

**Survey methods to improve measurement of paid and unpaid work:
Country practices in time-use measurement**
ILO Department of Statistics¹

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Acronyms

ICATUS	International Classification of Activities for Time Use Statistics
ICLS	International Conference of Labor Statisticians
ILO	International Labor Organization
HETUS	Harmonized European Time Use Survey
LFS	Labor Force Survey
LSMS	Living Standards Measurement Survey
LTUD	Light Time-Use Diary
LTUS	Light Time-Use Survey
NSO	National Statistical Office
SDG	Sustainable Development Goal
SNA	System of National Account
TU	Time use
TUS	Time-Use Survey
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNDP	United Nations Development Programme
UNSD	United Nations Statistics Department
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
WB	World Bank

Glossary

Duration	The duration of an activity over a specified period of time refers to the total length of time the activity is engaged in.
Episode	An episode refers to one occurrence of an activity, without a change in any of the contexts (on which information is being collected). The number of episodes or frequency refers to the frequency of occurrence of an activity.
Independent Time-Use Survey	An independent time-use survey is a household survey concerned with the single subject of time use. With this type of survey, survey scope and coverage, questionnaires, sample design and selection, training plans, field operational procedures, and data processing systems are configured for this one purpose.
Full Diary	In the basic format of the full time diary, the respondents report what activity they were doing when they began the day, what activity came next and at what time this activity began and ended, and so on successively through the 24 hours of the day.
Light Diary	With the light time diary, respondents report the time at which each activity occurs based on an exhaustive list, in other words the 24 hours of the day are accounted for in terms of the identified activity categories.
Modular and integrated approaches	Multi-purpose household surveys, on the other hand, are amenable to either of two approaches: (a) a modular approach, where the time-use component is a separate module; or (b) an integrated approach, where the time use component is included with all other components in a single module.
Stylized questions	Respondents are asked to recall the amount of time they allocate, or have allocated, to a certain activity over a specified period such as a day, week or year. It is different than a diary because the respondent does not report the specific time of the day the activity is performed.
Simultaneous activity	An activity may be carried out in parallel with one or more other activities over an interval of time, the whole set being referred to as simultaneous activities.
Time slot	The interval of time within which an activity is reported may be fixed. In this case the 24 hours in a day are subdivided into intervals of, for example, 10, 15 or 30 minutes. Alternatively, the interval of time may be left open with the respondent reporting the beginning and ending times of each activity.
Time-use statistics	Time-use statistics are quantitative summaries of how individuals “spend” or allocate their time over a specified period— typically over the 24 hours of a day or over the 7 days of a week.
<p><i>Source:</i> United Nations. (2005) Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work. New York: United Nations</p>	

Introduction

1. This Review documents national practices in measuring productive activities through time-use methods. Covering the period between 2000 and 2016, it shows the extent of time-use data collection across countries around the world and highlights the main methods used in their implementation. The Review focuses in particular on modular time-use approaches that have been integrated with related household surveys, including Labour Force Surveys (LFS) and other socio-economic household surveys.
2. Beyond documenting the accumulated experience, a main objective of this Review is to identify promising practices that could help improve the regular production of time-use statistics on productive activities, as part of official statistics. Information about the time people spend in paid and unpaid work, and its contribution to economic growth and wellbeing, are increasingly recognized as essential for policymaking, as part of the [2030 Agenda for Sustainable Development](#). The evidence to-date, however, shows significant gaps in the availability, frequency and comparability of time-use data. This review forms part of ILO's remit to develop evidence-based guidance to support countries' efforts to close these data gaps.
3. The findings will serve to inform the ILO's programme of work on time-use methods, including testing, with a view to develop cost-effective data collection approaches to measure paid and unpaid forms of work, aligned with the latest international statistical standards ([19th ICLS Resolution I](#)). Ultimately, the guidance to be developed is expected to contribute to global efforts to promote the regular production of time-use statistics for policymaking and monitoring purposes.
4. The Review is structured as follows: **Section I** provides the background and rationale for this study, highlighting the recent adoption of new international standards on work statistics and the requirements for producing key indicators on participation in unpaid domestic and care work as part of the 2030 Agenda. **Section II** describes the scope of this Review and the methodology used to assess recent country practices in collecting time-use data. The remaining sections discuss the main findings, starting in **Section III** with a general overview of the coverage, frequency and type of Time-Use Survey (TUS) that have been conducted worldwide. **Section IV** focuses on selected topics of relevance in TUS design to capture productive activities, in particular the sampling of persons/days, use of context variables and coverage of simultaneous activities. Finally, **Section V** explores in-depth the characteristics of modular time-use approaches, including their integration with the parent survey. The **Concluding remarks** underscore the key findings and promising practices identified to support the collection of time-use statistics on productive activities on a frequent basis.

Section I: Rationale

5. [Resolution I concerning statistics of work, employment and labour underutilization](#) adopted by the 19th International Conference of Labour Statisticians (ICLS) in October 2013 introduced, as part of the body of international statistical standards, a new framework for work statistics covering the full range of productive activities. The new framework recognizes that alongside remunerated economic activities (i.e. employment), households also engage their inputs (i.e. labour, time, resources) in producing goods and providing services for their own use. This includes a wide range of activities from subsistence agriculture and fetching water to doing housework and taking care of children and dependent family members. In addition, households also participate in unpaid work on a voluntary basis to help others, either directly or through organizations, including non-governmental organizations.
6. Recent developments in the framework for international cooperation for development likewise recognize the policy relevance of unpaid forms of work alongside employment. The [2030 Agenda for Sustainable Development](#), which came into effect in January 2016, places emphasis on both, promoting productive employment and decent work for all (Goal 8) and recognizing and valuing unpaid care and domestic work (Goal 5.4) as essential to achieving sustained equitable development. In so doing, the 2030 Agenda has inserted unpaid productive activities into a policy perspective that aims at tackling persistent gender inequalities in paid and unpaid work, as a necessary foundation for inclusive growth and development.²
7. To inform policymaking and support monitoring, the 19th ICLS standards provide guidance to countries for developing a comprehensive set of statistics on paid and unpaid forms of work, based on common concepts and definitions. The 19th ICLS standards acknowledge the role of different statistical sources for producing work and labour market statistics. In general, it envisages labour force surveys (LFS) as a primary source for labour market indicators and more detailed labour market-related information. It also underlines that time-use surveys (TUS) 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 (see Para. 67 (b)).
8. At the international level, there is widespread agreement that time-use data are in particular the main source for monitoring, and reporting on, the volume of unpaid domestic and care work.³ In comparison to income or consumption, time-use data better address distributional concerns because they shed light on productive activities taking place outside the context of market transactions. By contrast, changes in income and consumption can mask shifts in the locus of production of households' services from the market to households and *vice versa* (see Box 1 for an illustrative example).⁴

² [The Report by the Commission on the Measurement of Economic Performance and Social Progress](#) (2009, para. 117) also states that gender differences in time use are significant. In each of the countries under consideration, men spend more time in paid work than women do and the converse is true for unpaid work. Men also spend more time on leisure than women do. The implication is that women provide household services but other members of the household benefit.

³ [SDG Indicator 5.4.1](#) measures the proportion of time spent on unpaid domestic and care work, by sex, age and location.

⁴ UNECE. [Guide on Valuing Unpaid Household Service Work](#) (2017, p. 1) states: "A lack of information on unpaid household service work might lead to misinformed policy conclusions. For instance, an increase in services, such as childcare or long-term care provided by the government or private sector, increases the quantity of goods

Box 1 Example of the usefulness of time-use data

Imagine a two-parent household with two children and an income of 50,000 currency units a year, in which only one parent works full-time for pay and the other specializes in home production. The parent who stays at home does all the shopping, cooks all the meals, does all the cleaning, and performs all the child care. As a result, this household does not need to devote any of its market income to purchasing these services. Now imagine a two-parent household with two children in which both parents work full-time for the same global pay (50,000 a year), and neither parent has any time left over for household production or child care. They must pay for all the shopping, cooking, cleaning and child care out of pocket. Their available income is therefore reduced. Conventional measures treat these two households as if they have identical living standards, but obviously they don't. Focusing on market production provides a biased picture of living standards – some of the measured increase in market production may simply reflect a shift of the locus of production from households to the market.

