1987 and 1990–91). In 1990–91, the FAO also carried out a small survey under its Righting the Wrongs programme. In 1996, the Tamil Nadu Directorate of Statistics conducted a small-scale survey. Then in 1998–99, the Central Statistical Organization (Ministry of Statistics and Programme Implementation) initiated the first national time-use survey covering six states that represented the country (Hirway, 2015). The survey was conducted in all four seasons of the year and covered 18,648 households (CSO, 2000).

According to World Bank records, India, China and Nepal conducted a small time-use survey as a module of the LSMS. Such a survey was conducted in China in 1995, in India (in two states) in 1997 and in Nepal in 1996 and in 2003. Such modular surveys were conducted in Viet Nam in 1992, 1997, 2002 and in 2004.

Mongolia and Thailand are the only two countries among the emerging and developing countries in the region that have mainstreamed time-use surveys as stand-alone exercises. In **Mongolia**, the first time-use survey (a pilot) was conducted in 2000. Supported by UNDP, it used a 24-hour self-reported time diary. The ensuing Statistical Law of 2004 required a national time-use survey every four years. Surveys were conducted in 2007, 2011, and 2015. The survey improved over the years with the expansion of the reference period and number of people covered. The survey is conducted throughout the year – in March, June, September and December. Regular reports are published with preliminary (tables) analysis in local language (see Annex V for details).

Thailand's first time-use survey was conducted in 1990–91 under the FAO Righting the Wrongs programme. Then in 2000–01, the NSO conducted the first national

¹⁸ These methods are rapid appraisal by checklist, diary method, interview questionnaire, participant observation, non-participant observation, 24-hour recall, group discussion, group feedback analysis.

stand-alone time-use survey. It has been repeated every three to four years since (in 2004, 2009 and 2014–15). There has been continuous improvement in the content and coverage: (i) the 2001 and 2004 surveys were conducted in August, the 2009 survey covered three months (June–August), while the following ones covered a full year (such as July 2014–June 2015); (ii) the sample size increased; (iii) the classification became more detailed – the latest survey had a five-digit classification; (iv) the time slot was reduced to 5 minutes in the time diary; and (v) the minimum age (at 10 years) was reduced to 6 years in the 2014–15 survey. One person was selected from each household to fill in the time diary. The NSO publishes systematic reports on the data.

2.3 Concerns relating to modular time-use surveys

There is ongoing debate on modular versus stand-alone time-use surveys. As explained initially, a modular time-use survey is a dependent survey – a part (module) of a major survey. There are frequent arguments on the advantages: It is less costly when compared with a stand-alone survey because information is collected as replies to a list of questions and not through a 24-hour time diary; it is easy to conduct because it needs less effort in data collection and analysis; and it is easy to institutionalize because it is typically conducted with a regular national survey. In contrast, a stand-alone survey has relatively high start-up costs, and it is not easy to institutionalize. Because it is conducted every four to seven years, the survey operations are irregular and that makes it difficult to accumulate and absorb knowledge and experience to achieve efficient and reliable survey results. It also limits the opportunity to develop independent technical and field staff in time-use methods. Many countries thus favour a modular time-use survey.

But a modular survey may have limited scope for data collection. A time-use modular survey cannot be very large because it is only a component of a national survey. Also, the module tends to collect information that is related to the main survey. The collected information may not be adequate to understand the use of time by men and women in a comprehensive manner. Yet, 24-hour time diaries can be modular and attached to a Labour Force Survey or other general household survey. In this case, the diary is applied to persons who are in the sample at a designated wave or quarter, often through a follow-up visit.

Most modular time-use surveys collect data by asking stylized questions. Investigators present a list of activities and ask respondents to report how much time they spent on each of those activities during the reference day (the previous day) or the reference week. It is usually a short or slightly long list of activities of specific interest, because it would be difficult to manage something more exhaustive and check that the total time adds up to 24 hours (oversights can occur; for instance, respondents usually do not keep total time in mind when replying). Post-survey reviews from Madagascar and

Malawi (Charmes & Hirway, 2007) concluded that the listed activities missed several relevant activities because it was a predetermined list. Additionally, this method does not give information on total use of time in a 24-hour period.

Doubts emerged in the literature over the quality of data collected through stylized questions. The UNSD (2005) *Guide to Producing Statistics on Time Use*¹⁹, for example, noted that stylized questions tend to produce results with a high degree of error. For instance, respondents find it difficult to report the time spent on intermittent or scattered activities. Kalton (in United Nations, 2005) as well as Bonke (2002) compared the performance of both methods (time diaries based on one-day recall and stylized questions) and found errors clearly emerging from stylized questions. The errors related not only to problems of recall but also to the social desirability of activities. Additionally, respondents tend to underreport the time spent on activities that are less important or less desirable and overreport the time on activities of more importance or desirability. Kalton (2005) noted that errors vary across socioeconomic groups, while Bonke (2002) found that the gap in the results of both methods was larger for women than for men.

The surveys review identified several other problems: Stylized questions do not provide the time of day when an activity was performed. Time-use data on simultaneous activities cannot be accurately collected because respondents are not able to identify separately all these activities or the precise time spent on them. It is also not easy to use context variables efficiently. Respondents find it difficult to respond to context variables, such as for whom and with whom for each episode while responding to stylized questions. And finally, recall can be a serious problem with stylized questions when the reference period is more than one day. A one-week reference period in the time-use surveys in Nepal and Papua New Guinea, for example, was characterized as seriously problematic because it affected the quality of the data due to rough approximations of time spent.

If a time diary is used in a modular survey in a single visit, it becomes difficult for investigators and respondents to shift to a different method of data collection at the end of the main survey. The quality of data is likely to be less than satisfactory. Organizing a follow-up and stand-alone time-use survey after the main survey is conducted is recommended (India has opted for this approach).

In short, the 2005 UNSD guidebook recommends that for good-quality national time-use data, NSOs should use stand-alone surveys that employ time diaries – filled in by any reliable method.

19 See United Nations: *Guide to producing statistics on time use: Measuring paid and unpaid work* (New York, Statistics Division, 2005);
See ECA: *Time use studies, national accounts and national budget* (Addis Ababa, 2003);
See ESCAP: *Guidebook on integrating paid and unpaid work into national policies* (Bangkok, 2003).



Objectives of
national time-use
surveys

Annex II presents objectives of the time-use surveys in the 37 countries covered in this paper. There are clear differences between developed and developing countries. In developed countries, where it is assumed that Labour Force Surveys provide reliable estimates, time-use data are regarded as useful in estimating non-SNA work, valuing unpaid work in satellite accounts and in understanding a number of socioeconomic issues, such as gender inequalities, transportation, balancing family and work, loneliness of older persons and social capital.

One major objective of time-use surveys in the four developed countries covered here was to collect information on how people spend their time on different activities. Other objectives that seemed to be particularly important beginning in the 1990s related to gender inequalities – “to analyse gender inequalities”, “to estimate time spent by men and women on care”²⁰, including child care; and compiling satellite accounts of unpaid work in monetary terms to estimate women’s contribution to the economy.

In Japan and the Republic of Korea, the time-use survey was conducted by a broadcasting company (NHK in Japan and KBS in the Republic of Korea). These companies were mainly interested in collecting data on how people spend leisure time and in knowing more about the socio-cultural lives of people. The NSOs shifted the focus of time-use survey on estimating gender inequalities and measuring contribution of unpaid work to national well-being in the late 1990s and onwards. Other objectives in these countries related to social concerns, such as the work–life balance, how men and women spend their leisure time and lifestyles, as well as socioeconomic concerns related to ageing (how older persons spend their time), health, child care, environment issues, traffic and transportation policy. Objectives related to poverty, the informal sector or employment were essentially absent.

A common objective of the national time-use surveys in the developing and emerging countries was to improve estimates of paid work or SNA work, particularly in informal and subsistence work. Cambodia, the Lao People’s Democratic Republic, Malaysia and Mongolia expressed this as collecting information on participation and time spent on agriculture and allied activities, handicrafts and collection of water and fuelwood or information on how individuals in rural areas spend their time. But Bangladesh, India, Nepal, Pakistan and Thailand aimed at getting improved estimates of workforce or getting detailed information on paid and unpaid work of men and women or to get reliable estimates on labour inputs in an economy. China articulated it as a measure of women’s unremunerated work, while Viet Nam sought reliable data on living standards. Several countries (China, India, Pakistan, Philippines and Thailand) also had compiling satellite accounts of unpaid work as an objective.

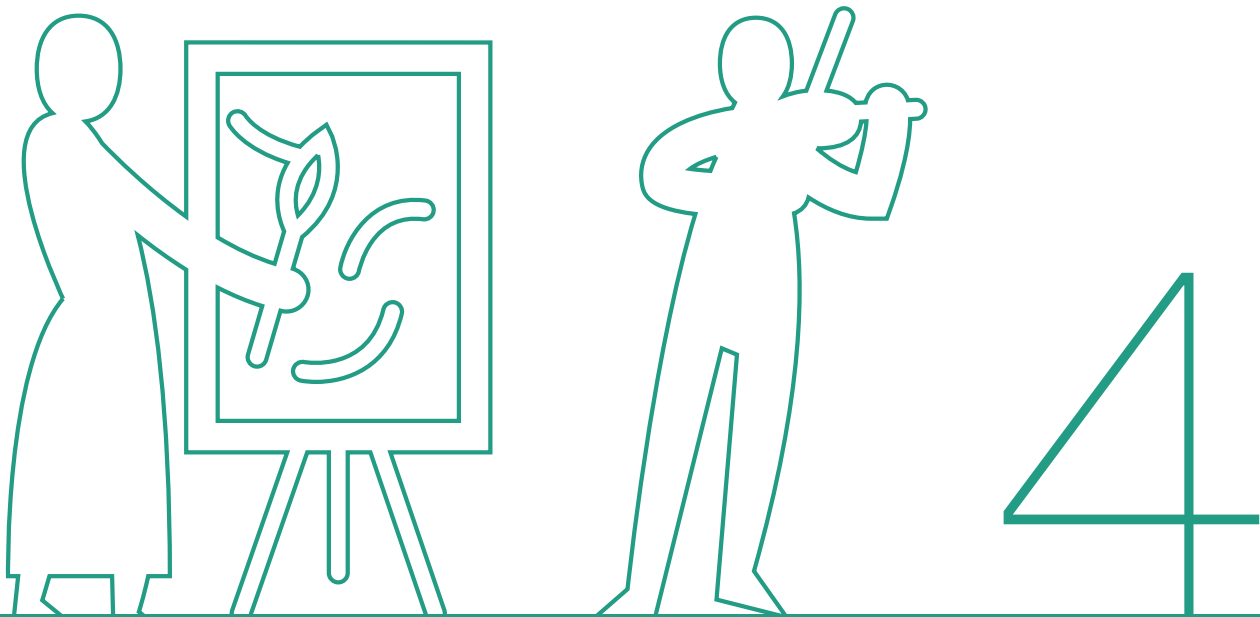
Many countries had secondary objectives. China also sought to measure the quality of life. Malaysia also wanted to test eight methods of time-use data collection to see which

20 Centre for Time Use Research: <https://www.timeuse.org/>.

method gives the most accurate data on women's agrarian labour;²¹ Mongolia wanted to study household patterns and change; Thailand wanted to understand people's participation in cultural- and custom-related activities and to produce internationally comparable data (see Annex II).

In short, the focus on getting improved estimates of all forms of work, improved estimates of employment and working time and measures gender inequalities as well as valuation of unpaid work were much in line with the major needs of these countries. There was also a realization that the conventional Labour Force Surveys were not adequately capturing the size and characteristics of the prevailing informal and subsistence work.

²¹ These methods are rapid appraisal by checklist, diary method, interview questionnaire, participant observation, non-participant observation 24-hour recall, group discussion and group feedback analysis.



Background questionnaire

There are two types of background questionnaires used in national time-use surveys: In the modular format, the main survey is treated as the background schedule, while a background questionnaire for a stand-alone survey is specifically designed, keeping in mind the objectives of the survey.

For the modular format, the background schedule is determined by the objectives of the main survey (such as the Living Standards Measurement Survey, the Labour Force Survey, the Household Income and Expenditure Survey or any other household survey), which may not accommodate the objectives of the time-use survey. For example, a time-use module in a Labour Force Survey will have different background data from a module in an Income and Expenditure Survey. Thus, the subject of the main survey is likely to restrict the analysis of the time-use data. A Labour Force Survey may not help in compiling household satellite accounts or estimate the care economy; or a Household Income and Expenditure Survey may not provide the required data on estimating informal and subsistence employment. The selection of the main survey to latch on the time-use survey module needs to be done carefully. Also, to design another elaborate background questionnaire for the time-use module would be impractical. In general, modular surveys are weak in designing background information for facilitating analysis of the time-use data. This then puts a restriction on the use of the data.

In the case of stand-alone time-use surveys, there is good scope for collecting the required data on households and individuals. All developed countries have a long tradition of collecting background information for selected households and for selected individuals. Household information includes major characteristics, such as place of residence (province and city or village and rural or urban), size and composition, race and social groups, total income and sometimes source of income and house conditions; and the individual questionnaire covers age, sex, marital status, occupation, education, health status (if sick), details of employment (industry and occupation status) if any and income earned. Whether the background questionnaire of a national time-use survey is adequate to meet the objectives of the survey is an important question.

The background schedule of a time-use survey must be sensitive to the objectives of the survey. It is an important component of a time-use survey because the data is usually analysed with reference to the information collected in the background schedule. For example, if an objective of the survey is to value the unpaid non-SNA work in the economy, it is necessary that the background questionnaire collect data on equipment and assets of the household; their ownership by sex, technologies used in cooking, cleaning, washing, etc.; prevailing wages in the locality; the presence of children, older persons and persons with disabilities in the household; and the market price of the goods produced at home. If the objective is to understand the care economy, it will be necessary to collect information on the need for care in households, such as the size of the household, presence of children (aged 0–6 and 7–18 years), presence of persons with disabilities and older persons who need care, how the provision of care is shared among household members and how the care is organized between the household,

government organizations, the market and voluntary agencies.

The background questionnaires of the time-use surveys in Bangladesh, China, India, Mongolia, Pakistan and Thailand have collected rich information on household and individual characteristics. The **Chinese** time-use survey collected individual information on age, sex, marital status, occupation, education, income earned and distance between home and the workplace. The official report, which presented tables based on the data, used those variables. One problem with the Chinese time-use survey was that the report and the data did not use all the data collected on households and individuals. The background questionnaire also had general questions about the nature of the day (too busy, normal, etc).

The time-use surveys in **Mongolia** also included more or less the same details in the background schedules. For employment, however, they used details like occupation, employment status, unemployment and part-time employment.

In **Thailand's** time-use surveys, the background questionnaire collected the usual information on selected households. The individual questionnaire covered relationship with the household head, age, sex, marital status, religion, employment status, occupation and industry in which the person was working.

The background questionnaires in **India** were elaborate. The household questionnaire included questions on head of household, size and composition of household, social group (religion and caste), average monthly consumption expenditure and per capita monthly consumption expenditure, household assets, land owned and operated, housing, main industry (code) and main occupation (code) of the household and whether there was any disabled person in the household. The individual questionnaire included questions on age, sex, marital status, education, relation with the household head, usual activity status (principle and subsidiary), industry and enterprise status and participation in decision-making. The survey also asked general questions on the type of day (normal or atypical and week day or weekend day) and the nature of the questionnaire (easy, difficult, etc.).

Pakistan used an elaborate background questionnaire (five to six pages). The information on the selected households included head of household, the respondent (name and sex), household income by source and the main source of income; consumption, savings, investments; housing conditions (earthquake affected, *kutcha*, *pucca*); sources of energy for cooking, lighting and heating; use of firewood and distance to the source; source of water supply and distance to the source; access to transportation facility (distance); access to major government services (distance); number of children in the household (aged 0–7 years and 8–18 years), who does household work and so on. The individual questionnaire was also elaborate and covered information on age, sex, education, marital status, children in the household and a number of employment issues. These questions included whether the person

had worked at least one hour in the previous week, whether they had work or a job in general, employment status (whether the person was unemployed, looking for work or available for work), income earned, designation and details of the enterprise where they were working, such as nature of the establishment, whether it files accounts, employs regular workers and the number of workers employed.

Interestingly, the questionnaire also included questions like (i) whether the person used a watch or has a clock, (ii) whether the day of the interview was normal or not and (iii) how the person is feeling about their time use – are they too busy?

The **Bangladesh** time-use survey also had an elaborate background questionnaire. The household information collected included head of household, source of energy for light and for cooking, source of water supply, participation in selected household occupations (livestock, poultry, dairy, horticulture, small and cottage industry and *pisci-culture*), occupation assets owned and main and other sources of income. The individual questionnaire included questions on economic activities of individuals – whether the person worked for at least one hour during the seven days prior to the survey, if they had work or a job and if not working, looking for work or a job, the nature of the enterprise where they are working – industry code, employment status, designation, ownership of the enterprise and whether full-time or part-time work.

There appears to be large variations across countries in the way they have designed the background questionnaire. On one hand, there is China and Mongolia, which collected the details usually collected in any household survey; while on the other hand, there is Pakistan, which designed an elaborate background questionnaire.