Source: [Report by the Commission on the Measurement of Economic Performance and Social Progress](#) (2009, para. 47)

9. Low frequency of data collection, scattered implementation methods, and high costs related to TUS, however, hamper the availability and international comparability of time-use data. For instance, a recent Report by UN Women (2018, p. 61) highlights that while 84 countries have conducted TUS, only 24 per cent of them have data from 2010 or after.⁵ As a result, a considerable amount of unpaid work in the household economy that is not in the System of National Account (SNA), is still economically speaking invisible (Anderson and Reynolds: 2016, p. 4).
10. To respond to the data gaps needed for national and international reporting on the whole range of productive activities (i.e. paid and unpaid) and for assessing the effectiveness of gender-related policies, International Organizations (IO) as well as National Statistical Offices (NSOs) are increasingly promoting greater integration of household surveys. One form of promoting such integration is the use of cost-efficient modular approaches. For productive activities, the 19th ICLS standards point out that a LFS can generate estimates of participation in different forms of work through a modular approach, in line with some country practices.⁶ Yet, the empirical literature specifically dedicated to reviewing modular time-use approaches as well as international guidance are currently lacking.

and services produced in a country. In fact, this would simply reflect that the production of the same service takes place in another institutional sector instead of the household sector.”

⁵ See UN Women (2018).

⁶ [ICATUS](#) (2017, p. 8) underlines that TUS should not be used to reproduce/replace Labour Force Surveys (LFS), but rather as an additional source of data to identify those activities within the SNA production boundaries that may risk of being misclassified as non-economic or simply not being counted; and also to allow measurement of satellite accounts on unpaid household work.

Section II: Scope and methodology

11. This review documents recent national practices in collecting time-use data, with a specific focus on modular time-use approaches attached to a LFS and other socio-economic household surveys. It centres in particular on methodological features relevant to measure participation and time spent in productive activities.
12. The review uses as basis the information contained in the United Nations Statistics Division (UNSD) Time Use Data Portal (<https://unstats.un.org/unsd/gender/timeuse/>), last updated in May 2016. The UNSD Time use Data Portal consolidates existing time-use data and associated metadata, providing an overview of TUS conducted worldwide since 1966 and up to 2016.⁷
13. To focus on the latest national practices, the review includes only the most recent *unique* source of time-use data reported by countries to UNSD in the period between 2000 and 2016. In most cases, this means that only one source per country is counted. Nevertheless, when two -or more- types of sources (i.e. independent TUS and a module attached to a parent survey) were used by a country to collect time-use data during in this period, both sources are counted. This allows us to examine both the number of countries that have conducted at least one “recent” measurement of time use, but also the number of countries using multiple data collection strategies.
14. Differences in national TU data collection practices have been analysed with respect to the following five methodological aspects: (i) Type of survey (i.e. independent, modular); (ii) TU data collection method (i.e. full diary, light diary, stylized questions); (iii) reference days for data collection; (iv) respondent selection; and (v) type of context variables collected. In addition, to assess the use of technology in data collection, the UNSD TUS data was supplemented with information available in the UNDP Human Development Report Background Paper [Time Use Across the World: Findings of a World Compilation of Time Use Surveys](#) published in 2015.
15. Furthermore, the analysis of the modular time-use approaches identified through the UNSD TUS Data Portal was conducted through an in-depth review of related survey materials by the ILO. The review focused on key characteristics of both the parent survey and time-use module. This included methodological features such as coverage, sample size, strategy for fieldwork, mode and data collection methods, selection criteria for respondent, as well as questionnaire content including the number of questions, activity scope, question order, and reference periods. Given the particular emphasis on methods to collect information on productive activities, the activity scope of the questions was assessed with reference to 5 categories at 1 digit level as specified in ICATUS 2016.
16. Regional patterns are highlighted using the ILO geographical classification of countries and territories, while patterns by level of socio-economic development are shown using the World Bank classification of countries by income groups.⁸
17. A main challenge in conducting this review was the limited availability of national documentation describing the methods used in conducting the TUS. This was particularly acute

⁷ Last accessed on July 4th 2018.

⁸ Both classifications are available at the following link: https://www.ilo.org/ilostat-files/Documents/countries_EN.xlsx

for practices implemented further in the past. To the extent possible, missing information was filled through a review of available documentation in the official website of the corresponding NSO. Data quality checks were also conducted using as reference existing national documentation. Missing information that could not be filled through the review of national documentation is indicated in this report with the symbol (-) and labelled “Unavailable details”.

Section III: Overview of Time-Use Sources

18. This Section provides a global overview of country practices in time-use measurement between 2000 and 2016 as reflected in the UNSD TUS data portal. The section begins by highlighting the global distribution of TUS data collection, by frequency, type of survey and TU data collection method used. This is followed by a discussion of the main strengths and limitations associated with the TUS methods identified (namely diary-based methods and stylized questions). The section ends with a description of the main outputs produced and reported when collecting time-use data.

3.1 Coverage and periodicity

19. TUS collect statistics that are quantitative summaries of how individuals “spend” or allocate their time over a specified period – typically over the 24 hours of a day or over the 7 days of a week (UN: 2005). The ILO Review identifies 117 unique sources collected in 94 countries between 2000 and 2016 (Figure 1). At regional level, the collection of time-use statistics appears to be most common in Europe and Central Asia (43), followed by the Americas (34) and Asia and the Pacific (20). By contrast, important gaps in the measurement of time use are observed in Africa and the Arab States, where only 16 and 4 sources have been identified respectively. Overall, the Review indicates that time-use measurement in countries is far from universal.

Figure 1 Coverage and periodicity of Time-use sources by country (2000-2016)



Source: Authors' elaboration based on UNSD Time use data portal

20. The analysis of the frequency of TUS highlights further geographical imbalances in the availability of time-use data to monitor trends. When considering all sources reported (including repeated measurements) between 2000 and 2016, the UNSD Data portal shows 186 sources in 94 countries. Among these, 47 countries appear to have conducted a TUS only once while 27 countries conducted a TUS at least twice in that period. Countries conducting a TUS at least once concentrate in the Africa region. Important gaps are also observed in the Arab

Region where the UNSD TUS Portal reports only four sources between 2000 and 2016. Those conducting a repeated measurement are concentrated in the Americas and Europe and Central Asia regions (Figure 1).⁹ In summary, the Review identifies important differences across countries and ILO regions in the frequency with which time-use data have been collected.

3.2 Type of survey

21. Following international guidance (UN: 2005), the UNSD Data Portal reports three types of TU sources: (i) *independent/stand-alone TU surveys* having the measurement of time as specific objective, (ii) *modular TUS* where the time-use component is a separate module, and (iii) *integrated questions* where the time-use questions are included with all other person-level questions as part of the main questionnaire.¹⁰ Out of the 117 unique sources identified between 2000 and 2016, 63 are independent TU surveys, 39 are modular TU approaches, and 2 refer to questions on time-use integrated directly into the main parent survey. Furthermore, 12 sources reported were smaller scale pilots used for testing purposes (Table 1).¹¹

Table 1 Time-use sources by survey type and geographic region (2000-2016) (n=117)

	Africa	Americas	Arab States	Asia and Pacific	Europe and Central Asia	Total
Large sample						
Independent survey	6	12	2	11	32	63
Module	9	19	2	4	5	39
Integrated questions	0	2	0	0	0	2
Small Sample						
Pilot	1	1	0	4	6	12
Unavailable details	0	0	0	1	0	1
Total	16	34	4	20	43	117

Source: Authors' elaboration based on UNSD Time use data portal

22. Overall the results indicate that conducting an independent TUS is the predominant practice, followed by modular approaches. Independent TUS are most prevalent in Europe and Central Asia, where 32 stand-alone TUS were conducted between 2000 and 2016. Independent TUS were less predominant, but still common, in the Americas (12) and in Asia and the Pacific (11). However, we note that independent TUS were seldom conducted in Africa (6) and the Arab States (2). Modular approaches are particularly concentrated in the Americas (19) and

⁹ The UNSD TUS Data portal reports that 8 countries (Argentina, Denmark, Guatemala, Mexico, Republic of Korea, Sweden, UK, Ireland and Uruguay) have time series on time-use data for 3 points in time over the 15-year period. More frequent TU data collection is reported for 12 countries (Bhutan, Canada, Japan, Kazakhstan, Kyrgyzstan and Thailand have conducted four data collections, the Netherlands and Switzerland six, Ecuador seven. Colombia, Brazil and the US collected TUS data on annual basis since 2006 and 2001 respectively).

¹⁰ Ecuador and Peru integrated questions to a LFS and a socio-economic survey, respectively. For Example, Ecuador integrated nine questions at the end of the LF module (e.g. *How much time do you spent in x activity per week*) to measure time spent on domestic services, childcare and care for dependent adults and volunteer community work.

¹¹ Countries testing time-use methodologies through pilots identified include: Armenia, Bosnia and Herzegovina, Canada, Ethiopia, Indonesia (two pilots), Ireland, Malta, Mongolia, Netherlands, Philippines, Serbia.

relatively more common than stand-alone TUS in Africa (9). Modular approaches are still found in Europe and Central Asia as well as in Asia and the Pacific. However, in comparison to the number of stand-alone surveys, modular approaches in these regions do appear to be a less common pattern (see Table 1).

23. When considering the use of multiple TU sources, we find that less than a third of countries (22) used more than one type of TU source in the period under review (not shown). Among these 22 countries, the most common combination was conducting an independent TUS and a time-use modular approach. This trend was most common in the Americas and to a lesser extent in Europe and Central Asia.
24. The distribution of TU sources by survey type and income group reveals a concentration of time-use measurement in high income and upper-middle income countries and a significant gap in low income countries. Given the high costs involved in conducting independent TUS, it is no surprise that independent TUS concentrate in particular in high income and upper-middle income countries, whereas modular approaches are slightly more common in lower-middle income and low income countries (Table 2).

Table 2 Time-use sources by type and income group (2000-2016) (n=117)

	Independent survey	Module	Integrated questions	Pilot	Unavailable details	Total
High income	28	10	0	4	0	42
Upper-middle income	22	14	2	2	1	41
Lower-middle income	11	10	0	5	0	26
Low income	2	5	0	1	0	8
Total	63	39	2	12	1	117

Source: Authors' elaboration based on UNSD Time use data portal

3.3 Measurement approaches

3.3.1 Strengths and limitations of diary versus stylized question approaches

25. A variety of measurement approaches are available for collecting time-use data. The two most common methods for measuring time use in large samples are diary-based methods and stylized questions.¹² These traditional measurement approaches differ both in costs, accuracy as well as in their designs and applications.
26. The full diary method is generally considered as the best practice for detailed TU data collection. Its main feature centres on asking respondents to describe in their own words the activities that they engage in over a given time-period. Respondents may define the time an activity starts and finishes on a free-form basis (open time slot) or they may be requested to report activities for fixed time slots (e.g. every ten minutes, every hour). Activities are then coded ex-post and classified according to a set standard or classification.¹³ Within diary-based

¹² Experiential Sampling Methods (ESM) and observational methods are additional measurement approaches usually employed in small scale studies or multiple methods due to their high operational costs.

¹³ See, for instance, ICATUS 2016. <https://unstats.un.org/unsd/statcom/48th-session/documents/BG-3h-ICATUS-2016-13-February-2017-E.pdf>. In the field of time use, however, a multitude of classifications also exists at the national and regional level, thus demanding conversions to a common framework for facilitated

methods, retrospective diaries ask the respondent to recall the amount of time spent in different activities during one or several 24-hour days for a designated reference period. In prospective/leave behind diaries, the respondent self-records his/her allocation of time as the day advances.

27. Among measurement approaches, diary-based methods are considered to be the most accurate (UN: 2005; ILO Resolution I: 2013; UNECE: 2013; UNECE: 2017).¹⁴ Nevertheless, several disadvantages are widely recognized. High operational costs, respondents' memory loss and illiteracy limit the use of diary-based approaches on a universal scale. The administration of a leave-behind diary, for instance, requires a final interview to the informant to verify data quality (e.g. missing information, addressing informants' doubts) adding costs to the operational procedures. Diary methods also demand technical expertise for coding activities ex-post. Recall bias in retrospective diary methods is a common source of measurement error referring to the potential inability of the informant to recall accurately his/her allocation of time. Evidence shows that such bias is particularly severe with reference to short time spans or frequent/routine activities.
28. Use of a Light Time-Use Diary (LTUD) reduces operational costs. This method records time spent in a specific pre-coded list of activities embedded into the survey instrument. It simplifies the design as it requests the informant or the enumerator to draw a line corresponding to the amount of time spent in such pre-selected activities. This measurement approach does not involve costs for post-coding but it reduces the analytical capacity of data. This is because results are reported only in terms of given activities instead of their detailed classification.
29. Stylized questions are used in surveys with the specific objective of capturing participation in designated activities without asking the respondent to report the timing in the day when the activities took place. Typical examples of stylized questions provided in the UN Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work (2005) include: "*Yesterday (or last week), how much time did you spend on activity x?*" Or: "*How many hours per day (or per week) do you spend usually on activity x?*". Answer modalities can be open-ended, where respondents fill in a number of hours, or categorical (e.g. "never," "once a week").
30. In contrast to diary-based methods, stylized questions do not provide a complete account of time spent in all activities, but tend to have several advantages. First, this data collection method is the least expensive. Second, it can measure the incidence of specific activities, especially those occurring less frequently. Hence, it can be used selectively to collect data of particular relevance to specific measurement objectives.
31. Stylized questions are also prone to measurement error. In particular, stylized questions usually ask respondents to *estimate* the amount of time spent in particular activities within a specific reference period. The accuracy of such self-reported estimates depends on a variety of factors, including: how respondents understand keywords used to describe each activity, how they recall the time spent, how they calculate or estimate their response for the reference period requested. Thus, conceptualizing what a given activity includes, what a "typical" or "average" week is, or recalling how much time the respondent actually spent in a certain

international comparison. See, for instance, the Multinational Time Use Study (MTUS) <https://www.timeuse.org/mtus>

¹⁴ [Resolution I \(19th ICLS, 2013\)](#) highlights that such methodology makes them particularly well suited to capture work and non-work activities performed simultaneously or intermittently (see Para. 67 (b)).

activity over the past week (day, month or year) can hamper data quality.¹⁵ Stylized questions are also prone to normative editing, that is, respondents may under- or over-report time spent in different activities according to what is considered socially desirable or acceptable.¹⁶

32. The ILO's desk review of the empirical literature¹⁷ points out diary-based methods as usually more accurate than stylized questions, especially with regard to unpaid provision of household services. Among diary-based methods, prospective diaries are associated with greater precision for short time span activities, whereas full retrospective diaries appear to be more accurate than LTUD in providing a complete and detailed account of time allocation.
33. Ultimately, however, the choice of method has to counterbalance data quality with cost-related constraints. Stylized questions are better positioned than diary approaches to reduce operational costs and increase response rate. Furthermore, stylized questions appear to measure accurately time spent in specific activities. Among diary-based approaches, LTUDs are better equipped to reduce respondent burden, increase response rate and reduce post-coding costs. Nevertheless, the empirical evidence is rather scarce and skewed toward developed countries. More testing is needed in less developed settings to further assess the accuracy of results stemming from different methods in a comparative manner.