Overall, none of the background questionnaires reviewed for this paper seemed adequate to provide information to meet the objectives of the respective surveys for the following possible reasons.

- None of the background schedules helped in understanding the care economy in their respective country because none collected data on the need for care in the household (presence of someone disabled, chronically sick person, older person needing care and children by age group²²), and how it was organized at the household level, such as who provides care: household women, other household members, elder child, government support, the market or NGO groups. Hence, it was difficult to understand the total care needed at the household and macro levels and how it was shared at the household level and at the macro level by different agencies.
- Similarly, household upkeep requires data on the technology used, such as cooking (fuel and stove used), washing, cleaning and shopping.²³ This information helps in

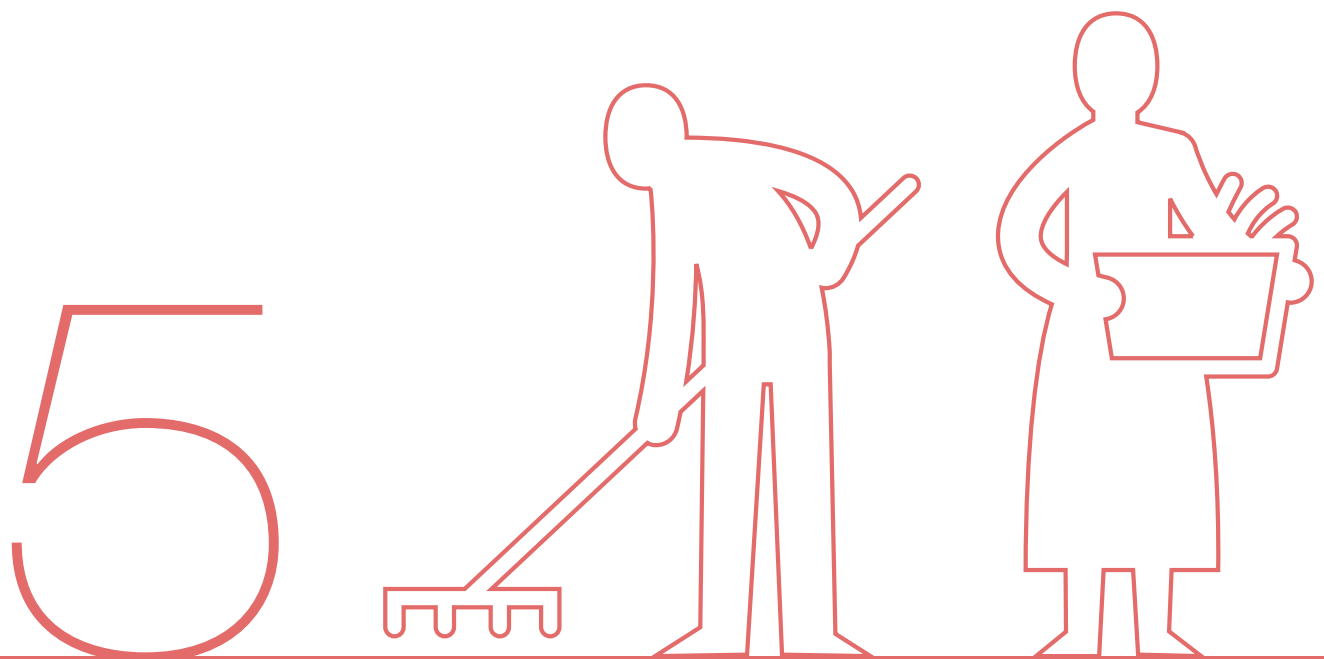
²² The nature of child care depends on the age of children, thus ages of children are necessary.

²³ Because the time needed depends on the technology used, this information helps in identifying drudgery of household work.

assessing the drudgery component of this work. Also, information on how this work is shared within the household and between household members and hired workers will help in assessing the sharing of burden of work. While Pakistan has collected some of the data (not all), other countries have missed this data.

- For valuation of unpaid work, the background questionnaires need to collect data on the value of assets along with ownership by sex. Although data on assets were collected by a few countries, the asset ownership was missing from all questionnaires.
- Collection of data on employment, such as occupation, industry, employment status, number of jobs done, wages earned, whether the person has worked for at least one hour in the previous seven days or whether the person has looked for work or is available for work are important data. But there was no provision to get this information from the additional work that was captured through the details of the time use of respondents. Also, in the case of multiple jobs, there was no way to link that information with the time use of the respondent.

In short, there is need to give more attention to designing the background questionnaire. The usual details for households and individuals generally are not sufficient. It appears that there was a poor appreciation of the potential of this schedule to enrich the time-use data.



Sampling
under time-use
surveys

Sampling under time-use surveys includes sampling of households and household members as well as sampling of time – number of days per selected household members and the period of the year (the reference period).

5.1 Sampling of households and members with stand-alone time-use surveys

The basic issues for sampling for a time-use survey are the same as faced by any household-based survey, except that the sample size is usually smaller than the other national surveys because they are more time consuming and more expensive. Sometimes, as previously pointed out, NSOs and researchers reduce the sample size of a time-use survey to an unacceptable level. This tends to raise sampling errors and limits the possibility for disaggregated analysis. Both factors tend to reduce the utility of the data. The size of a sample for time-use surveys is thus an important issue.

There are certain factors that must be considered when determining the number of households for a time-use survey: It is important that the household sample is drawn systematically using multi-stage stratified random sampling techniques. A geographical cluster approach is doable to reduce sampling errors as well as keeping the sample size manageable. It is important, however, to draw a sufficiently large sample to have more than enough numbers to analyse the small cells. The issue of sample size is also tied to the issue of minimizing field costs. A cluster design approach that geographically concentrates field work will save on travel and administration costs. The population can be broken down into geographical units and a multi-stage method can be used to randomly select units.

The sample size of a time-use survey can be expanded with least cost by (i) increasing the number of persons in the survey and (ii) increasing the number of days of each person selected for the survey. Selecting all members of a sample household (older than a certain age) is a useful strategy. Selecting more than one day per person is definitely another way of enlarging the sample size. An important sample design decision is whether to include **all** members of a sample household (reference population). Several countries have used the one member (Thailand) or two members (Pakistan) chosen randomly approach.

However, there are important advantages in selecting all eligible members (older than a minimum age) in the sample. First, it helps in estimating the distribution of tasks across a household – the larger the household, the more options for variation in the performance of different tasks across members. Second, it provides more detail of the power and task dynamics within a household. Third, it helps in unpacking the intra-household dynamics by assessing how those dynamics work. An additional reason for selecting multiple persons per household is cost-efficiency. Most population surveys are based

on household samples, and it is generally less expensive to collect the survey data from a sample of persons clustered in a smaller number of households than to spread the sample over a larger number of households. From that perspective, the most efficient design is the one that minimizes the sampling errors of the survey estimates for a given budget. To determine an efficient design therefore requires an evaluation of the effects on sampling error of clustering the sample of persons within households. This evaluation involves both the effect of weighting for unequal selection probabilities and the effect of cluster homogeneity.

Another factor to consider in determining the numbers of persons to be selected from sampled households is that of household response burden. When data on time use are collected on all adult household members for example, the burden of interviewing all of them may be perceived as excessive on the household. This perception may then lead to unacceptable levels of non-response. Household response burden is particularly high with large households and when all persons are selected per household. Methods should be devised to reduce this burden on households and individuals household members.

One common point that emerged in all the national time-use surveys was that the sampling was done using multi-stage stratified random sampling – the sample of households was selected systematically. The size of the sample, however, varied from country to country, depending on the size of the country or the size of the population of that country, the coverage of the survey and the sampling techniques used. For example, the Bangladesh survey had 378 households and the Indonesian pilot survey had 360 households, while the large surveys used a larger sample: The Cambodian survey covered 15,000 households, the Chinese survey covered 37,142 households (for selected provinces), the Pakistan survey targeted 196,000 households, the last Thai survey had 27,000 households and the Indian pilot survey had 18,600 households (in six states). All of them used variations of multi-stage stratified random sampling method.

The minimum age for eligible respondents varied from 5 years in Nepal, Timor-Leste and Cambodia to 15 years in China, Cook Islands, Indonesia and Malaysia. India kept it at 6 years, while the Lao People's Democratic Republic, Pakistan and Thailand used 10 years. Mongolia kept it at 12 years. Some countries set a maximum age also – China used 74 as the age limit for respondents, while Malaysia used 64 years. The countries interested in studying problems of children's time use, including child labour, reduced the minimum age. Even though time diaries were reported by the respondent, a parent or any older household member was allowed to help when it was a child respondent.²⁴ The uneven coverage of minimum and maximum ages likely created problems in cross-country comparability of data.

24 For example, several countries have allowed adults to refer to each other while responding to time-use diary.

Most countries defined “household” as those who have kinship relationship and who eat from the same kitchen. Pakistan, however, included “all those persons who normally live with the sampled household and are present at the time of investigation”, which encompassed boarders, domestic helpers, friends, relatives and non-relatives. Friends, guests, visitors who were living at least four nights a week over the 30 days prior to the survey were considered as part of the household. Similarly, Kyrgyzstan selected from the persons who were at home when the investigators visited the household. In both cases, there were problems of comparability of the data with other countries due to the different definition of household.

5.2 Time sampling with stand-alone surveys

Sampling of time for which the data are collected needs to be representative of the total time of sampled households. Two decisions are important here for selecting a representative time sample: How many diary days should be sampled per household member? And what should be the reference period of the survey, for example, for how many months should the data on time use be collected?

The simplest design is to collect time-use data for a single day for each sampled person. This approach avoids problems of collecting data for many days, and it places the least burden on selected persons. The *UNSD Guide to Producing Statistics on Time Use*, the ECE guidelines²⁵ as well as the European Union guidelines on time-use surveys²⁶ recommend selecting two diary days for each person: one week day and the other weekly variant day (could be a weekend day), because these two days represent the time use of persons fairly satisfactorily. Most countries followed this pattern. It is important to maintain randomness in the selection. The selection of four days per person enables two weekdays, one Saturday and one Sunday to be chosen (where this weekly pattern is the norm). It will also cut down the costs. From these four days, a synthetic week estimate could be constructed. Survey designers should consider the minimum number of representations of a particular day of the week and select the sample to produce tolerable standard errors, given specific analytical objectives (Bittman, 2000).

Ideally, a time-use survey should represent a full 12-month period. Failing that, a purposive selection of a “representative” set of, say, two, three or four individual months may be used or, if resource constraints so dictate, the data collection could be confined to a single “typical” time period. Whatever the chosen period, within that period, the day or days for which each respondent reports time use should be specified and chosen by a random selection procedure.

²⁵ See ECE: *Guidelines for harmonizing time-use surveys* (Geneva, October 2013).

²⁶ See EUROSTAT: *Harmonised European time use surveys; 2008 guidelines* (European Communities, 2009).

Countries differ in the number of persons per household selected for collecting time-use data. In the countries covered here, China and Thailand collected time-use data for one person per household, while Pakistan chose two persons, and the other countries selected all eligible persons (older than a certain age). The countries also differed in the number of days covered: Bangladesh, Cambodia and China used one diary day per person, while India,²⁷ Mongolia, Pakistan and Thailand used two diary days per person. The two days usually included one week day and a weekly variant day. Mongolia grouped the days of a week into three groups and selected days in a manner that each day had an equal probability of being selected. Several modular surveys selected more than one day – usually the seven days prior to the survey. Nepal collected data for the previous day, previous seven days and the previous one month.

5.3 Sampling in multi-purpose or modular surveys

Sampling for two combined household surveys – the main survey and the time-use survey – raises several issues. One major concern is whether it is possible to create an efficient dual-purpose sampling design in which the objectives of the time dimension are properly represented. Because this sampling typically reflects the objectives of the larger survey, it will help if the time-use module has matching objectives.

Apart from time-use surveys, few household surveys require that data be collected for specific days. Thus, the need to represent the time dimension appropriately in a design that combines a time-use survey with another survey requires a modification in the data-collection procedures so that it represents the criteria that would be used by the other survey if it were a stand-alone exercise. Because the modification will almost certainly impose restrictions on the timing of interviews, it may lead to a lower response rate for the combined survey than would be achieved if the other survey was conducted alone. This factor needs to be taken into account when a combined survey is considered. A time-use survey will most readily fit with another survey that involves spreading data collection over time. The other survey may require a similar representation of the time dimension, which, for example, is often the case with a nutrition or family budget survey. The main concern here is the response burden. The response burden in such surveys is often substantial, so that when combined with the high burden of a time-use survey, the overall load may become excessive.

The main complexity of sample design in time-use surveys is encountered when incorporating the time dimension. Most household surveys collect data that relate to a specific point or period of time (cross-sectional data) or that are assumed to change

²⁷ In India, instructions were given to find out whether the day selected was an atypical day and, if yes, the interviewers were asked to select another day deemed more typical.

little over the time period of data collection. In time-use surveys, however, the estimates of interest are not for the activities that people engage in during a particular day or week but for a longer period of time, typically a year. Because people's activities can vary markedly by day of the week and season of the year, time-use surveys need to ensure that the sample design provides a suitable representation of the time period for which estimates are required.

Should a modular time-use survey cover all days of the year or all seasons of the year? One basic option is to conduct the survey on a periodic or continuous basis over the entire year and to spread the total sample of households over each survey period. The ideal design of data collection over a 12-month period gives representation to the time dimension throughout the period. In many countries, a fieldwork plan can be developed to satisfy this requirement, for instance, spreading the interviews evenly over 12 months, both nationally and at subnational levels. However, such a design is not always possible. When it is not, the aim should be to approximate the ideal to the extent possible.

In practice, the number of time periods selected is generally small, say, from two to four, and is chosen by purposive selection: data collection may cover a few separate months, chosen carefully to be "representative" and accounting for seasonality (thus spread over the year). Within the chosen months, the sample can then be spread across weeks and across days of the week. An alternative is to take a sample of time periods, such as weeks or months, and concentrate the data collection in those periods. The more periods that can be covered, the better. Choice of periods that are representative on average of the full 12 months is the point here.

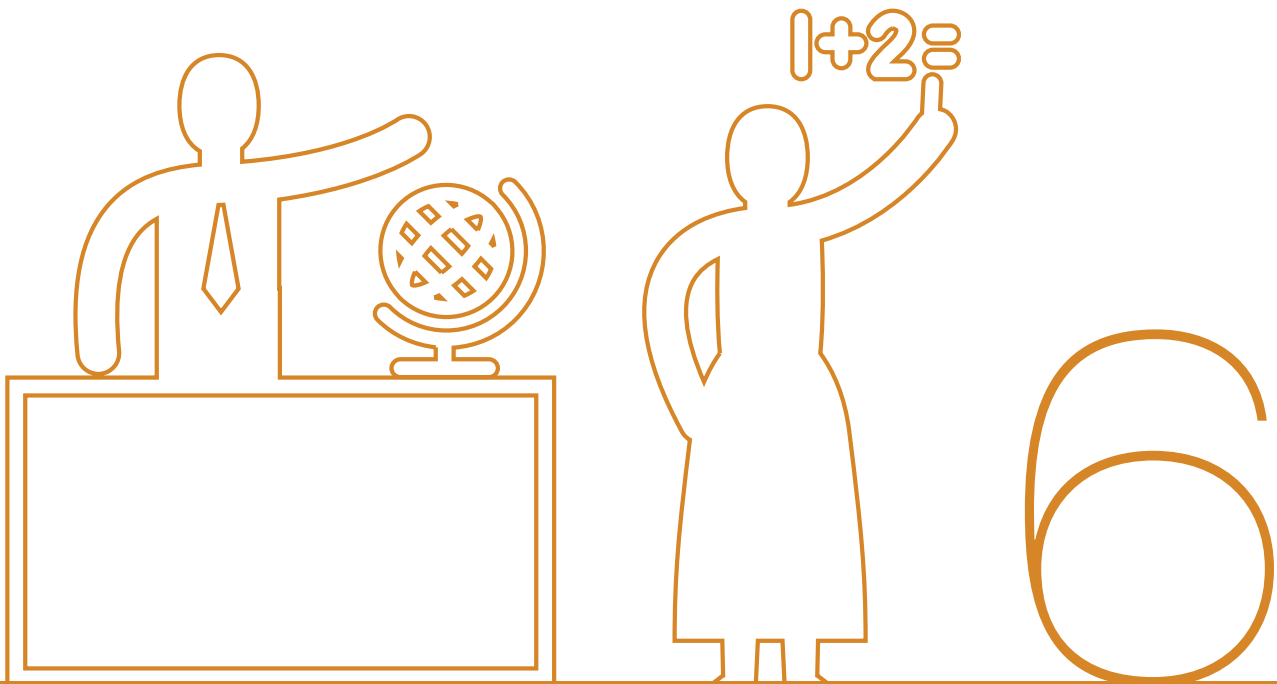
Whether the sample is spread across a full year or concentrated in certain periods, it is important to select days by probability method to avoid selection bias. Interviewers or respondents might choose days that are convenient for them – for instance, days when the respondent is at home. Such choices may lead to distorted estimates of time use. Probability sampling of days theoretically guarantees time-use estimates that are free of selection bias but only if the data are collected for the specified sample days. Every effort should be made to respect specified days.