3.3.2 Country practices in diary-based methods and stylized questions

34. The ILO Review of country practices highlights the widespread application of diary-based methods. Out of 117 sources, 89 used time-use diaries and 25 stylized questions. For independent TUS, diary-based methods are the most common methodological choice. To a lesser degree, the Review identifies country practices adopting stylized questions in independent TUS (6), which usually cannot produce statistics comparable to those based on 24 hours. Stylized questions appear to be more relevant in modular approaches compared to independent TUS (Table 3).

Table 3 Time-use sources by type and measurement approach (2000-2016) (n=117)

	Diary-based approaches	Stylised questions	Unavailable details	Total
Large samples				
Independent survey	57	6	0	63
Module	21	17	1	39
Integrated Questions	0	2	0	2
Small samples				
Pilot	11	0	1	12
Unavailable details	0	0	1	1
Grand Total	89	25	3	117

Source: Authors' elaboration based on UNSD Time use data portal

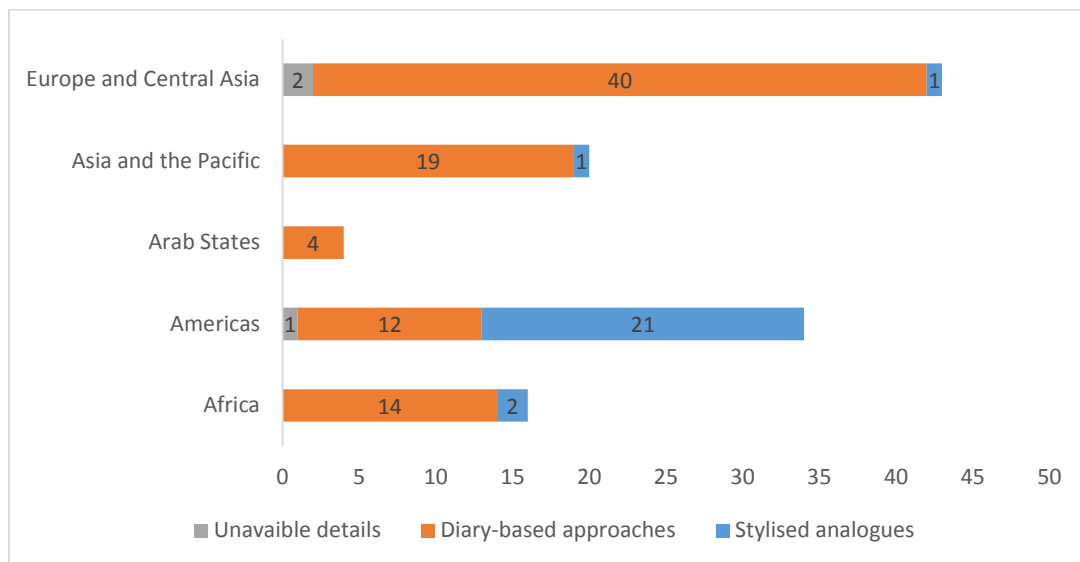
¹⁵ For activities that take place on a daily basis, such as time spent commuting to work, the respondent may be able to make a much better estimate of the average time spent in the activity over the week. However, for activities that take place on a more variable basis, such as time spent talking on the phone, respondents may have a more difficult time recalling the amount of time spent in the activity.

¹⁶ See: Hofferth, S. (1999); Robinson, John P. 1985.

¹⁷ See: Bonke, J.: 2005; Kan, MY., Pudney, S.: 2008; Seymour, G., Malapit, H., Quisumbing, A.: 2017; Schultz, F., Grunow, D.: 2012.

35. A specific regional trend emerges when looking at the distribution of TUS by measurement approach (Figure 2). Stylized questions have been predominantly implemented in the Americas. On the contrary, in Africa and in Asia and the Pacific, the application of stylized questions appears to have seldom occurred. On the other hand, Europe and Central Asia, Asia and Pacific and Africa mostly adopted diary-based methods, whereas in the Arab States the four sources identified were diary-based approaches.

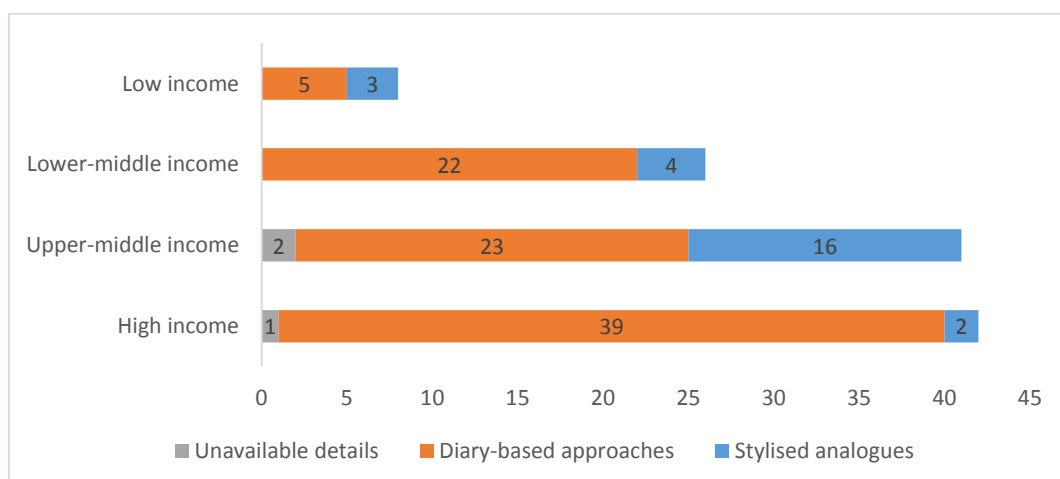
Figure 2 Time-use sources by geographic region and measurement approach (2000-2016) (n=117)



Source: Authors' elaboration based on UNSD Time use data portal

36. The distribution of TUS by measurement approach and income group also highlights a concentration of stylized questions in upper middle-income countries. Interestingly, despite of higher respondent burden, diary-based approaches appear to be the main method among lower-middle and low income countries (Figure 3).

Figure 3 Time-use sources by income group and measurement approach (2000-2016) (n=117)



Source: Authors' elaboration based on UNSD Time use data portal

3.4 Output indicators

37. TUS have been traditionally used to provide data on unpaid and non-market production, as needed to inform policymaking on well-being and gender equality (UNECE: 2013, p. 6). Generally the three main indicators computed using TU data are:
- Average time spent on a specified activity by the population as a whole¹⁸
 - Participation rate or proportion of persons who participate in a specified activity
 - Average time spent on a specified activity by those engaged in the activity
38. These indicators are further used to build satellite accounts for forms of work falling outside the SNA production boundary.¹⁹
39. Based on a review of available documentation, reporting time-use data with reference to the SNA production boundary is the most common practice, especially for independent TUS. For instance, the Final Report of the Time-Use Survey conducted in South Africa (2010) presents statistics on time use according to SNA production (i.e. work in establishment, primary production, work in non-establishment), non-SNA production (i.e. household maintenance, care of persons, community service) and non-productive activities (learning, social and cultural activities, mass media use, and personal care).
40. Overall, the global review reveals that TU data collection is not yet a widespread practice, concentrating in particular, among high income and upper-middle income countries, with very few countries having conducted repeated measurement as needed to develop time-series for monitoring trends over time. More so, a variety of surveys (independent, modular) and data collection methods (full-diary, light-diary, stylized questions) have been used, which can impact the international comparability of time-use data.

Section IV: Strategies to collect TU data on productive activities

41. This Section examines more in-depth, country TU practices that are particularly important to capture participation and time-spent in productive activities. In particular, it focuses on methodological choices related to (a) the sample selection, in particular, the selection of respondents and reference days; (b) the data collection strategy employed in the field (interviewer assisted interview, leave behind diary, and mixed mode); (c) the contextual variables included, and (d) the treatment of simultaneous activities.

4.1 Sampling for TUS

42. In general, people's allocation of time to given activities varies greatly by day of the week and season of the year. While sample designs for TUS follow general standard survey procedures for the selection of households, a key additional consideration is the sampling of the time dimension. In particular, sample design for TUS generally needs to consider the selection of days for which TU data will be collected as well as the number of persons in the household to

¹⁸ SDG indicator 5.4.1 is calculated based on the average number of hours spent on unpaid domestic and unpaid care work for the total relevant population. Data presented for this indicator are expressed as a proportion of time in a day. Weekly data is averaged over seven days of the week to obtain the daily average time. Proportion of time spent on unpaid domestic and care work is calculated by dividing the daily average number of hours spent on unpaid domestic and care work by 24 hours. See: <https://unstats.un.org/sdgs/metadata/files/Metadata-05-04-01.pdf>

¹⁹ See: UNECE (2017).

interview.²⁰ In addition, ideally, the sample needs to be spread over the year, in order to capture or take account of seasonality. These three features combined shed light on the population of inference for TUS that is a combination of person and days, over a given period of data collection.

4.1.1 Respondent Selection

43. Alongside cost-efficiency, the measurement objectives of TUS are usually the major drive behind the choice of number of persons to be selected in a household. Generally, estimates of average levels of time devoted to given activities by sub-groups of the population do not require collection of TU data for more than one selected household member and one reference day. Nevertheless, collecting TU data for all eligible household members is usually cost-efficient and, often demanded for analysis of patterns in intra-household allocation of time-use (i.e. intra-personal variation).²¹
44. Based on the practices reported in the UNSD Data Portal, the prevailing strategy across TUS is to select all household members above a certain age to report their time allocation. Overall, 41 TUS (31 independent, 10 modules) administered the time-use survey instruments to all eligible household members (Table 4). From an operational perspective, this practice allows to concentrate fieldwork on selected areas rather than increasing the number of households sampled to achieve the targeted sample of respondents. Furthermore, TUS usually suffer from a low response rate. This respondent selection design allows to maximize the number of person-days diaries per household.

Table 4 Time-use sources by survey type and respondent selection (2000-2016) (n=117)

	One respondent	Two respondents	All eligible household members	Unavailable details	Total
Large sample					
Independent survey	2	5	31	25	63
Module	4	3	10	22	39
Integrated questions	-	-	-	2	2
Small sample					
Pilot	-	-	-	12	12
Unavailable details	-	-	-	1	1
Total	6	8	41	62	117

Source: Authors' elaboration based on UNSD Time use data portal

45. A second strategy foresees administering the time-use instrument to more than one respondent, but not all eligible household members. For instance, among modular approaches, Guadeloupe, Martinique, Reunion selected one person and his/her spouse. France and Palestine applied the same technique in their stand-alone TUS. New Zealand, Pakistan, and South Africa also set at two the number of respondents in their independent

²⁰ For an in depth overview of sample design for Time-Use Surveys, please see: Chapter VI, [United Nations Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work](#) (United Nations: 2005).

²¹ For further discussion, see for instance: Frazis, H., Stewart, J. (2012) [How to Think about Time-Use Data: What Inferences Can We Make about Long- and Short-Run Time Use from Time Diaries?](#), Annals of Economics and Statistics, No. 105/106, pp. 231-245.

TUS. Overall, the selection of two respondents applies only to diary-based approaches (see Table 5).

Table 5 Time-use sources by method and respondent selection (2000-2016) (n=117)

	One respondent	Two respondents	All eligible household members	Unavailable details	Total
Diary-based	5	8	32	44	89
Stylised questions	1	-	13	11	25
Unavailable details	-	-	-	3	3
Total	6	8	45	58	117

Source: Authors' elaboration based on UNSD Time use data portal

46. The selection of only one respondent per household is less common. The ILO Review identifies 6 practices, most of which related to diary-based methods (see Table 5). This practice is relatively more frequent in modular approaches (e.g. Brazil, Canada, Switzerland, Tanzania) than in stand-alone TUS (e.g. China, US) likely in view of the total respondent burden generated by applying two questionnaires (i.e. parent survey and time-use module) to the same individual as well as the operational costs involved.
47. Age-specific eligibility criteria for selecting respondents vary from country to country (not shown). For instance, 10 country practices set a lower age limit within the range 3-8 years for collecting time-use data, whereas the most common practice (41) is to collect data for individuals aged 10 and above. Fourteen practices set also an upper range limit, varying from 64 to 84 years.
48. Related to the age-specific eligibility criteria is the use of proxy for informant (not shown). The review of survey documentation put in evidence the use of proxy respondents predominantly with stylized questions. Examples include Uruguay and Costa Rica where a qualified respondent is asked to provide information about him/herself and other household members. In diary-based approaches, the more common pattern is to allow for proxy only when time-use data are collected for children, disabled or elderly.

4.1.1 Selection of days in diary-based methods

49. Generally, the measurement objectives of TUS informs also the selection of number of diary-days. Based on the information available, the dominant practice among diary-based methods is to gather time-use information for a period of 24 hours (one day) (Table 6). This design is the most frequent both in independent and modular approaches. Collecting time-use data with reference to one day is the simplest design when administering diary-based survey instruments and it enables to provide estimates on average time spent in given activities. This practice results in less respondent burden compared to administering a two-day diary while providing estimates for satellite account of household production (e.g. average time spent in unpaid domestic services).

Table 6 Time-use sources by type and selection of diary-days among diary-based methods (2000-2016) (n=89)

	1 day	2 days	1 week	Unavailable details	Total
Large samples					
Independent survey	27	18	1	11	57
Module	14	1	-	6	21
Small samples					
Pilot	6	1	-	2	9
Unavailable details	-	-	-	2	2
Total	47	20	1	21	89

Source: Authors' elaboration based on UNSD Time use data portal

50. Country practices implementing a one day-diary design vary. For instance, the Netherlands employs a self-completed diary for the previous day where activities are recorded in fixed 15-minute intervals, whereas Morocco designed a full 24-hour diary with open time intervals to be specified by the respondent. In Palestine, the TUS implemented a full 24-hour diary with a 30 minute time-slots between 10 pm to 6 am and 10 minute time-slots between 6 am to 10 pm. France (2009) implemented one questionnaire on long-term or rare activities together with one day diary (from 09 pm to 00 am) and one module on decision-making within couples based on HETUS guidelines (Eurostat).
51. Overall 20 practices adopted a two-day diary design (see Table 6). Within such group, the common trend is to administer the diary for one week-day and for one day of the weekend. A less common pattern is to gather data on two consecutive days. The collection of time-use data with reference to two days is cost-efficient (i.e. the cost per diary is lower when the survey collects more than one diary per person) and allows to take into account within-person variation of time-use from day to day. Allocation of time usually differs between weekends and weekdays as well as among weekdays (i.e. Monday differs from Saturday as well as from Thursday). It is therefore a good practice in time-use measurement to administer survey instruments in such a way to consider variability in routines as well as infrequent activities. Yet, this practice also entails specific operational procedures and resources. Hence, its use is more common in independent TUS than in modular approaches.

4.1.3 Sampling designs for diary-based methods

52. Overall, considering the selection of respondents and days, the ILO Review identifies two common TU sampling designs in diary-based methods implemented between 2000 and 2016. The most common trend (17 sources) is to administer a single-day diary to all eligible household members (Table 7). This survey design allows for the estimation of average time spent in given activities while avoiding the operational costs of selecting only person per household (e.g. return visits to the household to reach the selected individual). The second most frequent pattern (12 sources) is to collect two-day diaries assigned to all eligible household members. Such designs, as previously discussed, allow for the analysis of both inter-personal and with-person variability of time use.