Constraints posed by limited resources or the use of a multi-purpose survey may restrict a time-use survey to a single period of one or two months. Interpreting the resulting estimates as typical of time-use patterns over a year is then not possible. Another option would be to conduct a single-period survey and acknowledge the analytical limitations of such an approach.

5.4 Long-term time use – Selecting seven diary days

Researchers such as Gershuny (IATUR, 2012), argue that selecting two diary days does not capture the long-term time behaviour of people because there are likely to be several variations that may not be captured. For example, there are weekly variations in the use of time due to the many activities organized in the week cycle. A seven-day diary can give a fuller picture of a person's activity pattern during a week. In the context of flexible timings in the labour market, these variations could be significant for workers also. Some workers may perform different work on different days – some work for two to three days of the week, or small entrepreneurs may buy raw materials or sell products on market days. Although two days' time sample represents the overall behaviour of the labour force or a population, the data are not good enough for unit-level analysis. Seven-day time diaries allow unit-level analysis. One major problem here, however, is a low response rate. Australia and the Netherlands tried seven-day diaries: The Netherlands experienced a low response rate, while respondents in Australia completed the diary for two consecutive days but the quality gradually declined after that.

Obtaining a seven-day response necessitates discussing its importance with the respondents for winning over their diligence.



Methods for data collection

Getting a correct and detailed response from respondents is an important part of data collection. The developed countries usually employ self-reported 24-hour time diaries with a 10-minute time slot for collecting information on how people spend their time. Many of the developing and emerging countries need to work out their strategy for data collection carefully, because literacy levels could be low and in certain remote areas people may not use time pieces or watches to report their exact time use, which would make accurate data collection a difficult task.

As discussed earlier, several methods of time-use data collection have been used for small surveys. In national surveys, however, the method options decline due to the large sample size. The participatory rapid appraisal method or the community-based method are not feasible. Instead, there are three methods available for large time-use surveys: (i) observation, (ii) stylized questions and (iii) the 24-hour time diary.

6.1 Observation

In this method, a person is appointed to observe and accurately record another person's use of time. There are two types of approaches: With the participating observation method, a researcher, usually an anthropologist, observes and records time use and tries to understand this use of time by participating in the life of the respondents. With non-participating observation, a researcher observes and records use of time by the respondents, and there is no direct involvement of the person being observed.

Practitioners regard the observation method as successful for local community empowerment and change. The main advantage is that the person whose activities are recorded does not have to read or write or have a Western concept of time.

But there are several problems with this method: First, continuous observation tends to make respondents self-conscious and leads them to behave differently. Second, an investigator may find it difficult to observe the entire household; if an investigator must observe only one person, a full-time investigator will be needed for each respondent, which may be costly. In a large survey, this method will not be practical. A researcher can train local volunteers to assist and who are supervised by educated volunteers (Mulik and Werner, 2002) or who use a literate younger member of the household to help with observations (Waring, 2006).

One alternative is to do random observations, for example, coming back every hour to see what the person is doing. This method allows one researcher to monitor more than one person in a day. But it gives an incomplete picture of activities and is not considered reliable (Sillitoe, 2006). Observation is the least used method.

6.2 Stylized questions

Stylized questions are asked mainly in a modular time-use survey. In this approach, respondents report their time use by answering questions related to listed activities. These questions are about the time they spend on each of the activities during the reference day (usually the previous day), the reference week or even a month (as in the case of Nepal). This list can be short, with activities of specific interest, or a long list covering all activities. It is difficult to manage an exhaustive list and check that the total time adds up to 24 hours because respondents' replies tend to ignore total time. Also, when simultaneous activities are included, it becomes impossible to keep the total time to 24 hours. In practice, thus, a short or a slightly long list but not an exhaustive list is used. In all the modular surveys reviewed for this analysis, the list varied between nine and 90 activities.

The limitations of this method were discussed previously (see Section 2.3). But because it is a less expensive and easy method, it is used by many developing and emerging countries. INSTRAW (1995, p. 89), however, rated this method as having low validity, reliability and flexibility, however.

There are several versions of this method:

(i) Activity log: The person whose activities are being studied is asked to write down on a questionnaire each time they do a particular activity. For example, during the next three days, each time the respondent prepares any food or gets or prepares a drink, they are required to provide the following information: time started, time ended and purpose (morning meal, midday meal, etc.). This method assumes that the person is literate and that they have a watch or clock. It also assumes that the person is motivated enough to remember and write down each time they do the activity. It requires much attention from the respondent and thus has a high drop-out rate. There is no much ways for checking for answers' accuracy.

(ii) Stylized activity list: This method would usually be part of a questionnaire or constitute a questionnaire on its own. It involves a question such as the following, with a block in which the person can write the number of hours and minutes for each activity: What does your actual day look like? How many hours per day do you usually spend on the following activities?²⁸ Ideally, the question should be asked separately for weekdays and weekends because the activities and the time spent on them likely differs. Same as with the activity log, there is no way of checking for answers unless the researcher is certain that the activities listed cover every possible action. Another problem with this method is that as the activity list grows longer to include all possibilities, the fatigue level

28 For example, housework and related errands, child care, occupation (including travel to work and secondary work), training, education, handiwork, repairs in the home or with the car, garden work, television, video, hobbies and other free-time activities.

of respondents and researchers grows. Such a list may prompt recall, but it is hard to get the balance right for every situation. INSTRAW (1995) rated this method the same as the activity log – low reliability, validity and flexibility.

(iii) Time activity matrix: This method is similar to the stylized list in that it has an activity list, but it adds a list of time periods as well. “In the case of an INSTRAW²⁹ study, they have listed the activities on the top (Y axis), and the column below (X axis) collects data on the time spent on the activities (INSTRAW, 1995).”³⁰ The periods could be 10 minutes for a detailed subdivision or one hour for a much cruder division. The person recording the activities marks off in each row which activity was carried out. There must be at least one activity for every time period. This method helps the respondent to remember what they were doing. By insisting on a least one activity for every time period, it produces a comprehensive record. It does not avoid the conceptual problem, whereby the respondent must be able to classify each of their activities according to the categories provided. It assumes that the person is able to remember all the activities undertaken and assigns them to a category. Both a good memory and good calculation skills are needed.

These three versions do not deal with simultaneous activity at all. Use of context variables is also avoided. And as noted earlier, there are problems with accuracy and reliability of the data.

6.3 24-hour time diaries

With this approach, a 24-hour time diary is designed for each respondent, who is expected to fill in fairly detailed information on how they spent their time during the previous 24 hours. In countries in which respondents are literate, the diaries are self-reported, with information provided in a 10-minute (or 5-minute) time slot. When literacy is inadequate, face-to-face interviews are organized, and the interviewer fills in a diary on how the person spent their previous 24 hours.

Self-reported time diaries are completed in different ways: filled in the next day, at the end of the day (in the evening), continuously as activities are performed or frequently during the day of the diary. This latter approach is considered better than the others. Among the countries that conducted stand-alone time-use surveys, China and Thailand³¹ used self-reported diaries, while Mongolia and Pakistan used such a diary for the literate population and conducted face-to-face interviews for persons with low literacy. Indonesia used time diaries only with literate persons for self-reporting.

29 UN International Research and Training Institute for the Advancement of Women.

30 Please see INSTRAW: *Time-use surveys in developing countries* (Santo Domingo, 1995).

31 In Thailand, the literacy level is high – at nearly 100 per cent, whereas in China, a pictorial diary was also used when respondents were not literate.

With the one-day recall (face-to-face interview) time diary, interviewers ask respondents how they spent their time the previous day and record all their activities comprehensively in chronological order. This method avoids many of the problems of the stylized questions. However, the role of the interviewers is critical because they have to get the right response. The design of the survey manual, intensive training of interviewers and strong follow-up are essential (Hirway, 2003). The interviewer must establish good rapport with respondents and get their replies without asking any leading question. The interviewer must collect the right data without any bias. Interviewers have to get the timing of the activities when the respondents do not wear a watch or use a clock. One important limitation of face-to-face recall diary is that it needs a larger time slot – a half hour or, in some cases, one hour. Bangladesh, India, Mongolia and Pakistan used a half hour (when conducting face-to-face interviews), while Indonesia used two to three hours. Larger time slots imply a smaller number of episode (an episode is an event or an activity carried out during a time slot) reporting (usually three episodes are reported) and fewer details of the time use.

The time-use data therefore tend to be approximations rather than accurate estimates. In Pakistan, each half hour reflected three activities and the time recorded for each activity was 10 minutes.³² Also, by recording the time-use chronologically through a face-to-face interview, recall can be a problem because a respondent may not remember the exact time spent on different activities.

It is desirable that a time diary is filled in only by the respondent (to get reliable information). If it is filled in by an interviewer, nobody else should be present to help the respondent (except in the case of children (older than a fixed age)). This rule is frequently not followed. For example, the Pakistan time-use survey report in 2007 noted that time diaries were filled in with “mutual help”.

6.4 Light diary and full diary

With the light diary approach, surveys provide a predetermined list of activities and ask the respondent to choose from them while filling in the diary (light diary). But some countries do not provide a list and instead ask respondents to describe their activities. Codes to these activities are assigned later on by the investigators (full diary). The full-diary approach appears to give better results because there is no pressure on the respondent to select an activity from a list. However, a full diary requires more work for coders and analysts and is costly. If the analysts and interviewers are trained to do this task, a full diary would be the better choice.

³² In the case of the time-use survey (2007) in Pakistan, the time slot was 30 minutes. The time spent on an activity was derived by dividing 30 minutes by the number of activities conducted during the 30 minutes. This was too simplistic an approach to collect data.

Seven countries that conducted modular time-use surveys used activity lists ranging from nine to 90 activities. Among the six countries that used a 24-hour time diary, China, Mongolia and Thailand used self-reported time diaries. Pakistan used self-reported time diaries for urban people and a one-day recall diary for the remainder of respondents. The other countries used only one-day recall diaries filled in by interviewers. The time slot for self-reported diaries was 10 minutes, and 30 minutes for the others.

6.5 Recall for one day and one week

Although one-day recall may be acceptable, recall for one week is not likely to be reliable. The countries that collected time-use data for the week prior to the survey tended to compromise on the quality of data.

Collection of data by recording the use of time chronologically through a face-to-face interview also is not always satisfactory. Respondents may not remember the exact time spent on different activities. Again, intensive training for interviewers, a carefully designed instruction manual, supervision and strong follow-up are critical.

6.6 Methods for sampling days – Field operations

It is important to link the sample design and the design of field operations. The methods for sampling days distinguish between time-use surveys that employ interviewers in the primary sampling units (PSUs) for the duration of the data collection period and other surveys.

Time-use surveys using resident interviewers: The simplest situation in which the time-use survey is to be carried out relies on a resident in each PSU who can conduct interviews throughout a 12-month period. For example, if 56 households are sampled in a PSU and all household members are to report their time use for the same sampled day: Each day is to have an equal probability of selection (the sample design does not require a larger than proportionate sample of, for example, weekends). To achieve a good balance of the sample of days, the days can be stratified by day of the week and by quarter of the year. Thus, within each quarter, two Mondays, two Tuesdays etc. would be randomly sampled and then randomly allocated to the sampled households in the PSU.

Further refinement of this stratification is possible. For instance, one of the 13 weeks in each quarter could be selected at random to be duplicated, thus creating 14 weeks. Then, the 14 weeks could be divided into two half quarters of seven weeks each, with each of the seven days of the week randomly allocated to one of the seven weeks in

the half quarter. Thus, each week of the year is represented once, with one week per quarter represented twice, and each day of the week represented in each half quarter. In general, schemes of this type can be fashioned to provide a sample of days of the week that are evenly spread across all the weeks of the year. By this means, a better representation of the time dimension is achieved than would occur with an uncontrolled random selection of sampled days.

This approach can be extended to multiple days per sampled person. However, there are additional considerations relating to how the days for a sampled person should be distributed within the 12-month period.

When time-use data are collected for several days by means of “leave behind” diaries, it is economical to have respondents complete their diary for consecutive days. For example, in a design in which 20 households are sampled in each enumeration area, the households might be divided into five groups with four households each. Household members in group A could then be asked to complete diaries for Friday and Saturday; those in group B could refer to Sunday and Monday; those in group C could refer to Tuesday and Wednesday; those in group D could use Thursday and Friday; and those in group E could focus on Saturday and Sunday. In this way, Fridays, Saturdays and Sundays would be sampled twice as often as the other days.

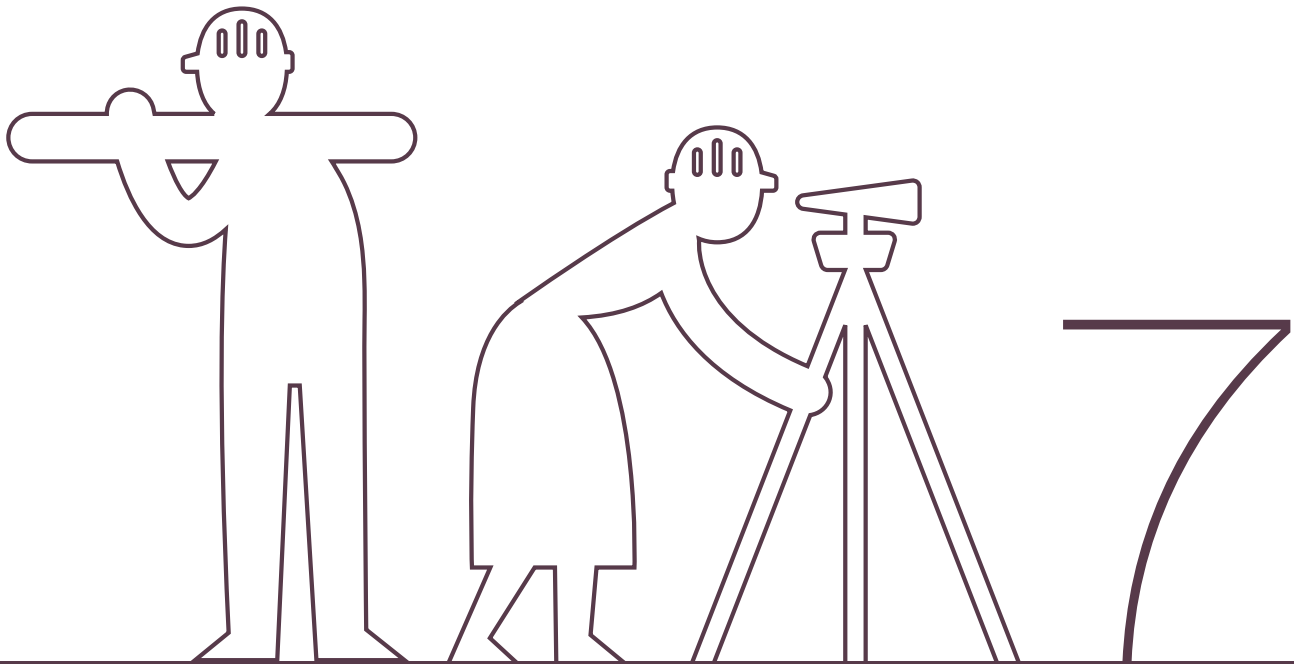
Time-use surveys using travelling interviewers: Conducting the survey using teams of travelling interviewers is a more difficult fieldwork set-up, whereby each team visits selected PSUs, listing the households in each and selecting a sample from the list. They carry out the interviews in the selected households and move on to the next PSU in their allotted set. In these circumstances, the sample of days in a PSU cannot be spread across the year. Many developing countries use this format because they depend on trained travelling interviewers. However, an annual spread can be obtained by collecting data for different periods from different PSUs. Various schemes that suit the fieldwork’s operational constraints can be developed. The following describes some examples of general approaches.

A time-use survey designed to collect data for a single day for each sample person: For simplicity sake, suppose that a team of interviewers collects data relating to seven consecutive days in each PSU, with a sample of 56 households per unit. With an even distribution of days of the week for the sample, time-use data would be collected for each day from the eligible persons in eight sample households, with a random allocation of days to households. The annual spread of the sample could then be achieved by assigning different PSUs to different weeks. This assignment needs to be carefully balanced across the sampled PSUs to avoid, for instance, PSUs of particular types (for example, PSUs in certain regions or rural PSUs) being represented only in certain parts of the year. As an illustration, the 52-week time period can be divided into 13 periods of four weeks, with the sampled PSUs systematically allocated to these periods and the PSUs for a given four-week period systematically allocated

to the weeks. The systematic allocation from sorted lists of sampled PSUs provides a balance of the characteristics used in the ordering by month and week. This general approach can be applied when the survey is restricted to a shorter period of time.

Collecting time-use data for multiple days for each sample person: This approach is generally difficult operationally when teams of travelling interviewers are used. It may be preferable to restrict the number of sampled days to one or two. If required, the designs highlighted here can be modified to handle multiple days per sample person, for instance, two randomly chosen days or one week day and one weekend day for each sampled person.