Table 7 Sample designs for diary-based methods (2000-2016) (n=89)

	1 day	2 days	1 week	Unavailable details	Total
One respondent	2	-	-	3	5
Two respondents	4	1	-	3	8
All eligible household members	17	12	-	3	32
Unavailable details	24	7	1	12	44
Total	47	20	1	21	89

Source: Authors' elaboration based on UNSD Time use data portal

4.2 Strategy for TU data collection

53. There are two main strategies for collecting time-use data, namely: (i) *leave-behind/self-reporting method* that requests the respondent to fill in usually a paper-based diary and self-record his/her time spent over the course of the day or retrospectively with reference to the previous day; (ii) *recall interview-based method* that train enumerators to administer the time-use diary to record time spent in given activities over a reference period (e.g. the previous day, the previous week, etc.). Generally, the face-to-face recall interview method is implemented in contexts where illiteracy is a concern despite it being more costly and slightly less accurate than the leave-behind method.

54. The ILO Review identifies interviewer-assisted methods as the main practice, particularly in the Americas and Africa (Table 8). We also note that the two TUS in the Arab States both implemented interviewer-assisted methods. Interviewer-assisted methods also include the experiences using Computer-Assisted Telephone Interviewing (CATI) in Canada and the US. On the other hand, mixed-mode of data collection stands on the assumption that the respondent is literate.²² For these methods request interviewees to self-recorded activities and interviewers to fill other parts of the individual and household questionnaires. The application of mixed mode is widespread in Europe and Central Asia and not found in the Americas and Arab States (see Table 8).

Table 8 Time-use sources by geographic region and mode of data collection

	Interviewer- assisted methods	Mixed mode	Total
Africa	8	2	10
Americas	9	0	9
Arab States	2	0	2
Asia and the Pacific	5	5	10
Europe and Central Asia	4	20	24
Total	28	27	55

Source: Authors' elaboration based on UNDP (2015)

²² UNDP (2015, p. 90) states: "The mixed mode of data collection means that diaries are self-recorded by the interviewees and individual/household questionnaires are filled by interviewers".

55. Simpler designs collecting time-use data with reference to one day employ mostly interviewer-assisted methods (e.g. CATI in Canada and the US). On the contrary, more complex designs gathering data with reference to two days take advantage of mixed mode approaches (Table 9).

Table 9 Time-use sources by strategy of data collection and number of diary-days

	1 day	2 days	3 days	Unavailable details	Total
Interviewer-assisted	17	3	1	-	21
Mixed mode	7	17	1	-	25
Unavailable details	-	-	-	9	9
Total	24	20	2	9	55

Source: Authors' elaboration based on UNDP (2015)

4.3 Context variables and simultaneous activities

4.3.1 Context variables in diary-based methods

56. The UN Guide to Producing Statistics on Time-Use: Measuring Paid and Unpaid Work (2005, p. 37) defines *activity context* as the physical, psychological, social, and temporal features of the environment in which a specific activity takes place. In TUS, context variables are particularly relevant. First, they enhance the appropriate coding and classification of time spent in certain activities. Second, context variables also play an important role in minimizing measurement error by supporting the respondent in recalling his/her time allocation.

57. Based on information available, the ILO Review finds that independent TUS make a greater use of context variables in comparison to modular approaches (Table 10). Furthermore, only diary-based methods make use of them. Among these methods, the most common pattern is to include questions to capture the *location* where the activity takes place, followed by questions about *with whom* the activity took place that capture aspects relating to social interactions. The intended motivation behind an activity is gathered through questions about *for whom* the activity took place (7 sources). In addition, for productive activities, a question on whether the activity is paid or unpaid was asked in 5 sources. Use of technology was further included in 4 sources (see Table 10).

Table 10 Time-use source by type and typology of context variables for diary-based methods (2000-2016) (n=89)

	For whom/ motivation	Paid or Unpaid	With whom	Location	Technology used	Means of transport
Independent	6	5	22	24	2	8
Module	1	0	5	4	1	2
Pilot	0	0	4	4	1	1
Total	7	5	31	32	4	11
Unavailable details	82	84	58	57	85	78
Grand total	89	89	89	89	89	89

Source: Authors' elaboration based on UNSD Time use data portal

58. Two context variables – *for whom* and *paid/unpaid* - are of particular interest for this Review. Both context variables support the identification of productive activities and their classification according to the SNA production boundary and the Forms of Work Framework (19th ICLS, 2013).²³ Nevertheless, the ILO Review indicates that these specific context variables have rarely been included in TUS questionnaires (see Box 2 for illustrative examples).

Box 2 Examples of practices collecting data on productive activities through the context variable for whom? and paid/unpaid

Despite its importance in identifying different forms of productive activities, country experience in implementing the context variable *for whom* is limited. First introduced in the German Time Use Study in 1991, the context variable *for whom* played a relevant role in identifying voluntary work activities through five answer modalities, of which one was specifically dedicated to voluntary work (UN Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work: 2005, p. 40). The Ghana Time-Use Survey (2009) dedicated a specific column of the diary to ask *whom the respondent did this activity for*, with eight answer modalities (e.g. self, household, work, friend, charity, community, child, other). Australia implemented the same diary design in 2006 but left answer modalities open, providing only potential examples (e.g. self, family, work, friend, a charity, community). The *Encuesta Experimental sobre el uso del tiempo en el Gran Santiago* conducted in Chile between 2007 and 2008 foresaw three possible answer modalities (i.e. for his/her self, for other household member, or other person external to the household).

Country practices also vary in incorporating the context variable *paid/unpaid* directly into the design of the diary or into probing summary questions. The TUS conducted in Palestine asked the informant whether he/she has been paid for each activity reported, while allowing for *not applicable* answer modalities for personal activities (e.g. sleeping, personal grooming). In Chile, the diary asked whether the informant received any payment specifically in cash or in kind for the activity, whereas in Cuba the respondent was instructed to report directly into the diary the description of the activity alongside whether it was remunerated or not (e.g. cooking the baby's food in my home (unpaid), feeding a child in another house (they pay me), washing the dishes in my house (unpaid)).

After the completion of the diary, the American Time Use Survey asks additional information on income generating activities (e.g. babysitting, hobbies done for income) through the summary question “*Were there any activities that you were paid for or will be paid for?*”. Among stylized question approaches, the independent TUS conducted in Peru is the only practice that ask the respondent whether he/she received any payment for the provision of household services (domestic work and care for elderly and children).

59. Country practices to collect information on the social context of an activity through the variable *with whom* are very diverse and show more proneness to measurement error if proper guidance is lacking. Instructions must clarify whether the respondent is expected to report other individuals present in the room during the undertaking of the activity (i.e. being alone or with other people) or whether other individuals interacted and participated in the activity itself (see Box 3 for illustrative examples). Such context variables play an important role in the estimation of time spent in the unpaid household provision of care. The ILO Review notes the more frequent use of this context variables in comparison to other types.

²³ Based on evidence provided in Harvey and Spinney (2000), the *UN Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work* (2005) highlights that an appropriate formulation of the context variable *for whom* may better capture productive activities rather than asking directly whether the activity is paid or unpaid.