In short, designing a suitable approach for data collection, given the constraints of developing countries, is a major challenge. The developing countries in this review encountered several problems in generating good-quality time-use data. The time-diary approach – self-reported or recorded through interviewers – is definitely a better approach of data collection for time-use surveys. It engenders more reliable results, provides comprehensive information on time use and is amenable to the use of context variables and to simultaneous activities. Although its initial costs are high, the costs decline substantially after it is institutionalized.



Collecting data
on simultaneous
activities

Context variables and simultaneous activities are critical components of a time diary because they provide additional information about activities. Information on simultaneous activities is particularly important, especially in developing countries where people who are poor and women perform more than one activity at a time. Data on simultaneous activities helps to improve the estimates of both paid and unpaid work. This is because it adds or does not miss the time spent on work that is part of any simultaneous activity.

Simultaneous activities are likely to generate time stress when both (or all) the activities performed simultaneously involve (hard) work. For example, if a woman cooks and simultaneously attends to livestock, it could be strenuous. Such work can be useful in estimating time poverty. On the other hand, if a man watches TV and has his lunch along with it, it could be relaxing. It is therefore necessary to analyse and address simultaneous activities by the nature of the activities. This data are also useful when designing interventions for reducing time stress of people who are poor, particularly poor women.

It is not easy to collect this data, however, because it requires special efforts (people do not provide this information easily). Respondents on their own do not always report their simultaneous activities, even when there is a column in the diary. A researcher must make effort in a face-to-face interview (the interviewer must ask the question specifically, and even repeat the question) as must respondents in self-reported time diaries (specific instructions on reporting simultaneous activities need to be given and checked while collecting time diaries).

It is also not easy to analyse the data because good analytical tools are needed. Usually the activities performed simultaneously are divided into primary and secondary types, and total time spent on them is divided between the two types as per the weight allotted to each (the total time has to be 24 hours). When countries find this difficult, they divide the total time spent on simultaneous activities into two equal parts and allot one part to each activity, which is not accurate. A slightly complex approach would be to develop time grids for simultaneous activities and/or let the total time go beyond 24 hours (this approach has not received much attention in developing countries).

This review of the national time-use surveys found that the modular surveys (even with a time diary) did not collect data on simultaneous activities. When stylized questions were asked, respondents found it difficult to report the data, and when time diaries were used, the results were not likely to be accurate or useful because the number of activities were limited. In the stand-alone surveys, all countries excluding Malaysia (Bangladesh, China, India, Mongolia, Pakistan and Thailand) collected data on simultaneous activities. Bangladesh and China, however, did not analyse the data. India divided the time into two equal parts without classifying the primary and

secondary activities; Pakistan did the same. Only Mongolia and Thailand divided the time by primary and secondary status. We concluded that eight of the 16 countries (50 per cent) collected data on simultaneous activities. But in half of those countries, the data were not utilized.

In short, “simultaneous activities” is another weak point of the surveys conducted in the reviewed developing and emerging countries. Most of the countries have missed the advantages of collecting data on these activities (see Annex IV for details).



Context variables

Unlike mainstream statistics, time-use statistics provide comprehensive information on all human activity – they are not restricted to any one sector or any one type of activity. To analyse them meaningfully, it is important to see these activities in their proper context so that they are classified properly. For example, cooking could be an unpaid domestic service or a free voluntary service if done for the community, or it could be employment if done in a restaurant by a chef. Context variables are thus a unique feature of time-use surveys that provide physical, social, economic, cultural or temporal features of the environment in which the activity takes place. Context variables are included in time diaries with each activity to collect additional information and to help in the recall of the involved time.

8.1 Types of context variables

Context variables can be broadly divided into the following types.

- Location-based: “where”.
- Persons present: “with whom” and “in the presence of whom”.
- Beneficiary of activity: “for whom”.
- Motivation of activity: “paid or unpaid”.
- Instrument used and mode of travel (means of transportation).

Location (where): This variable provides information on where the activity was performed. **Australia** has divided location into two parts: physical location (own house, someone else’s house, public area, work place, leisure place, educational institute, etc.) and spatial location (indoor, outdoor, in transit, waiting, etc.).

With whom or in the presence of whom: This variable provides information on whether a person was alone, with spouse, with friends, family members, own children, colleagues, etc. **Australia** has used codes like spouse, family member, friend, neighbour, colleague, crowd and no one. **Japan** has used five variables or categories: alone, with family members, with colleagues, classmates and others.

For whom: This variable provides information on the beneficiary of an activity. For example, if the activity was performed for own children, family members, friends, community, etc. This helps in understanding the social behaviour of respondents and distinguishing voluntary work. This variable also provides information on the motive for an activity – for self-consumption or consumption of one’s household or for selling something. **Australia** has used such codes as own family, for other relatives, for other family, for friends and for community.

Context variables for mode of transport: People travel by multiple means for many reasons. How they travel and how much time they take in travelling are important

inputs for transportation and infrastructure planning. Additionally, people walk the required distances by foot or they use different types of private and public vehicles.

Different guidebooks and guidelines have recommended three context variables, namely: where, with whom and for whom. In addition, the mode of transport is also recommended. In 2012 a UNSD Expert Group meeting proposed three context variables for consideration by countries, i.e. “for whom”, “paid/unpaid” and “location” (UNSD, 2012).

Most developed countries have used the context variables of where, with whom, for whom and mode of transportation.

8.2 Context variables for specific uses

The use of context variables has expanded to several new areas recently, including policy-making.

Context variables for work and employment: For the most accurate description of activities related to employment and other forms of work, contextual information is very important. It needs to relate to the motivation or ultimate purpose of the activity (whether for pay, profit or family gain), to the organization of the working time (whether it is overtime or not), for the details of workplace (for which institution or organization is the activity carried out) as well as the location of the work (done at home, at workplace, during the commute) for main and secondary jobs. Contextual information may also relate to characteristics that are part of status of employment (paid work, home-based work, self-employment work, unpaid work in family enterprise) and are useful to distinguish between the different forms of work, such as unpaid household services and voluntary services.

To ensure that activities carried out as part of employment or some other form of work are captured, it is important that all time intervals be coded to both the type of activity done and to the variables that describe it. These context variables may refer to (i) whom the activity is carried out for (institutional unit, household, market or non-market enterprises and others); and (ii) the ultimate purpose of the work activity (to generate income, for own final use, to acquire skills, to seek work and to serve or benefit others, including own community).

Clear instructions need to be given to respondents that such information should be included and how to record it in their report of activities. Specifying contextual information regarding the time spent in employment, which uses one fourth to one third of a majority of the adult population’s time (and many children’s in some countries), adds to the complexity of the recording but significantly improves the use of the resulting

statistics. This is because many activities may be done in the context of employment or other form of work and yet be the same type as what is done in other contexts, such as leisure and personal activities. Activities related to produce goods, services, travelling, reading, writing, waiting on-call, preparing food, caring for older persons and household management may belong to different work categories. Even sleeping and eating may be work activities in some jobs. This overlap requires that the classification system to which activities are coded eliminates duplications between activity descriptions, using relevant contextual information. For example:

- Whether the activity is for (i) own-consumption, (ii) for sale or (iii) for barter can help in distinguishing subsistence production or unpaid domestic services and SNA work.
- Information regarding for whom an activity was done can explain whether it was performed for own household or own use, for other households – unpaid, for voluntary organization or community organization, or for sale.
- The other codes could be linked to the institution or organization for which the work is done, such as for government, quasi government, for corporate unit, for private sector or for a household unit.
- Information on where an activity took place can help in estimating home-based work, work of street vendors and work in workplaces.

Context variables for social policy: Variables can provide information on the social life of people as well as inputs for social policy designing.

- Information on with whom an activity was done helps in estimating time spent with spouse or family, which in turn helps in assessing marital life, the work–life balance or the socialization of a person. Time spent alone can reveal loneliness of people, particularly older or sick persons.
- Time spent with children or those who need care in the family helps in assessing passive care.
- Time spent on other organizations or members can reflect networking, and this may be useful in estimating social capital formation.

Context variables for environment-related policies: Time spent in the presence of someone, the persons present or the surroundings provide useful inputs for environment policies.

- Time spent in a polluted environment can be used to estimate the adverse impact of pollution on human health with the help of dose-response coefficients.
- Time spent can be related to energy use and carbon footprints and how much time

that electricity is consumed by people or how long an electric connection is on in households.

- Time spent in a healthy open environment or in sunlight may reflect consumption of vitamin D.

Context variables and transportation planning: Time spent on travelling and mode of travel generate useful information on travelling or commuting patterns of a population.

- Time spent on travelling by different modes of transport, time spent on waiting, time spent in traffic jams, etc. provide useful inputs about the transport-related problems of any population. This can be useful for planning for public transport – its routes, frequency, mitigation needs, etc.
- Information on mode of transport may also reveal requirements for speedy and cheap transportation (for example, if people are walking long distances on foot).
- Knowing if long hours are spent in accessing basic services, such as in reaching basic infrastructural facilities, in waiting or in meeting service providers, will help in understanding the access of the population to basic services and infrastructure. This data can be used in planning for infrastructure and policy-making for efficient basic service delivery.

8.3 Subjective context variables

Context information can be divided into subjective and objective variables. Objective variables refer to the elements discussed in the previous section, and subjective variables refer to personal feelings and the perception of respondents towards a specific activity, such as:

- Did you feel stressed performing this activity? How much? (codes)
- Did you feel time stressed or exhausted while doing the activity? (codes)
- How happy are you doing each activity? How much did you enjoy the activity?

Michelson and Robinson (2010), and Harvey (2014) used these context variables to estimate time stress or happiness of population. These variables are also used in computing time poverty and happiness indices.

8.4 Country-specific context variables

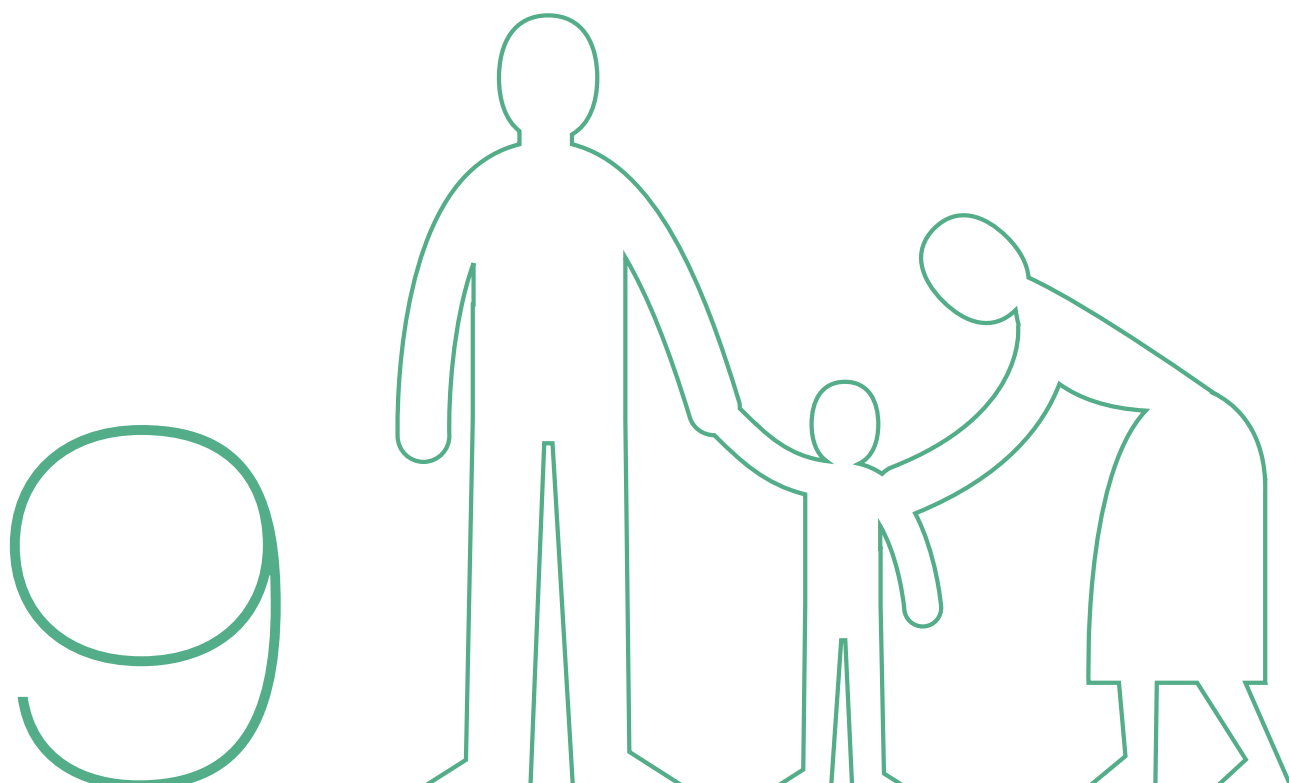
Modular time-use surveys do not usually employ any context variables because it is not easy to get good responses to stylized questions. **Cambodia**, which used a time diary with its modular time-use survey used common context variables, but the responses were found with unreliable quality. In **Nepal**, questions were asked for each activity about the location of the activity (where?), whether any pay was received (paid or unpaid) and whether the respondent performed any other activity with the first activity. In addition, general questions were asked about wages received, reasons for not working and terms of work.

In stand-alone time-use surveys, however, context variables help to estimate the time spent on activities accurately. **Bangladesh** (2012) used the two context variables of where and with whom. The former had several codes: at home, in a car, train, bus, etc; while the latter context variable had three codes: alone, with a household member and other known person. **Pakistan** (2007) used the two context variables of location 1 and location 2. Location 1 had nine codes: at home, at somebody's home, field, farm or other agriculture workplace, educational establishment, public area, travelling, waiting or other. Location 2 had eight codes: inside, outside, travelling by foot, taxi, train, bicycle, any other public transport or other means of transport. China (2008) used two context variables: with whom and mode of transport. **India** (1998–99) also used two context variables: paid or unpaid and inside or outside home.

Thailand used four context variables: paid or unpaid, for whom, where and with whom. In addition, the Thailand schedule asked specific questions on (i) the opinion of respondents about their time-use changes between the previous and present time-use survey, (ii) wages that should be paid for housekeeping and related activities of housekeeping and (iii) prevailing wages.

It appears that context variables were used only by about half of the reviewed countries. However, these variables were not always selected based on the objectives of the survey.

In short, the choice of context variables that should be used for a time-use survey essentially depends on the objectives of the survey. For example, if an important objective is to estimate and understand work and employment, context variables and additional codes can be designed to get information on the nature and characteristics of work. But the countries reviewed for this study have not gone beyond the common patterns of context variables to tap the full potential of possibilities that can enrich time-use information. This has been a missed opportunity.



Quality considerations
of time-use surveys in
Asia and the Pacific

9.1 Response rate in time-use surveys

The data on the response rates were available only for some countries (see Annex III). This is partly because the response rates were not calculated and partly because the rates were not reported in the documents, papers and material that were reviewed. In developed countries, the response rate was 60–70 per cent in **Australia**, 75–80 per cent in **Japan**, 72 per cent in **New Zealand** and 98 per cent in the **Republic of Korea** (substitution was allowed, thus resulting in a high response rate). Of the 13 developing and emerging countries that conducted a national time-use survey, nine did not report the response rate. Of the rest, **Mongolia** had 80–83 per cent, **Cook Islands** had 98 per cent, while **India** and **Pakistan** each had 99 per cent.

It seems that developed countries have a relatively low response rate. One main reason for the high response in developing countries appears to be the use of face-to-face interviews. Interviewers were usually allowed to substitute one person for another when the first person was not available. In the case of self-reported time diaries, respondents tended to avoid recording their use of time or only half-heartedly recorded. The low and declining response rate is a concern with time-use surveys in developed countries, thus indicating the interview method has at least one advantage over the self-reported diary method.

9.2 Issues related to terminology

There are several problems related to the survey-related concepts and definitions used by countries. For instance, it is now globally accepted that SNA and non-SNA are both “economic activities”³³ because they are economic production. However, in almost all of the time-use surveys reviewed, this distinction was not maintained. Non-SNA activities were referred to as “non-economic” activities. Similarly, personal activities were called “non-productive” activities. Considering that the activities relate to human capital formation and social capital formation, they are called “personal services” in the global terminology.

Additionally, the definition of “household” was not uniform in all the surveys. The concept of household is based on arrangements made by persons, individually or in groups, for providing themselves with food and other essentials for living (UN, 2017). In most of the reviewed countries, no specific definition of a household was given, which implies that they accepted the established definition. In some countries, however, the term was defined as “available members in the household”, or it also included “full-time hired help and guests staying for more than a month”. The concept of household in

³³ Please refer to UN, 2008 for information on the SNA.

Pakistan (for the purpose of the time-use survey) included “all those persons who normally live with the sampled household and present at the time of investigation”; it included all boarders, domestic help, friends, relatives and non-relatives who were living with the household. Friends, guests, visitors, etc. who were living at least four nights a week over a period of the previous 30 days were considered part of the household. Similarly, **Malaysia** defined household as only those persons who were at home when the investigators visited. This variety of definitions creates problems of cross-country comparability of time-use data.

Several countries did not use the concepts of SNA and non-SNA correctly, which frequently meant the classifications of activities did not provide clear results. For example, production of goods for own use was treated as non-SNA work, care of children was grouped with food processing, and horticulture was treated as household work.

9.3 Other quality issues in time-use statistics

There are serious quality problems with the time-use surveys collected through 24-hour time diaries, particularly where face-to-face interviews were used to fill in the diaries. As discussed earlier, modular time-use surveys, with all their advantages, are not equipped to produce quality data. These surveys have several methodological limitations that prevent the generation of high-quality data.

Additionally, almost none of the diary-based surveys had a background questionnaire adequate enough to address the objectives. Consequently, the data were not good enough to provide reliable estimates of the labour force by industry, occupation and employment status classification. Most of the background questionnaires did not generate enough data for studying the care economy or for valuing unpaid work in satellite accounts.

Although systematic sampling techniques were used, the selection of household members and the diary days per person were not always selected well. Also, there were problems with the time sample (reference period) because not all the surveys collected data for seasonal variations in time use.

The use of a 24-hour time diary in areas with low literacy and poor use of time pieces is definitely a positive development. This has helped in the expansion of time-use surveys in developing countries. However, countries did not implement the approach well: (i) The interviewer-centric data-collection method requires a detailed instruction manual, intensive training of investigators and strong follow-up, which were frequently not there; (ii) Initial visits to respondent households to ensure rapport were cut short frequently; (iii)

The long duration of time slots along with dividing the total time in smaller periods to get activity time were not sound methods.

In short, most countries failed to tap the potential of simultaneous activities and context variables. The data on simultaneous activities was either not collected or not used. Those countries using this data divided the time by the number of activities rather than estimating primary and secondary activities. Context variables have huge potential to enrich time-use data. Yet, countries in Asia and the Pacific, which have largely followed the example of developed countries, do not seem to be aware of this potential. The classification of activities, mostly adapted from the available classification systems, are not always adequate to meet country-specific objectives. The SNA classification was a major limitation. The absence of an international and harmonized classification at the time when countries were running those surveys, was of course a major reason for this.



Time-use activity classifications

The classification of activities is an important component of time-use surveys because it organizes the information in a systematic manner. Along with context variables, it generates rich information on how people use their time on different activities.

Good time-use activity classification reflects certain norms: The classification should be comprehensive and inclusive of all activities performed by men and women. It should be hierarchical, echoing the different levels of activities in different digits (for example, the first digit represents the major group, the second digit represents the subgroup and so on). It should be compatible with other relevant classifications (in this case, with established time-use classifications) to maintain comparability of data. It should be simple, easy to understand and clear. And last but very importantly, it should be compatible with the objectives of the survey, such as valuation of unpaid work and compilation of satellite accounts of household work, estimation of informal and subsistence work or estimation of all forms of work (ICLS, 2013).

10.1 Available time-use classifications

Because time-use studies started in developed countries, there is a well-refined set of classifications of activities reflecting the needs of those countries. One widely popular classification divides time-use activities into four broad categories: contracted time, necessary time, committed time and free time.³⁴ These four categories are then divided into (i) personal care activities, (ii) employment-related activities, (iii) education activities, (iv) domestic activities, (v) child care activities, (vi) purchasing goods and services, (vii) voluntary work and care activities, (viii) social and community interaction and (ix) recreation and leisure. These groups are again divided into subgroups and into activities. The classifications developed by Australia, Canada and Eurostat as well as several European countries and the United States have many similarities, and the data are comparable across countries. The harmonized time-use project of Eurostat has established a time-use classification that is intended to serve as a standard for the region. Most developed countries, except Japan, seem to be using this with minor changes.³⁵

34 In 1978, Dagfinn Aas developed a classification that was widely used by several countries from the 1970s to the 1990s. According to this framework, time spent by human beings is basically of four types: necessary time (time spent on activities for survival), contracted time (time that human beings spend to fulfil the contracts that they have made), committed time (time committed to fulfil social responsibilities) and free time (the residual time left after performing contracted, committed and necessary time).

35 See Harmonized European time-use surveys 2008, http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=TIMEUSE_08&StrLanguageCode=EN&IntPckKey=&StrLayoutCode=HIERARCHIC [accessed 12 January 2018].

New Zealand: http://www.stats.govt.nz/surveys_and_methods/methods/classifications-and-standards/classification-related-stats-standards/activity-time-use-survey.aspx [accessed 12 January 2018].

Republic of Korea: [http://ffb.uni-lueneburg.de/atur2009/downloads/paper_presentation/Friday/H5/Choi___New%20approaches%20of%20the%202009%20Korean%20Time%20Use%20Survey%20\(Paper\).pdf](http://ffb.uni-lueneburg.de/atur2009/downloads/paper_presentation/Friday/H5/Choi___New%20approaches%20of%20the%202009%20Korean%20Time%20Use%20Survey%20(Paper).pdf) [accessed 12 January 2018].

10.2 International Classification of Activities for Time Use Statistics and its many versions

The UNSD, as the custodian of time-use surveys, is mandated to develop globally accepted concepts and methods for conducting the surveys and an international classification of activities that meets the needs of all countries. Looking into the specific needs of developing countries, UNSD set up an expert group meeting in 1997 to develop a global time-use activity classification. It had ten major groups, followed by two-digit subgroups and then three-digit activity lists. The expert group meeting in 2000 and then 2012 presented two new classifications. None of these, however, were found satisfactory.

The United Nations finalized a revised version of ICATUS in 2016, characterized as “a three-level hierarchical classification (composed of major divisions, divisions and groups) of all possible activities undertaken by the general population during the 24 hours in a day.” ICATUS 2016 was adopted by the UN Statistical Commission in its forty-eighth session (March 2017). ICATUS 2016 has 165 groups classified into 56 divisions and nine major divisions and is aligned with the forms of work as defined in the 19th ICLS Resolution on Statistics of Work, Employment and Labour Under Utilization (previous versions had no distinction between production of goods for the market or for own final use).

10.3 Major groups of ICATUS 2016

ICATUS 2016 was designed to be consistent with international statistical standards and classifications, such as the definition of productive status of activities in the SNA 2008, the 19th ICLS resolution (with its five primary forms of work) and the definitions and categories of activities in line with the fourth revision of the International Standard Industrial Classification of All Economic Activities. It is also meant to be comparable with activities defined in previous ICATUS versions and in major national classifications of time-use activities.

Time-use activities under ICATUS 2016 are grouped into nine major divisions: The first five cover different productive activities and forms of work and the remaining four cover personal activities (table 2).

36 See United Nations (2017), <https://unstats.un.org/unsd/demographic-social/time-use/icatus-2016/>.

Table 2 Major divisions and activities of ICATUS 2016

Division	Activities
1	Employment and related activities
2	Production of goods for own final use
3	Unpaid domestic services for household and family members
4	Unpaid caregiving services for household and family members
5	Unpaid volunteer, trainee and other unpaid work
6	Learning
7	Socializing and communication, community participation and religious practice
8	Culture, leisure, mass media and sports practices
9	Self-care and maintenance.

10.4 How can a country select time-use classification?

In the modular surveys reviewed for this study, the classifications used were developed largely by government experts. They primarily included (i) agriculture and related activities, (ii) collection of free goods, particularly fuelwood and water, (iii) paid work in manufacturing and construction, (iv) non-market production of goods, (v) domestic work, (vi) care-related work and (vii) leisure and personal activities likely aligned to previous ICATUS versions.

Cambodia had a list of 22 activities. The **Lao People's Democratic Republic** also developed a list of 22 activities that included a detailed list of SNA activities. **Cook Islands** focused on non-market SNA activities. The activity classification in Cook Islands had 14 categories of work, of which four were SNA (along with a long list of non-market SNA activities), two non-SNA activities (15 activities) and eight personal activities. **Nepal** had a large list of non-market activities focused on unpaid SNA activities; in all, there were 114 questions asked of each household or respondent.

In stand-alone national time-use surveys, the most used classification was ICATUS 1997. The **Bangladesh** survey in 2012 used the ICATUS developed in 2000 and divided time-use activities into 15 major categories: There were four major groups for SNA activities, three groups for domestic and voluntary services and care, and seven groups for personal activities. India, China, Mongolia, Pakistan and Thailand used modified versions of ICATUS 1997. **China** developed nine major groups that

included four SNA groups, two non-SNA groups and three personal activities. It called the first group formal employment.³⁷ China also used occupation groups for SNA activities, and the National Bureau of Statistics of China developed its own time-use activity classification in 2008. It has four main activity groups: SNA productive activities; non-SNA productive activities; study, training, meals, watching TV, sleeping and other personal activities; and other free-time activities.

Thailand used two sets of classifications (ICATUS 1997 and the classification used by Eurostat) to arrive at (i) necessary time, committed time and contracted time, along with the major groups of classification used in developed countries and (ii) the nine groups of ICATUS 1997. **Mongolia** used ICATUS 1997 as well as an economic classification of 21 activities developed by its NSO. The **Pakistan** time-use survey (2007) used the ten ICATUS 1997 major groups with 122 three-digit activities. Each of these countries divided activities into two-digit and three-digit classifications. Although the two-digit classification was per ICATUS, there were cross-country variations in the three-digit activities.

India observed that one major problem with ICATUS 1997 related to the first three groups. The first group was expected to capture “formal work” (in establishments), while the second and third groups were expected to capture “informal work” in the primary and non-primary sectors. However, the term “establishment” was vague and did not reflect formality because establishments can be both formal and informal. The first three groups therefore could not describe formality or informality of activities. The Indian NSO thus changed the SNA groups to (i) primary production activities, (ii) secondary production activities (industry and construction) and (iii) territory economic activities (trade, business and services).

In short, countries covered by this review used various types of classifications, many of which may not be comparable with ICATUS 2016 (or even with previous versions). ICATUS 2016 should not only improve the collection and production of time-use statistics but also boost comparability of the statistics among countries and over time.

Finally, countries that still need to develop a relevant national classification of time-use activities, such classification should be comparable with ICATUS 2016. Countries will also need to base such classification on the following points: (i) The classification should meet the objectives of the time-use survey; (ii) It should be comparable with the established classifications as far as possible; (iii) It should be simple and easy to understand; (iv) And it should have the right context variables.

³⁷ Clearly this group could not reflect the formal sector. The expert group meeting in 2012 accepted that time-use surveys cannot collect data on formal and informal work, given the complex and varied definitions of “informal sector” and “informal employment”.



11

Concluding
observations and
inferences for
the future

11.1 Opportunity created by the Resolution on Statistics of Work, Employment and Labour Underutilization

The 19th International Conference of Labour Statisticians passed a ground-breaking Resolution on Statistics of Work, Employment and Labour Underutilization. This resolution presents (i) a new concept of work and a new conceptual framework of work, in which work is defined as “any activity performed by persons of any sex and age to produce goods and to provide services for use by others or for own use” (the resolution recognizes all productive activities as work, whether legal, illegal, formal or informal, which is consistent with the scope of productive activities within the SNA General Production boundary), (ii) a revised labour force status classification to focus on employment for pay or profit as reference and (iii) measures of labour underutilization (ILO, 2013).

The main categories of work are conceptualized as (i) own-use production work, such as activities to produce goods and services mainly for own final use by household, (ii) employment work, such as activities to produce goods and services for pay or profit, (iii) unpaid trainee work, such as activities to produce goods and services for others performed without pay to acquire work experience or skills, (iv) voluntary work, such as non-compulsory activities performed without pay to produce goods and services for others and (v) other work activities, such as compulsory activities performed without pay to produce goods and services for others.

The 19th ICLS resolution re-emphasizes the importance of time-use surveys for measuring all forms of work, including unpaid work in households: “Time-use surveys, in particular, are a main source of statistics on participation and time spent in own-use production work and volunteer work for purposes of individual, household and macroeconomic level analyses.”³⁸ It is clear that time-use surveys will provide a critical input into translating the resolution into practice.

The data collected through the Labour Force Survey and other data-collection systems on labour and employment are not sufficient for this purpose. Equally so, the available time-use data are not yet adequate to translate the resolution into practice. Major changes will be needed in the objectives of time-use surveys, activity classification (at the national level) and use of context variables, the background questionnaire and methodological rigour to produce good-quality data. The ongoing ILO methodological work to implement the 19th ICLS resolution will contribute greatly towards improving time-use statistics while reinforcing the need to collect information on all forms of work. Countries will need to re-engineer their data-collection system to include appropriate modules or stand-alone surveys for the exhaustive gathering of time-use statistics,

³⁸ See paragraph 67.b, 19th ICLS Resolution; see also reference to ICATUS in paragraph 94.

even if it at a less regular periodicity than with the Labour Force Survey or related surveys.

11.2 Positive achievements that need to be reinforced

This review found several achievements within the Asia-Pacific region. First, there is rapidly growing awareness of the need to collect time-use data to estimate paid and unpaid work of men and women in the economy, to measure and address prevailing gender inequalities and to value the unpaid non-SNA work in money terms. Time-use surveys, which began as small-scale surveys in several countries in the 1970s and 1980s, are increasingly graduating into large and national surveys.

Second, given the constraints arising from the specific problems in conducting their time-use surveys (such as poor literacy levels, limited use of time pieces in some remote areas and lack of funds), countries have still been able to complete the survey. These countries have used a kind of learning-by-doing approach.

And finally, despite the different quality of time-use data generated, concrete data have emerged in a large number of countries on the use of time that not only gives visibility to non-SNA and personal activities but also sheds more and useful light on the SNA activities. Clearly, a new understanding has emerged on the contribution of women to national economies and the nature and extent of gender inequalities prevailing in these economies.

Despite these positive developments, these countries have a long way to go to reach the goal of mainstreaming time-use surveys within their national statistical system. If one excludes the four developed countries, seven of the remaining 31 countries reviewed have not conducted any time-use survey to date, and 11 countries have only conducted small-scale surveys (mainly by private researchers) or small pilot surveys. The Pacific islands region is lagging the most. Except for Cook Islands (with its modular time-use surveys), no Pacific island country has conducted a national time-use survey. Overall in the Asia-Pacific region, only 13 countries have conducted national time-use surveys, and only six of them have conducted stand-alone national surveys with 24-hour time diaries. And finally, only two countries have mainstreamed stand-alone 24-hour diary-based time-use surveys!

The main constraints faced by countries that have not conducted any time-use survey or have not conducted any national time-use survey are (i) poor appreciation of the utility of time-use statistics in designing sound national policies to address their critical socioeconomic concerns, (ii) poor expertise within their national statistical office to

collect, process and analyse the data and (iii) lack of adequate funds to carry out these expensive surveys. Other constraints relate to the low level of literacy and poor use of time pieces in rural remote areas, perceived as precluding people from completing a 24-hour time diary.

These constraints have led many countries in the region to opt for modular time-use surveys, which are easier to conduct, are much less expensive and convenient to mainstream. Several international agencies and donor agencies have sponsored and financed these modular surveys, perhaps because they think that countries are not yet ready for a 24-hour self-reported time-diary approach and that some time-use data are better than no time-use data. Or maybe these agencies are interested in covering a large number of countries with their limited funds.

In addition to the above support, international organizations and donor agencies may also envisage preparing these countries by providing capacity building in conducting stand-alone diary-based time-use surveys.

11.3 Standardization and harmonization

To ensure the sound quality of time-use statistics, it is important to standardize the different components of the survey process as well harmonizing these concepts at the regional level (at least to start with) for facilitating cross-country comparability of data. Some broad details of the framework and formats of time-use surveys at the global level may help in developing details at the regional and national levels. The newly adopted classification of time-use statistics (ICATUS 2016) will certainly contribute to boosting such harmonization. Countries running time-use surveys are encouraged to use this classification or to ensure that their national classification can be linked to ICATUS 2016 at one of the higher levels.

11.4 Capacity building of stakeholders

Capacity building of data producers and data users (within the government as well as researchers) will not only help to produce (improve) time-use data but it will also encourage use of the data. Capacity building thus should be targeted for both NSO staff, staff of other government departments (such as the women-related ministry, the labour ministry, the agriculture and industry ministries, the ministry for social policy and human development) and researchers and activists.

Ministry officers and other policy-makers concerned with time-use statistics should be targeted by any capacity-building programme. The lack of policy push from these

institutions is one of the major hindrances to the regular and expanded collection of time-use statistics.

11.5 Mainstreaming time-use surveys

There are strong reasons to mainstream time-use surveys within national statistical paradigms in all countries in the Asia-Pacific region. This mainstreaming implies that (i) time-use surveys are conducted regularly and periodically (at least every five years) to provide meaningful time series data, (ii) these surveys use sound concepts, methods, classifications, and produce quality data and (iii) the data are used in a broader range of policy-making to maximize their potential.