Box 3 Examples capturing social interaction through context variables in diary-based approaches

The diary administered in Japan (2011) records, for each activity, whether the respondent was alone or together with family members, classmates or colleagues or other person by 15-minutes time-slot. “Being together” meant that the person was so near as to talk with the respondent. Cases when there was nobody near whom the respondent knew, or when the respondent was asleep, were recorded as “alone”. In Bangladesh and Belgium (2013), the diary gathered this information only in relation to people the respondent knew. In particular, in Bangladesh the diary asked “who else was with you?” and provided three answer modalities: alone, other household members, other known people. In Belgium, the diary asked “were you alone or with somebody you know?” and provided six answer modalities: alone, partner, parent, household member up to 9 years, other household member and other persons that you know. The Report on the Albania TUS 2010-2011 highlights that the instruction for gathering whether someone else was present required that the other person be at hand (e.g. in the same or adjacent room). Furthermore, the presence of other household members up to 9 years in connection with some activities was used to estimate time spent in child care. The American Time-Use Survey presents more than 12 answer modalities to assess who was in the room with the informant during the activities or who accompanied the respondent.

4.3.2 Simultaneous Activities

60. The accuracy of time-use data depends on whether the survey instrument accounts for multitasking through the measurement of secondary activities.²⁴ The issue is of particular relevance in the domain of unpaid provision of household services.²⁵ Measurement of secondary activities allows to fully capture time devoted to different household tasks often done simultaneously (e.g. writing a work-related email and keeping an eye on children) that would otherwise be left out when recording only primary activities. Biases in estimates of time spent in unpaid provision of household services are, therefore, sensitive to the design of the survey instrument. Examples of how country practices account for secondary activities are shown in Box 4.
61. Measuring activities requires the inclusion of a set of rules for distinguishing primary from secondary activities (See Box 5 for illustrative examples). The UNECE Guide on Valuing Unpaid Household Service Work (2017) points out that ideally, all sequential activities should be recorded as primary, taking the time to report the starting and ending times and only true simultaneous activities would be reported as secondary. Proper guidance in training enumerators should highlight the difference between consecutive activities occurring in the same time-slot but at distinct time, and simultaneous activities occurring during the same time-slot but at the same time.

²⁴ In this context, multitasking refers to one individual engaging in different activities simultaneously.

²⁵ See for instance: Ironmonger D. S. (2003), [There are only 24 Hours in a Day! Solving the problematic of simultaneous time](#). Comparing Time. The 25th IATUR Conference on Time Use Research.

Box 4 Examples of country practices in measuring secondary activities

Overall, country practices in gathering data on secondary activities can be distinguished into two main groups: (i) practices employing a survey instrument dedicating one specific column to secondary activities, and (ii) practices employing a survey instrument depicting simultaneity alongside primary activities but through different symbols. Examples in the first group are the Pilot Diary Module in the Pre-Test PNAD Continuous in Brazil in 2009, and several independent TUS such as Australia TUS (2006), Bangladesh TUS (2012), Japan TUS using the full diary (2011), South Africa TUS (2010). In the second group, a number of countries captured secondary activities within the column dedicated to the time slot. An illustrative example is the time-use module attached to the Omnibus survey in the UK in 2005. Here secondary activities are recorded in the same way as a main activity but using ● instead of X.

Example of the time-use diary in the Omnibus Survey in the UK (2005)

Activity groups	Activity codes and descriptions (Also see notes on right hand page)	Early morning			
		6am 30	7am 30	8am 30	9am 30
Personal care	1 Sleeping 1	X	X		
	2 Resting (doing nothing, 'time out') 2				
	3 Washing, dressing/undressing, etc 3		X—X		
Eating, drinking	4 Eating or drinking/ having a meal (at home or away from home) 4			X X	
	5 Preparing food and drinks, cooking, washing up 5			X	
Housework and other household tasks	6 Cleaning, tidying house 6				
	7 Washing, ironing or mending clothes etc 7				
	8 Maintenance of house, DIY, gardening 8				
	9 Pet care (including walking the dog) 9				
	10 Travelling 10			X—X	
Travel	10a How you travelled (enter letter - see right page) 10a			P—P T—T	
	10b Type of trip (enter letter - see right page) 10b			E—P—P	
Work for paid job	11 Work for job (include paid and unpaid overtime and work brought home. Exclude lunch and other breaks) 11				X—X
Education and courses	12 Formal education 12				
	13 Recreational courses and study 13				
Voluntary work	14 Voluntary work for or on behalf of an organisation, charity or sports club 14				
	15 Caring for/looking after and playing with own children 15		●—●		

Few practices (Bolivia, Costa Rica, Guatemala and Mexico) have recorded secondary activities through a specific question rather than measuring them at each item level. For example, the time-use module attached to the Multipurpose Household Survey in Costa Rica (2004) investigated whether the informant dedicate time to the provision of household services through the following question: "Yesterday, how much time did you devoted to caring for children, ill and dependent persons at the same time as other activities?". The Time-Use Module attached to the National Survey on Living Conditions in Guatemala (2000, 2006, 2011) and the Time-Use Module attached to the Household Income and Expenditures Survey in Bolivia (2001) administered a concluding question asking the informant to register maximum four and three groups of simultaneous activities respectively.

Box 5 Priority rules for simultaneous and secondary activities

<i>Main Activity First Activity mentioned</i>	"If respondent report doing more than one activity at a time, they are asked to identify which one was the main primary activity. If none can be identified, then the interviewer records the first activity mentioned"	American TUS 2007
<i>Most important activity</i>	The first activity column was headed: "Most important activity in the period". The second activity column was headed: "The period was simultaneously used for"	Norwegian TUS 1980-81
<i>Longest activity</i>	Sometimes you may be doing two things at the same time. Please try and choose what your main activity was. For example, keeping an eye on children while doing housework should be recorded as "Cleaning house/tidying" rather than "Care of own children and play". If you can't choose between two or more activities record the one you did for the longest time as main activity"	OPCS Omnibus Survey, UK, 1995
<i>Most attention</i>	If you were doing more than two things, decide which two activities demanded most attention	Survey of Adolescent TUS and Well-being, Ireland, 1995
<i>Guidance by example</i>	If you were doing more than one thing at the same time, record the second activity in this column. For example, you may be watching television (main activity) and drinking tea or watching children (second activity). You must decide which the main activity is and which the second activity is.	UK TUS, 2001-2002

Source: UNECE (2017), [Guide on Valuing Unpaid Household Service Work](#). New York: United Nations

62. The ILO Review highlights that the recording of secondary activities is a main characteristic of independent TUS based on diary approaches (Table 11). Even though capturing simultaneous activities can help reduce recall bias, it does entail burden. Hence, diary-based modular approaches tend to use this design on a less frequent basis. Country practices adopting stylized questions and separately identifying secondary activities are rare. Among these, two approaches can in particular be identified. A general approach uses a single question at the end of the questionnaire asking the respondent about the activities that carried out at the same time. A more specific approach focused on activities carried out at the same time with childcare and care for dependent persons.

Table 11 Time-use sources accounting for simultaneity by type and method (2000-2016) (n=117)

	Independent survey	Module	Pilot	Total
Diary-based approaches	25	6	5	36
Stylised questions	1	5	0	6
Unavailable details	91	106	112	75
Total	117	117	117	117

Source: Authors' elaboration based on UNSD Time use data portal

63. Several challenges can occur when accounting for secondary activities. There is no consensus on how to measure time spent in secondary activities, how to analyse the “additional” minutes to the 1440 minutes of the 24-hour diary, and how to report secondary activities without violating the 24 hours’ constraint. The UN Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work (2005, p. 36) identifies a prevailing practice in reporting secondary activities that counts only one of the simultaneous activities. That is to say, in accounting for time spent in a day, only the time spent in the primary activity is counted while the sum of secondary activities may be counted and tabulated separately (See Box 6).