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Annex I

Time-use survey in selected 37 countries: Preliminary information

No.	Country	Years	Type of the survey	Coverage	Organization name
1	Afghanistan	No time-use survey conducted so far			
2	Australia	1974	Stand-alone survey (diary)	Small survey: Leisure – An Inappropriate Concept for Women	YWCA Australia
		1974	Stand-alone survey	Australians' Use of Time (Albury-Wodonga and Melbourne)	Cities Commission funded and oversaw the design in collaboration with the Australian National University
		1987, 1992, 1997, 2006	Stand-alone pilot survey	National survey	Australian Bureau of Statistics
		1996–2009	Time-use modular survey	Australian National Longitudinal Study on Women's Health (Women's Health Australia)	Research Centre for Gender, Health and Ageing, University of Newcastle
		2004–10	Stand-alone survey: Growing Up in Australia: The Longitudinal Study of Australian Children (national)	Small limited coverage	Australian Institute of Family Studies in partnership with the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs
		2005–06	Stand-alone survey: Time-Use Survey of New Mothers (small)	Large but not a national survey Stand-alone	Dr Julie Smith, National Centre for Epidemiology and Population Health, Australian National University, with funding from a Australian Research Council grant
		2007 series: June 2007– June 2008, 2009–10	Stand-alone survey: The Victoria Integrated Survey of Travel and Activity (VISTA)	Transportation sector only	VISTA is conducted by the Urban Transport Institute and I-View Pty Ltd on behalf of the Victoria Department of Transport
3	Bangladesh	1974, 1976	Stand-alone survey: Time Use Among Employees in Bangladesh	Small coverage	Private researcher
		1984–85, 1990–91	Small modular survey – Module of the Labour Force Survey	Small coverage	National Statistical Agency
		2005	Small stand-alone survey	Only some villages	Dhaka University
		2012	Pilot stand-alone survey	Large but not a national survey	National Statistical Agency

4	Bhutan	2006-07 2007-08	National Happiness Survey National Happiness Survey (national modular)	Pilot (small)	Centre for Bhutan Studies Centre for Bhutan Studies
5	Brunei Darussalam	No time-use survey conducted so far			
6	Cambodia	2003-04	National modular survey	National coverage (with Socioeconomic Survey)	National Statistical Office
7	China	2005	Stand-alone pilot survey	Small coverage	National Bureau of Statistics
		2008	Stand-alone survey	Large but not a national survey, dependent	National Bureau of Statistics
8	Cook Islands	1998	National modular survey with Household Income and Expenditure Survey	National survey	NSO and UNDP (funded) survey under UNDP Poverty Strategies Initiative Trust Fund
9	Fiji	1987	Stand-alone survey	Small survey	Private researchers
10	India	1976-77, 1980	Stand-alone survey without a 24- hour time diary	Small survey	Institute of Social Studies Trust (research institute)
		1980	Small surveys – without a time diary	Small surveys	Private researchers
		1990-91	Modular survey: Use of Time by Women and Men	Small rural sample	Food and Agriculture Organization of the United Nations
		1990	Small stand-alone survey without a 24-hour time diary	Small survey: Time Allocation of Children in Agricultural Households	Private researchers
		1996	Stand-alone survey	Small survey covered only one state	Directorate of Economics and Statistics
		1998-99	Stand-alone survey	Large but not a national survey	Central Statistical Organization
		1975-2006	Small surveys Anthropological survey	Small village studies	International Crops Research Institute for the Semi-Arid Tropics
11	Indonesia	1972-73	Stand-alone small survey measuring time allocation	Small coverage	Private researcher
		1975-76	Small independent survey	Patterns of Household Labour Allocation in a Javanese Village	Private
		1976	Small anthropological survey	Covered one village: Patterns of Household Labour Allocation in a Javanese Village	Private

No.	Country	Years	Type of the survey	Coverage	Organization name
		1977–78	Small anthropological survey	Small coverage – a few villages: Studying Rural Women in West Java	Private
		1998–99	Small pilot stand-alone survey	Small survey, covering a few villages	BPS (Statistics Indonesia)
		2005	Pilot time-use survey (360 households, HH)	Small survey	BPS (Statistics Indonesia)
12	Islamic Republic of Iran	2008, 2009	Stand-alone survey	Only urban areas covered	Statistical Centre of Iran
13	Japan	1993–2004			
		1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011	National stand-alone survey	National survey: Time Use and Leisure Activities in Japan	Statistics Bureau
		1960–61, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000,	National stand-alone survey	National survey: How Do People Spend Their Time Survey	NHK
14	Maldives	No time-use survey conducted so far			
15	Marshall Islands	No time-use survey conducted so far			
16	Kiribati	2001–02	Small stand-alone survey	Small survey: Time Use Survey of the Gilbert Island Group, Republic of Kiribati	Private researcher
17	Kyrgyzstan	2005, 2010	Modular	National survey	National Statistical Committee
18	Republic of Korea	1981, 1983, 1985, 1990, 1995, 2000, 2005	National stand-alone survey	National survey	Korean Broadcasting System (KBS)
		1999, 2004, 2009, 2014	National stand-alone survey	National survey	Korean Statistical Institute (KOSTAT)
		2005	Small stand-alone survey: Time-Use Patterns of Korean Farm Couples	Small stand-alone survey: Time Use Patterns of Korean Farm Couples	Private researcher
19	Lao People's Democratic Republic	1997–98, 2002–03, 2008	National modular survey – Module in national Lao Expenditure and Consumption Survey	National survey with Expenditure and Consumption Survey	National Statistical Office

20	Malaysia	1990–91, 2003	Small stand-alone survey	Small rural sample	FAO and UN-Malaysia’s Ministry of Women, Family and Community Development with NSO
21	Mongolia	2000	Pilot stand-alone survey	Pilot survey	National Statistical Office
		007, 2011	National stand-alone surveys	National surveys	National Statistical Office
22	Myanmar	No time-use survey conducted so far			
23	Nepal	1977	Small surveys	Small coverage	Women’s Department and other government departments and academics
		1980s	Small modular surveys – with LSMS	Small surveys	Private researcher
		1992/1993-94	Small surveys	Small coverage	Women’s Department and other government departments and academics
		1998–99	National modular survey – Module of Labour Force Survey	National survey	National statistical office
		1996, 2003, 2010	Small modular surveys – Module of LSMS	Small surveys	Central Bureau of Statistics
24	New Zealand	1990	National pilot stand-alone survey	Pilot survey	Ministry of Women’s Affairs, Statistics New Zealand
25	Pakistan	1986–89	Small modular surveys – Module of rural household surveys	Small surveys	IFPRI and USAID Mission for Pakistan
		1990–91	Small surveys: Use of Time by Women and Men	Small surveys	FAO and UN
		2007	National stand-alone survey	National survey	Pakistan Bureau of Statistics
26	Palau	No time-use survey conducted so far			
27	Papua New Guinea	1962	Small survey	Small survey: Kapauku Papuan Economy	Private researchers
		1977	Pilot small survey	Small pilot survey	Private researchers
		1998	Small anthropological surveys: Environmentally Sound Agricultural Development in Rural Societies: A Comparative View from Papua New Guinea and Republic of China	Small surveys: Environmentally Sound Agricultural Development in Rural Societies: A Comparative View from Papua New Guinea and Republic of China	

No.	Country	Years	Type of the survey	Coverage	Organization name
28	Philippines	1975, 1976, 1977	Small surveys: A Synopsis of Several Laguna Household Studies	Small survey: Nutrition, Work and Demographic Behaviour in Rural Philippine Households	Private researcher
		2000	Pilot stand-alone survey	Pilot survey, 1 rural and 1 urban area	National Statistical Office
29	Samoa	1991	Small anthropological survey	Small survey in 2 villages	Private researcher
30	Singapore	No time-use survey conducted so far			
31	Solomon Islands	1985	Small anthropological survey	Small survey	Private researcher
32	Sri Lanka	2001	Small stand-alone survey	Small survey	Research scholar
33	Thailand	1990–01	Small stand-alone survey: Use of Time by Women and Men	Small survey: Use of Time by Women and Men	Food and Agriculture Organization of the United Nations
		2000–01, 2004, 2009, 2015	National stand-alone surveys	National surveys	National Statistical Office
34	Timor-Leste	2001, 2007	National modular surveys – Module in LSMS	Small module in LSMS	World Bank
35	Tuvalu	2003	National modular survey – Module in Social and Economic Wellbeing Survey	National survey with Socioeconomic Wellbeing Survey	Prepared for the Government of Tuvalu, funded by the Asian Development Bank
		2013	Modular survey in climate change adaptation project: How Men and Women Spend Their Time	National survey	UNDP and Government of Tuvalu
36	Vanuatu	1983–84	Small modular survey – Module in agricultural census	Small survey	Government of Vanuatu
		1995	Small anthropological survey	Small coverage	Private researcher
		1999	Small stand-alone survey	Small surveys – a few villages	Jenny Whyte, the Foundation of the Peoples of the South Pacific International
37	Viet Nam	1992, 1997, 2002, 2004	National modular surveys: Module in LSMS	National survey	In collaboration with the World Bank

Annex II

Objectives of the time-use survey in 37 countries (information available for only 28 countries)

No.	Country	Years	Objectives
1	Australia	1974	<ul style="list-style-type: none"> Collect detailed information on the daily activity patterns of people in Australia.
		1974	<ul style="list-style-type: none"> Access leisure opportunities for women in Melbourne, particularly those who were not employed or worked fewer than 20 hours per week.
		1987	<ul style="list-style-type: none"> Collect detailed information on the daily activity of people in Australia.
		2005–06	<ul style="list-style-type: none"> Collect information on daily activities of mothers with infants.
		2004–10	<ul style="list-style-type: none"> Investigate the contribution of children's social, economic and cultural environments to their adjustment and well-being. A major aim is to identify policy opportunities for improving support for children and their families and for early intervention and prevention strategies.
		1992, 1997, 2006	<ul style="list-style-type: none"> Collect detailed information on the daily activity patterns of people in Australia. Examine how people allocate time to activities, such as paid and unpaid work, and analyses such issues as gender equality, care giving and balancing family and paid work responsibilities. Examine the balance between paid work, unpaid work and leisure are important for a person's well-being and economic welfare.
		1996–2009	<ul style="list-style-type: none"> Examine the needs, views, lifestyles, current health and other factors affecting the long-term health of individual women in Australia.
		2007 series: June 2007–June 2008, 2009, 2010	<ul style="list-style-type: none"> Understand the travel patterns and inform transport and land use planning decisions being made by the Government. Understand the travel pattern of residents living in Australia [the Australian Government uses the word “wave” rather than “series”].
2	Bangladesh	1974	<ul style="list-style-type: none"> Understand the time-use pattern of government employees, agricultural workers, tribal community and employees in manufacturing sector.
		1976	<ul style="list-style-type: none"> Understand the economic activity pattern of children in a village in Bangladesh.
		1984–85 and 1990–91	<ul style="list-style-type: none"> Estimate informal and subsistence work of men and women. Understand gender inequalities in the time spent on paid and unpaid work.
		2005	<ul style="list-style-type: none"> Understand and estimate all forms of work done by men and women. Understand gender inequalities in sharing of different categories of work.

No.	Country	Years	Objectives
		2012	<ul style="list-style-type: none"> • Provide estimates of the amount of time spent in various activities of the population aged 15 years and older: <ul style="list-style-type: none"> - Average hours worked by employment status; - Average hours spent doing household activities; - Average hours spent leisure activity; - Average hours spent by SNA, non-SNA and non-productive work; and • Measurement of paid and unpaid work.
3	Cambodia	2003–04	<ul style="list-style-type: none"> • Collect information on how men and women in the country spend their time on different activities – market production, non-market production as well as housework, study, personal care, etc. • Collect detailed information on non-market production in agriculture and allied activities and production within household (handicraft, fetching water and fuelwood, etc.).
4	China	2005 2008	<ul style="list-style-type: none"> • Estimate the different kinds of activities performed by men and women. • Measure quality of life in time-use aspects. [The Government says “Measure quality of life in terms of time use”.] • Improve methodology on women’s contribution to national income and social development. • Develop new measurement on women’s unremunerated work. • Enlarge social statistics to meet increasing demand from governments, NGOs and other civil society groups.
5	Cook Islands	1998	<ul style="list-style-type: none"> • Estimate distribution of income and expenditure. • Value subsistence activities and other unpaid work. • Estimate workforce participation rates of men and women. • Design government income-support policy.
6	Fiji	1987	<ul style="list-style-type: none"> • Examine how individuals in rural Fiji spend their time.
7	India	1976–77 1990 1990–91 1996 1998	<ul style="list-style-type: none"> • Measure female work participation in India. • Try to identify the variable determinants of female labour supply. • Re-group productive and non-productive activities and define gainful activity on the basis of evidence. • Understand the pattern of time allocation of the children in agricultural of rural India. • Understand the role of women in agricultural development by collecting information on their time use. • The pilot study, which sought to measure non-market economic activity and how households’ distribution of labour by looking at the use of time of people in Tamil Nadu aged 6 and older in households. • Collect and analyse time-use patterns of men and women to understand the time spent on market and non-market economic activities. • Generate more reliable estimate of workforce. • Estimate and value unpaid work. • Develop a conceptual framework and a suitable methodology for designing and conducting time-use studies in India.

8	Indonesia	1972–73	<ul style="list-style-type: none"> • Collect information on how men, women and children spend their time in rural Indonesia. • Get a view of the relative influences of husbands and wives in decision-making of households. • Understand the changes in the mode of labour recruitment and payments to look at the incomes.
		1975–76	<ul style="list-style-type: none"> • Understand the pattern of household labour allocation in rural Indonesia.
		1998–99	<ul style="list-style-type: none"> • Find the time allocation of activities conducted by each household member. • Find the time allocation of household members, representing children age 0–11 months, 1–5 years, 6–21 years, women aged 15–49 years and head of household. • See the contribution of parents and youth in the domestic works, particularly in caring for children.
		2004, 2005	<ul style="list-style-type: none"> • Find the time allocation of activities conducted by each household member. • Estimate the contribution of parents and youth in domestic work, particularly in caring for children.
9	Iran (Islamic Republic of)	2008, 2009	<ul style="list-style-type: none"> • Identify types of activity that people engaged in and amount of time spent by people on various activities. • Review changes in people’s lifestyle in successive session of the year to determine the main unpaid domestic and other activities of urban-based married housewives.
10	Japan	1960–61, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005	<ul style="list-style-type: none"> • Investigate how much time Japanese people spend on various daily activities.
		1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011	<ul style="list-style-type: none"> • Obtain comprehensive data on daily patterns of time allocation and on leisure activities. The eighth survey was conducted in 2011. • Provides statistics on economic aspect of living. • Improve the interpretation and the understanding of various social and economic phenomena. • Assist the formulation of policy aimed at promoting better work–life balance, maintaining a vital ageing society, improving the child care environment, facilitating gender equality, etc., taking the current social background (ageing society with fewer children and diversification of lifestyles) into account.
		1993–2004	<ul style="list-style-type: none"> • Identify, explain and forecast social changes in Japan at the individual and household levels.
11	Kiribati	2001–02	<ul style="list-style-type: none"> • Identify the daily activities of Kiribati women to uncover the amount of unpaid work women perform in the community.
12	Republic of Korea	1981, 1983, 1985, 1990, 1995 and 2000, 2005 (Korean Broadcasting Service)	<ul style="list-style-type: none"> • Collect information on the total amount of time people spend in a day for various activities, such as sleep, meals, leisure, work and the like. • Understand the changes in Korean people’s leisure time patterns during the past two decades in an effort to find out the relationship between social development and changes in people’s concepts and attitudes towards leisure.
		2005	<ul style="list-style-type: none"> • Examine the time-use patterns of Korean farm couples with a focus on gender equity.
		1999, 2004, 2009, 2014	<ul style="list-style-type: none"> • Provide basic data required for understanding people’s lifestyle and quality of life by measuring how people spend 24 hours. • Understand time spent on unpaid housework to analyse economic value of housework. • Provide basic data required for integrating satellite account of households in national account system. • Provide basic data for establishing various policies related to labour, welfare, culture and traffic as well as for academic research.

No.	Country	Years	Objectives
13	Lao People's Democratic Republic	2001–02	<ul style="list-style-type: none"> • Measure productivity in farming, mainly rice cultivation. • Measure labour input work in small-scale business and informal sector.
		2002–03 and 2008	<ul style="list-style-type: none"> • Estimate production in household agricultural activities and business activities. A “light” time diary is used to capture time-use for members of households that are 10 years and older, which enables measurement of labour input in hours in the Lao economy.
14	Malaysia	1990–91	<ul style="list-style-type: none"> • Understand the role of women in agricultural development. • Test 8 methods of time-use data collection to assess which methods yield the most accurate data on women's agrarian labour.
		2003	<ul style="list-style-type: none"> • Determine what unpaid work people do and how much of it they do.
15	Mongolia	2000	<ul style="list-style-type: none"> • Collect data on employment and the informal sector to come up with realistic assessment of employment. • Collect data on gender inequality and women's paid and unpaid work. • Determine what unpaid work men and women do and how much they do (share).
		2007	<ul style="list-style-type: none"> • Collect data on employment and informal sector to come up with realistic assessment of employment. • Collect data on gender inequality and women's paid and unpaid work. • Determine what unpaid work men and women do and how much they do (share).
		2011	<ul style="list-style-type: none"> • Determine time spent in paid and unpaid work of women and men. • Determine Mongolian household patterns and its change. • Obtain data essential to monitoring progress in the national programme of gender equality.
16	Nepal	1977	<ul style="list-style-type: none"> • Measure all forms of work of women. • Measure children's work as well as voluntary work.
		1980, 1992–93	<ul style="list-style-type: none"> • Understand female economic participation in the largely subsistence economy of rural Nepal. • Then investigate the relationship between these variables and the extent of women's input into the household decision-making process.
		1998–99	<ul style="list-style-type: none"> • Improve the estimation of national workforce and labour force to collect the information on all forms of work performed by men and women.
		2010, 1996, 2003	<ul style="list-style-type: none"> • Collect information of people's living standards in Nepal.
17	New Zealand	1990	<ul style="list-style-type: none"> • Integrate time-use information with its role of informing the Government of the impact on women of policy developments. • Collect empirical information on women's involvement in the domestic and voluntary sectors required for the development of this advice. • Promoting the recognition and valuing of women's unpaid work.

		1998-99	<ul style="list-style-type: none"> • Measure the amount of time people aged 12 years and older spend on the main categories and sub-categories of activity. [It is the text used by the Government; the activities are those listed by officials.] • Determine whether significant differences in time-use exist between different population groups. • Determine the proportionate allocation of time to various activities. • Provide information in the context that people undertake various activities and whether other activities are taking place simultaneously. • Provide data to significantly improve the estimates of the contribution to GDP of the domestic services of households industry and the employment component of the contribution to GDP in the non-profit sector within the national accounts. • Provide time-use data for New Zealand that is internationally comparable at a broad level of the activity classification and which focuses on the four basic categories of contracted time, committed time, necessary time and free time.
		2009-10	<ul style="list-style-type: none"> • How do people divide their time between paid work, unpaid work, family and leisure? • How do people schedule their paid work and where do they do it? How socially connected are people with their family, friends, from inside and outside their household? • How much does unpaid work contribute to the New Zealand economy? • How do people spend their leisure time? • Who's caring for whom, for how much time and where?
18	Pakistan	1986-89	<ul style="list-style-type: none"> • Assist with collecting data to shape food-related policies in rural areas of Pakistan. • Give insight into labour, income and consumption dynamics.
		1990-91	<ul style="list-style-type: none"> • Test 8 methods of time-use data collection to assess which method yields the most accurate data on women's agrarian labour. • Understand work performed by men and women in agricultural and related activities.
		2007	<ul style="list-style-type: none"> • Account for the 24-hour time of the full spectrum of activities carried out by people. • Profile the quantum and distribution of paid and unpaid work to infer policies and programmes for gender equality. • Draw inferences for designing employment policy and welfare programmes. • Estimate production within the production boundary and the general production boundary. • Generate more reliable estimates of the national workforce.
19	Papua New Guinea	1962	<ul style="list-style-type: none"> • Collect information on time spent by agricultural workers on different agricultural activities.
		1977	<ul style="list-style-type: none"> • Document differences and inequalities in the daily activities of men and women.
20	Philippines	1975, 1976, 1977	<ul style="list-style-type: none"> • N.A.
		2000	<ul style="list-style-type: none"> • Collect information of how individuals allocate their time on daily activities. • Measure and value unpaid housework.
21	Samoa	1991	<ul style="list-style-type: none"> • Assess the role of time in daily activities with a focus on female time use.
22	Solomon Islands	1985	<ul style="list-style-type: none"> • N.A.

No.	Country	Years	Objectives
23	Sri Lanka	2001	<ul style="list-style-type: none"> • Collect information on men's and women's paid and unpaid work.
24	Thailand	1990–01 12000–01, 2004, 2009, 2015	<ul style="list-style-type: none"> • Understand the participation of people in cultural and custom related activities. • Get comprehensive knowledge on how people older than 10 years spend their time on different paid and unpaid work. • Understand gender differences in paid and unpaid work. • Provide data to markedly improve the estimates of labour contribution to GDP. • Provide internationally comparable time-use data for the country.
25	Timor-Leste	25	<ul style="list-style-type: none"> • Time spent the collection of free goods and on household chores by individual.
26	Tuvalu	2003 2013	<ul style="list-style-type: none"> • The aim of the Participatory Monitoring and Evaluation Project was to measure the effects of the Island Development Trust and particularly the Falekaupule Trust Fund on the quality of life in the islands over a six-year period. • Household questionnaires were used to identify, for example, water and electricity access, development priorities and the number of people living in the dwelling. • Respondents were asked about the amount and type of unpaid work that was undertaken by various household members during the previous week. • Although not designed to be a time-use survey, it does give some indication of time-use by sex. • Address some of the adverse effects of climate change. • Gather evidence on how men and women use their time during a typical day in various locations of Tuvalu.
27	Vanuatu	1984 1995 1999	<ul style="list-style-type: none"> • Develop better agricultural system. • Test 8 different questionnaire to access the time-use activities of residents and local farmers. • Outline of how to do a daily gender calendar at a village meeting and then give the results found. Men and women describe their day from waking until sleeping and form a consensus of an average day. • The aim was for a daily time-use record for 7 days for each person more than 10 years old. Activities were put into 12 categories, including family and household care.
28	Viet Nam	1992, 1997, 2002, 2004	<ul style="list-style-type: none"> • Collect data on time-use of people to understand living standards of people.

Annex III

Methods of the time-use surveys

No.	Country	Years	Sample size	Surveyed population	Reference period	Method of data collection	Response rate	Background questionnaire	Time slot
1	Afghanistan	No time-use survey conducted so far							
2	Australia	1974	1,491 dairies	Aged 18–69, 1 random person from the HH	Mar.–Sep. 1974 One single day	Self-reported 24-hour time diary	67% in Albury-Wodonga, 58% in Melbourne	Yes HH and individual questions	24-hour time diary with 10-minute slots
		1974	834 women completed their interviews	Women with children aged 16–46 years	24 Jun.–5 Jul. 1974 Last week	Self-reported 24-hour time diary	87.3% of eligible households responded	Yes	10 minutes
		1987	681 fully responding HH	All HH members aged 15 and older	23 May–4 Jun. Single day	Self-reported 24-hour time diary	74.2%	Yes	48-hour time diary with 15-minute interval
		1992	4,367 HH	All HH members aged 15 and older	Between Feb. and Dec. 1992 Four collection periods	Self-reported 24-hour time diary	69%	Yes	48-hour time diary with 5-minute time slots
		1997	7,246 individuals in 3,684 HH	All HH members aged 15 and older	Four collection periods: 27 Jan.–8 Feb. 21 Apr.–3 May 23 Jun.–5 Jul. 27 Oct.–8 Nov. 1997	Self-reported 24-hour time diary	72%	Yes	48-hour time diary with 5-minute time slots
		1996–2009	106,000 women	Randomly selected women from national health system database, 3 age groups: 18–23; 45–50; 70–75 years	1996–2009 Recent week	Self-reported 24-hour time diary	Not relevant	Questions of time use, like time spent doing various activities on account of the respondent's health, hours worked, time spent in waiting room of health care providers, satisfaction with time with doctors	Activities were counted that were performed for 20 minutes or more

No.	Country	Years	Sample size	Surveyed population	Reference period	Method of data collection	Response rate	Background questionnaire	Time slot
	Australia							is included with other individuals and health-related questions	
		2004–10	49,938 children	HH with children aged 0–7 years	Four times a year every 2 years	Self-reported time diary, with 2 diaries–1 week day and 1 weekend	68%	Yes	15-minute time slots
		2005–06	188 mothers participated, completing 327 weeks, resulting in around 2,223 diary days	Mother of children aged 3, 6 or 9 months	Apr. 2005–Apr. 2006 (last week)	Self-reported time diary	Not relevant	Yes	10-minute time slots
		2006	3,870 HH	All HH members aged 15 and older	Four sessions 20 Feb.–4 Mar. 2006 24 Apr.–6 May 2006 26 Jun.–8 Jul. 2006 23 Oct.–4 Nov. 2006 (two consecutive days: 1 week day and 1 weekend)	Self-completed time diary 1 week day and 1 weekend	72.7%	Yes	48-hour time diary with 5-minute time slots
		2007–10	4,932,422 respondents	Representative sample of residents living in Victoria	2007 series: Jun. 2007–Jun. 2008; 2009 series: Jul. 2009–Jul. 2010	Travel diary of 24-hour time period	NA	Yes	5 minutes
		2009–10	17,000 HH	1 day diary of all HH trips made by members on their randomly selected day	April 2009–Mar. 2010 (randomly selected diary day)	Travel diary of 24-hour time period	N.A.	Yes	5 minutes
		3	Bangladesh	1974	700 HH (100 HH from each of 7 unions)	This means households with public service workers are covered and 1 person is selected from each selected HH	1 year	Face-to-face interviews (recall method)	N.A.

	Bangladesh	1976	120 parents and children	Universe of parents, 1 set of either a currently married couple or a once married but now single, with at least 1 living child aged 5 or older	Whole year, single day	One-day self-reported diary	Not relevant	Not mentioned	
		1984–85, 1990–91	Small sample	All HH members aged 6 years and older	Yesterday–single period	Face-to-face interviews with stylized questionnaire	N.A.	N.A.	N.A.
		2005	Small sample 1,000 HH (rural and urban)	All HH members aged 6 years and older	Yesterday–single period	Face-to-face interviews with stylized questionnaire	N.A.	Yes	N.A.
		2012	Pilot 3,780 HH 1,400 urban HH 2,380 rural HH	All HH members aged 15 years and older	1 year, 1 week day and 1 weekend	Self-reported time diary for the interviewed HH with face-to face interviews with uneducated respondents	N.A.	Yes	24-hour time diary with 30-minute slots
4	Brunei Darussalam	No time-use survey conducted so far							
5	Cambodia	2003–04	National 2,000 HH	All HH members aged 5 years and older	Nov. 2003–Jan. 2005, on a random day of the month	One-day self-reported diary	N.A.	N.A. Modular with the Socioeconomic Survey	24-hour diary with 30-minute time slots each half hour and classified according to the activity taking most time during that half hour
6	China	2005	Pilot (urban and rural) 4,290 HH, 9,400 respondents	All HH members aged 15–74 years	1 day single period	Self-reported 24-hour time diaries (persons who are illiterate were helped)	N.A.	Yes	10-minute intervals

No.	Country	Years	Sample size	Surveyed population	Reference period	Method of data collection	Response rate	Background questionnaire	Time slot
	China	2008	National 37,142 respondents (16,661 households)	All HH members aged 15–74 years	1 day–May 2008, single period, with 2 dairies–1 week day and 1 week-end	Self-reported 24-hour time diaries (persons who are illiterate were helped)	N.A.	Yes	10-minute intervals
7	Cook Island	1998	15% of the total population	All HH members aged 15 years and older	1 week	Stylized questions	98%		NA
8	Fiji	1987	Small sample 600 Individuals	Farming HH	Autumn 1987 on a week day	Face-to-face interviews (recall)	N.A.	Not mentioned	N.A.
9	India	1976–77	Rural India 6 villages were sampled–3 from dry millet region of Rajasthan and 3 from wet paddy cultivation in West Bengal 127 households, 52 in Rajasthan and 75 in West Bengal, 15% sample HH in each sampled village	Every HH member aged 5 and older	Sep. 1976–Dec. 1977 Pilot phase for 2 months from Jul.–Aug. 1976 Main phase from Dec. 1976–Dec. 1977 HH were visited once in 2 months	45% data were collected through recall method, with the rest in observation method (15 hours: 6.00–21.00)	HH that refused were replaced by a similar household in each village, so the total desired sample size was achieved	Yes	30-minute intervals
		1990	Small 451 children	Children aged 5–17 in rural India	Single day–yesterday	Self-reported diary	N.A.	N.A.	N.A.
		1990–1991	-	Men and women	Six days in a week	Eight methods of data collection (rapid appraisal by checklist; diary method; interview questionnaire; participant observation; non-participant observation 24-hour recall; group discussion; group feedback analysis)	N.A.	N.A.	N.A.

	India	1996	Pilot study in rural and semi-urban areas in Tamil Nadu 241 people from 64 HH	All HH members aged 6 years and older	Aug.–Sep. 1996 (every other day in a week)	Recall interview direct observation	Refusing households were replaced	Yes	Half in 30-minute time slots
		1998–99	Pilot 8,620 HH	All HH members aged 6 years and older	2 days in 1 week 3 types of day in a week—normal, abnormal, weekly variant	Face-to-face interviews with one-day recall time diary	99%	Yes	All activities recorded within 1-hour intervals
10	Indonesia	1972–73 Repeated in 1977–78	64 adults in 44 sample households	All HH members aged 15 years and older	Nov. 1972–Oct. 1973 (every 6 days in 1 year)	Face-to-face interviews (over 24-hour recall method)	Not relevant	N.A. Not mentioned	Not mentioned
		1975–76 Repeated in 1976	518 rural households	All HH members aged 6 years and older	Two monthly interview period during 1975–76 wet season rice cycle; Nov.–Dec. 1975 peak demand; Feb. – Mar. 1976, which was part of the slack period before harvest	Interview method	Not relevant	Yes	N.A.
		1998–99	1,200 households Pilot (rural)	1 HH member aged 0–21 years, women aged 15–49 years and head of the HH	2 times in 1998 (Aug. and Dec.), and 2 times in 1999 (May and Oct.), with 1 randomly selected day in one-day single period	Time dairies—recall	Not relevant	Yes	N.A.
		2004	Pilot (urban) 1,024 people	1 literate person aged 15 years or older	2004 (a week divided into 3 days—2 days on week days and 1 day on weekend)	One-day 24-hour time diary and stylized questions	90%	Yes	2-hour time slots

No.	Country	Years	Sample size	Surveyed population	Reference period	Method of data collection	Response rate	Background questionnaire	Time slot
	Indonesia	2005	360 HH pilot	1 person aged 10 or older from sampled HH	2005	Self-reported 24-hour time diary method	90%	Yes	3 different time instruments – 1-hour time intervals; four-hour time slots; 8-hour time slots
11	Islamic Republic of Iran	2008	12,000 urban HH	All HH members aged 15 years and older	Autumn (21 Sep. 2008 to 21 Nov. 2008)	24-hour self-completion method	90%	Yes (most likely)	15-minute time slots
		2009	12,000 urban HH	All HH members aged 15 years and older	Summer and winter (22 Dec. 2008–20 Mar. 2009)	24-hour self-completion method	N.A.	Yes	15-minute time slots
12	Japan	1960–61	170,000 persons	All HH members aged 10 years and older	Yesterday single day	Self-completed 24-hour time diary	N.A.	Yes	24-hour time slot in 15-minute intervals
		1965	National, 900 HH	All HH members aged 10 years and older	1–28 Oct. 1965 Yesterday single day	Self-completed 24-hour time diary	N.A.	Yes	24-hour time slot in 15-minute intervals
		1970	37,974 HH	All HH members aged 10 years and older	3–25 Oct. 1970 (2 week days, 2 Saturdays, 2 Sundays)	Self-completed 24-hour time diary	Weekdays: 84.1%; Saturdays: 82.4%; Sundays: 82.0%	Yes	24-hour time slot in 15-minute intervals
		1975	12,000 HH	All HH members aged 10 years and older	14–26 Oct. 1975 (2 week days, 2 Saturdays, 2 Sundays)	Self-completed 24-hour time diary	Weekdays: 83.3%; Saturdays: 80.7%; Sundays: 80.6%	N.A.	24-hour in 15-minute intervals
		1976	National	All HH members aged 10 years and older	1 year (Oct. 1976), 2 consecutive days	Self-completed 24-hour time diary	All non-respondents were replaced	Yes	24-hour time slot in 15-minute intervals

Japan	1980	67,680	All HH members aged 10 years and older	14–26 Oct. 1980 (2 week days, 2 Saturdays, 2 Sundays)	Self-completed 24-hour time diary	N.A.	Yes	24-hour time slot in 15-minute intervals
	1981	209,000 individuals in 83,000 HH	All HH members aged 10 years and older	Two consecutive day	Self-completed 24-hour time diary	N.A.	Demographic questionnaires	24-hour time slot in 15-minute intervals
	1985	14,400	All HH members aged 10 years and older	15–27 Oct. 1985 (2 week days, 2 Saturdays, 2 Sundays)	Self-completed 24-hour time diary	Weekdays: 80.5%; Saturdays 79.0%; Sundays 78.6%	N.A.	24-hour time slot in 15-minute intervals
	1986	95,000 HH	All HH members aged 10 years and older	1 day Oct. 1986 Two consecutive days	Self-completed 24-hour time diary	N.A.	N.A.	24-hour time slot in 15-minute intervals
	1990	90,240 people drawn for sample, 67,898 people completed effective diaries (112,800 weekday diaries; 33,840 Saturday diaries; 33,840 Sunday diaries)	All HH members aged 10 years and older	15–28 Oct. 1990	Self-completed 24-hour time diary	75.2% in total (weekday 74.8%; Saturday 74.3%; Sunday 74.4%)	Yes	24-hour time slot in 15-minute intervals
	1991	99,000 HH	All HH members aged 10 years and older	1 day, Oct. 1991	Self-completed 24-hour time diary	Overall: 63.8%; 63.8% on weekdays, 62.6% on Saturdays, 64.8% on Sundays	Yes	24-hour time slot in 15-minute intervals
	1995	-	All HH members aged 10 years and older	2 randomly selected days, Oct. 1995	Self-completed 24-hour time diary	75%	Yes	24-hour time slot in 15-minute intervals

No.	Country	Years	Sample size	Surveyed population	Reference period	Method of data collection	Response rate	Background questionnaire	Time slot
	Japan	1996	99,000 households	All HH members aged 10 years and older	2 consecutive diary days	Self-completed 24-hour time diary	N.A.	N.A.	24-hour time slot in 15-minute intervals
		2000	45,120 people were sampled; 32,984 completed at least	All HH members aged 10 years and older	12–22 Oct. 2000, 2 randomly selected days	Self-completed 24-hour time diary	73.1% of people approached completed at least 1 diary	N.A.	24-hour time slot in 15-minute intervals
		2001	Approximately 10,000 people in 4,000 HH	All HH members aged 10 years and older	Oct. 2001, 2 consecutive days	Self-completed 24-hour time diary	All non-respondents were replaced	N.A.	24-hour in 15-minute intervals
		2005	12,600 people	All HH members aged 10 years and older	11–24 Oct. 2005, 2 consecutive days	Self-completed 24-hour time diary	Of 12,600 people contacted, 7,718 (61.3%) completed a valid diary for at least 1 of the 2 days	Yes	24-hour time slot in 15-minute intervals
		2006	Around 200,000 people in around 80,000 HH	All HH members aged 10 years and older	14–22 Oct. 2006, 2 consecutive days	Self-completed 24-hour time diary	N.A.	Yes	24-hour time slot in 15-minute intervals
		2011	Around 200,000 people in around 83,000 HH	All HH members aged 10 years and older	15–23 Oct. 2011, 2 consecutive days	Self-completed 24-hour time diary	N.A.	Yes	24-hour time slot in 15-minute intervals
13	Kiribati	2001–02	226 surveys in 11 islands Not representative of the HH	Women and men aged 18 years and older 1 man and 1 woman from the HH	Nov. 2001–Mar. 2002	Diary in 48 hours period non-participant observation	N.A.	N.A.	48-hour time slot in 15-minute time intervals

14	Republic of Korea	1981, 1983, 1985, 1990, 2000, 2005	3,500 people	All HH members aged 10 years and older	3 days in a week (Friday, Saturday and Sunday) through the year	24-hour self-reported diary	N.A.	Yes HH and individuals background details	15 minutes
		1999	National 46,109 diarists in 17,000 sample HH	All HH members aged 10 years and older	Sep. 1999 (2 selected diary days: 1 week day and 1 week-end)	Self-completion 24-hour diary	94.7%	Yes HH and individuals background details	10 minutes
		2004	64,000 diaries from 32,000 persons in 12,750 HH	All HH members aged 10 years and older	Sep. 2004, 2 selected diary days	24-hour self-completion	98.1%	Yes HH and individuals background details	10 minutes
		2005	Small (rural) 324 couples	Farm couples	17 Jun. 2005–30 Jun. 2005; 28 Nov. 2005–10 Dec. 2005, 2 diary days	Self-completion 24-hour diary	This survey collected a quota sample, and replaced non-respondents	Yes Socio-demographic details	10 minutes
		2009	40,526 diaries	All HH members aged 10 years and older	Mar. and Sep. 2009, 2 diary days: 1 week day and 1 week-end	Self-reported Time diary	-	Yes Socio-demographic details	10 minutes
		2014	The survey aims to collect 63,600 diaries from 31,800 people in 12,720 households		Either Apr. and Aug. 2014 or Jul., Sep., Nov. 2014	Self-reported time diary for 24 hours	N.A.	Yes HH and individual questionnaire	10 minutes
15	Lao People's Democratic Republic	1997–98	National, 8,882 people	1 person from the HH aged 10 years or older	1 year	One-day recall interview	N.A.	Modular survey with Expenditure and Consumption Survey	24-hour time slot in 1-hour time intervals
		2002–03	National, 8,100 people	All HH members aged 10 years and older	1 year	One-day recall interview	N.A.	Modular survey with Expenditure and Consumption Survey	24-hour time slot in 1-hour time intervals

No.	Country	Years	Sample size	Surveyed population	Reference period	Method of data collection	Response rate	Background questionnaire	Time slot
	Lao People's Democratic Republic	2008	National, 8,100 people	All HH members aged 10 years and older	1 year	One-day recall interview	N.A.	Modular survey with Expenditure and Consumption Survey	24-hour time slot in 1-hour time intervals
16	Malaysia	1990–91	Small rural sample	Men and women	Agriculture season of the year	Eight methods of data collection (rapid appraisal by checklist; diary method; interview questionnaire; participant observation; non-participant observation 24-hour recall; group discussion; group feedback analysis)	N.A.	N.A.	N.A.
		2003	National, 32,000 people	Aged 15–64 years	Single time period	Stylized questionnaire	N.A.	N.A.	N.A.
17	Maldives	No time-use survey conducted so far							
18	Marshall Islands	No time-use survey conducted so far							
19	Mongolia	2000	Pilot, 2,753 individuals in 1,086 HH	3 persons from each HH aged 12 years or older	8 Apr.–1 May 2000 Single time period	Self-reported 24-hour time diary and face-to-face one-day recall	82.1% in total, 83.5% for men and 80.4% for women	Yes	24-hour diary with 10-minute slots
		2007	National (rural and urban) 3,200 HH	All HH members aged 12 years and older	4 quarters in 1 year	Self-reported 24-hour time diary and face-to-face one-day recall	N.A.	Yes	24-hour diary with 10-minute slots
		2011	National 4,000 HH	All HH members aged 12 years and older	4 quarters in 1 year	Self-reported 24-hour time diary and face-to-face one-day recall	N.A.	Yes	24-hour diary with 10-minute slot
20	Myanmar	No time-use survey conducted so far							

21	Nepal	1977	251 children	All HH members aged 6–19 years	7–10 months, once a month	Observation method	Not relevant Not a probability sample	N.A.	N.A.
		1980s	192 households, approximately 1,200 individuals, including 252 children	Men, women and children aged 10–14 years 2 HH members	Six months, 2 randomly selected hours in a day	Observation method	Not relevant Not a probability sample	N.A.	N.A.
		1992/1993–94	Small surveys (3): 192 HH, 24 HH and 420 HH	All HH members aged 6 years and older	Carried out in different seasons	Observation method – random observations from morning to evening	Not relevant Not a probability Sample	N.A.	N.A.
		1998–99	National	All HH members aged 6 years and older	Last week – 1 year	Face-to-face interviews with stylized questionnaire	N.A.	N.A.	N.A.
		2010–11	7,200 HH	All HH members aged 5 years and older	1 year, past 7 days	Face-to-face interviews with stylized questionnaire	N.A.	Modular with LSMS	-
22	New Zealand	1990	Pilot, 627 HH	2 persons aged 12 or older from each HH	Last week	Self-completion time diary (2 diary days) with interview	45%	Yes	48-hour diary with 5-minute intervals
		1998–99	National, 8,532 individuals	2 persons aged 12 or older from each HH	4 Jul. 1998–7 Jul. 1999 (last week)	Self-reported time diary	72%	Yes	48-hour diary with 5-minute intervals
		2009–10	National, 9,159 individuals; 8,543 HH	2 persons aged 12 or older from each HH	1 Sep. 2009–31 Aug. 2010 (last weeks)	Self-reported time diary	72%	Yes	48-hour diary with 5-minute intervals
23	Pakistan	1986–89	800 rural HH, household labour	All HH members aged 6 years and older	Jul. 1986 and Sep. 1989, 12 rounds Previous week	Interview methods (one-day recall diary)	N.A.	Yes	N.A.
		1990–91	Small women agricultural labour		1 day, single period	8 methods	N.A.	N.A.	N.A.
		2007	National, 19,380 individuals	2 persons aged 10 or older from each HH	Jan. 2007–Dec. 2007 (4 quarters)	Time diary of 24 hours	98.9%	Yes	24-hour time diary with 30-minute intervals

No.	Country	Years	Sample size	Surveyed population	Reference period	Method of data collection	Response rate	Background questionnaire	Time slot
24	Palau	No time-use survey conducted so far							
25	Papua New Guinea	1962	Small agricultural workers	N.A.	N.A.	Observation method	Not relevant	N.A.	N.A.
		1974 Repeated in 1977	Small, 25 people	N.A.	72 days	24-hour recall method	Not	N.A.	N.A.
		1998	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
26	Philippines	1975 Followed up in 1976 and 1977	576 HH rural community, 99 HH in 1976, 245 HH in 1977	All HH members and children aged 3–17 years	1975 Previous 7 days	One-day recall method	80%, and 36.3% in 1977	N.A.	N.A.
		2000	Pilot, 1 rural, 1 urban area	3 members from all HH aged 10 years or older	3-day period	Self-reported 24-hour time diary and face-to-face interviews with one-day recall interview	98%	Yes	
27	Samoa	1991	Small, 2 villages		Both dry and wet season (every home was visited over two 1-week period)	One-day recall method	Not relevant	-	N.A.
28	Singapore	No time-use survey conducted so far							
29	Solomon Islands	1985	Small sample	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
30	Sri Lanka	2001	Small	N.A.	N.A.	N.A.	N.A.		N.A.
31	Thailand	1990–01	Small		1 day, single period	8 methods	Not relevant	N.A.	
		2000–01	National, 27,000 HH	1 person aged 10 years or older from each HH	1 day (Aug. 2001)	Self-reported 24-hour time diary	Not relevant	HH and individual questions	10 minutes

		2004	N.A.	1 person aged 10 years or older from each HH	1 day (Aug.2001)	Self-reported time diary	N.A. Not mentioned	HH and individual questions	10 minutes
		2009	National, 7,956 HH	1 person aged 10 years or older from each HH	3 months	Self-reported time diary	N.A. Not mentioned	HH and individual questions	10 minutes
		2014	National, 83,881 HH	1 person aged 10 years or older from each HH	Round the year	Self-reported 24-hour time diary	Not mentioned	HH and individual questions	10 minutes
32	Timor-Leste	2001, 2007	National, 1,800 HH	All HH members aged 5 years and older	Whole year, last 7 days	Stylized questions	N.A. Not mentioned	Modular with LSMS, in the employment section-individual time-use	N.A.
33	Tuvalu	2003	Small survey with Socioeconomic Well-being Survey	N.A.	N.A.	N.A.	N.A. Not mentioned	Modular with Socioeconomic Well-being Survey	
		2013	Small	All HH members aged 18–81 years	Single day	24-hour recall	Not relevant Not mentioned	Yes HH details	30 minutes
34	Vanuatu	1983–84	Small, 600 agricultural HH	N.A.	N.A.	Eight methods tested	N.A. Not mentioned	N.A.	N.A.
		1995	Small	N.A.	Single day, single	Participatory rapid appraisal method	N.A. Not mentioned	N.A.	N.A.
		1999	5 sample HH	All HH members aged 10 years and older	Last 7 days	Time diary-recording	N.A. Not mentioned	N.A.	N.A.
35	Viet Nam	1992, 1997, 2002, 2004	National	All HH members aged 6 years and older	All the year	Modular stylized questions	N.A. Not mentioned	Modular with LSMS: employment section	N.A.

Note: For small surveys (not pilot surveys) response rate is not relevant, because these are small surveys and usually all information is collected. For large surveys, N.A. indicates not available when the rates are not calculated or not available.

Annex IV

Context variables, simultaneous activities and classification of time-use activities

No.	Country	Years	Context variables	Simultaneous activities	Activity classification
1	Australia	1974	Mode of transport, distance, technology used, locations	Not collected	Own classification
		1974	Unpaid	Not collected	Own classification
		1987	None	Not collected	Own classification
		1992, 1997, 2006	Where, with whom, mode of transport	Collected	Own classification (major activities are classified in 4 categories: necessary time; contracted time; committed time; free time)
		1996–2009	Where, with whom, mode of transport	Not collected	Own classification
		2004–10	None	Not collected	Own classification
		2005–06		Not collected	Own classification
	2007 wave (series): Jun. 2007–Jun. 2008 2009, 2010	Location	Not collected	Own classification	
2	Bangladesh	1974, 1984–85, 1990–91, 2005	None	Not collected	Small list activities: Men were asked to accounts for 11 categories of activities; women were asked to account for 10 categories of activities
		2012	Where, with whom	Collected	15 activities-own classification (for comparison with International Classification of Activities for Time Use Statistics (ICATUS) developed by United Nations)
3	Cambodia	2003–04	None	Not collected	Own classification–22 list of activities

4	China	2005	With whom, mode of transport	Collected	Own classification
		2008	With whom, mode of transport	Collected	Own classification
5	Cook Islands	1998	None	Collected	Own classification–14 main groups
6	Fiji	1987	None	Not collected	Own classification
7	India	1976–77, 1990–91, 1990, 1996	None	Not collected	Own classification
		1998–99	Where, paid/unpaid	Collected	Indian classification–9 broad categories
8	Indonesia	1972–73, 1975–76,	None	No	Own classification
		1998–99 and 2005	Where, with whom	Collected	Own classification
9	Islamic Republic of Iran	2008 (autumn)	None	Not collected	15 broad categories of activities in accordance with the ICATUS
10	Japan	1960–61, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005		Collected	Own classification–28 activities
	Japan	1993–2004		Not collected	Own classification
	Japan	1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011	Where, with whom,	Collected	19 categories of daily activities were set, and grouped into 3 broad categories: leisure; personal and households In 2001, 1 more category added for time spent on Internet
11	Kiribati	2001–02		Not collected	Own classification–11 short list of activities
12	Republic of Korea	1981, 1983, 1985, 1990, 1995 and 2000, 2005, 2010	Where, with whom, paid/unpaid, mode of transport	Not collected	Own classification–11 categories of activities After 2000, a new category on “new media” was added
		2005	Where, with whom, paid/unpaid, mode of transport	Not collected	Own classification
		1999, 2004, 2009, 2014	Where, with whom, paid/unpaid, mode of transport	Collected	Classification adopted from Eurostat and the UNSD There are 9 main groups of activities. In 2009, they added 3-digit activity codes.

No.	Country	Years	Context variables	Simultaneous activities	Activity classification
13	Lao People's Democratic Republic	1997–98	None	Not collected	Own classification–21 activities
		2002–03	None	Not collected	Own classification–22 activities
		2008	None	Not collected	Own classification–22 activities
14	Malaysia	1990–91, 2003	None	Not collected	Own classification
15	Mongolia	2000, 2007, 2011	Where, with whom, paid/unpaid, mode of transport	Collected	Adopted UN trial classification–1997
16	Nepal	1977, 1980, 1992–93	None	Collected	Own classification
		1998–99	None	Not collected	Own list of activities
		2010	None	Not collected	Own list of activities
17	New Zealand	1990	Where, with whom, paid/unpaid work	Collected	Own classification
		1998–99, 2009–10	Where, with whom, paid/unpaid work	Collected	Own classification–11 broad categories
18	Pakistan	1986–89, 1990–91		Not collected	Own classification
		2007	Location 1 and 2	Collected	UN trial classification
19	Papua New Guinea	1962		Not collected	Own classification
		1977		Not collected	Own classification
20	Philippines	1975, 1976, 1977	None	Not collected	Own classification
		2000	Information not available	Collected	UN trial classification

21	Samoa	1991		Not collected	Own classification
22	Solomon Islands	1985		Not collected	Own classification
23	Sri Lanka	2001		Not collected	N.A.
24	Thailand	1990–01		Not collected	Own classification
		2000–01	Where, with whom, for whom and paid/unpaid	Not collected	UN trial classification 1997 and Dagfinn Aas' concept of type of time use
		2004, 2009, 2015	Where, with whom, for whom and paid/unpaid	Collected	UN trial classification 2000 (15 categories)
25	Timor-Leste	2001, 2007	None	Not collected	Own classification
26	Tuvalu	2003	None	Not collected	Own–16 broad classifications
		2013		Not collected	Own–16 broad activities
27	Vanuatu	1983–84, 1995, 1999	None	Not collected	Own classification
28	Viet Nam	1992, 1997, 2002, 2004	None	Not collected	Own list of activities

Time-use surveys and statistics in Asia and the Pacific: A review of challenges and future directions

Time-use statistics are critical for measuring and analysing the quality of life and general well-being. They also offer a more comprehensive measurement of all forms of work, including unpaid work and non-market production. Time-use statistics provide reliable data for evidence-based policy advocacy, contributing to policy dialogues and measures towards gender equality. They can also be used for the development of household production accounts, etc. Despite their immense utility, time-use statistics are not yet widely produced nor are time-use surveys integrated into national statistical systems. The data collection methods and tools are not well understood and used, and fewer countries do implement time-use surveys as compared to other household-based surveys.

This review of time-use statistics in Asia and the Pacific highlights achievements that need to be reinforced and methodological issues that need to be overcome for the wider collection and dissemination of such vital data. The review also looks at the capacity of practitioners and policy-makers in the collection and dissemination of time-use statistics. The priority challenge remains the harmonizing and better grasp of data-collection tools. The review's conclusion stresses the need for greater awareness among policy-makers and the statistical community on the importance of time-use statistics, particularly for the better monitoring of progress towards achievement of the 2030 Sustainable Development Agenda.

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