Box 6 Example on reporting simultaneous activities: Time-Use Survey of South Africa (2010)

South Africa conducted a stand-alone Time-Use Survey in 2010 on a national representative sample of approximately 30,000 dwelling units to provide information on the way in which different individuals spend their time, new information on paid and unpaid work, as well as a breakdown by sex of employment, subsistence work, casual employment and employment in the informal sector. A full time-use diary was administered to two eligible persons aged above 10 and living in the household. The diary recorded the primary and simultaneous activities, and location. Focusing on the measurement of simultaneity, the design allowed for recording 3 activities for each time slot (30 minutes), and it foresaw a specific column to investigate whether these activities were performed simultaneously or one after the other one with a dichotomous answer modality (yes/no). The Final Report the Time-Use Survey (South Africa Statistics: 2013) offers an example of how simultaneous activities may be reported. The figure below, for instance, indicates that providing physical care to children while watching TV is the most common combination of simultaneous activities in the domain of child care.

Most common combination of child care and other activities (10 years and above)

1st activity	2nd activity	Time slots
Physical care	Watch TV	802
Physical care	Cooking	511
Physical care	Eat & drink	397
Physical care	Socialise with family	344
Physical care	Clean dwelling	270
Physical care	Listen to radio	131
Physical care	Care of textiles	120
Supervision	Watch TV	119
Physical care	Socialise with friends	89
Supervision	Clean dwelling	55

Source: [A Survey of Time Use 2010](#), Statistics South Africa (2013)

64. Overall, the findings in this section indicate that sample designs for TUS tend to focus on cost-efficient strategies such as collecting TUS for all eligible household members over a single reference day. Less common, but nonetheless observed, is the use of sample designs in diary-based approaches that interview all eligible household members using a 2-day diary. While both approaches support the collection of TU on productive activities, the second approach would support in addition examination of intra-household and intra-personal differences in participation in different productive activities. While demand for data to support such in-depth analysis can be important for policymaking, its implementation requires important considerations for data collection. Indeed, TU practices collecting information using 2-day

diaries for the most part rely on mixed data collection modes that assume high literacy levels in the target population.

65. More variability is observed in the range of context variables generally included and in the coverage of simultaneous activities. In particular, the inclusion of context variables such as “for whom” and “paid/unpaid”, which are crucial to identify different forms of work, including in particular, unpaid provision of household services, is not a common practice. More so, their inclusion appears to be restricted to independent TUS. Differences are also observed in the rules used to specify which activities are to be considered as primary and which as secondary, as well as in the interpretation of the context variables and response options. The wide diversity of practices impacts the international comparability of existing TU data for capturing participation and volume of time spent in productive activities, in particular, as needed for monitoring purposes and to inform policy at national and global levels. Nevertheless, the review did identify examples of promising approaches for capturing context variables and simultaneous activities that could be further elaborated and tested to promote more consistent TU methodologies to capture productive activities in the future.

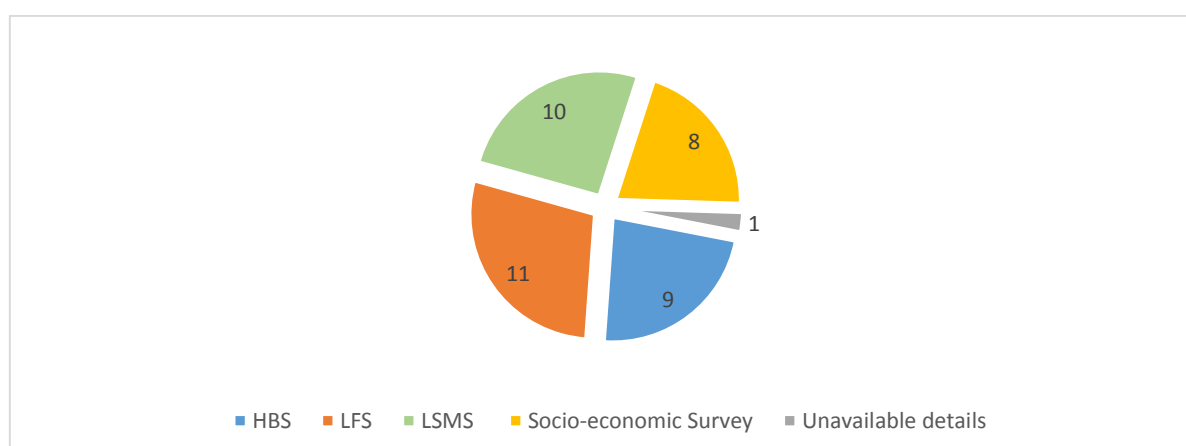
Section V: Modular time-use approaches

66. This section focuses on a more in-depth review of national practices in the use of modular TU approaches. The growing use of time use modules attached to various national household surveys is a trend of specific interest in the period 2000-2016.²⁶ The analysis covers both the typology of the parent survey as well as the structure and characteristics of the time-use module. Issues of integration among the two survey instruments are also addressed based on the available documentation.

5.1 Type of parent survey and survey methods

67. The ILO Review finds that among the 39 modular approaches, attaching a TUS module to a LFS is the most common practice (11), followed by Living Standards Measurement Survey (LSMS) and Household Budget Survey (BHS). Less common are practices conducting modular TUS together with socio-economic surveys (Figure 4).

Figure 4 Time-use modules by type of parent survey (2000-2016) (n=39)

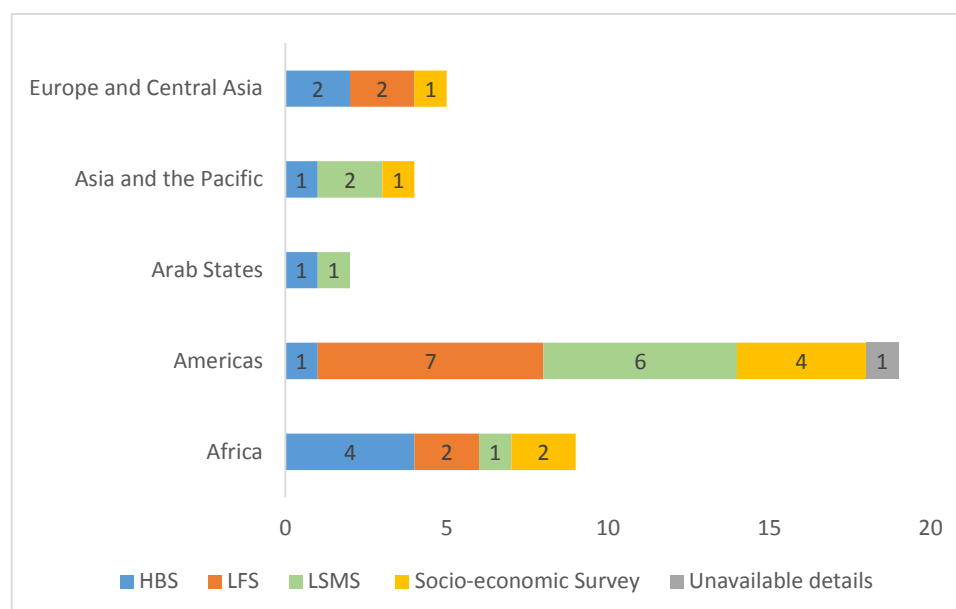


Source: Authors' elaboration based on UNSD Time use data portal

²⁶ In contrast, only 12 countries implemented 14 modular approaches between 1966 and 1999.

68. Use of a TUS module in combination with a LFS is most frequent in the Americas, and to a lesser extent in Africa and Europe and Central Asia. By contrast, none of the country practices in Asia and the Pacific and the Arab States used this source (see Figure 5).

Figure 5 Time-use modules by geographic region and type of parent survey (2000-2016) (n=39)



Source: Authors' elaboration based on UNSD Time use data portal

69. Between 2000 and 2016, the ILO Review identifies 21 modular practices implementing diary-based approaches and 17 modular practices implementing stylized questions to measure time use in paid and unpaid activities (Table 12). Among diary-based approaches, HBS and socio-economic surveys are the most common parent survey. This is likely due to the possibility of administering a diary in a separate visit. By contrast, time-use modules using stylized questions are more common with LSMS and LFS. Based on the existing documentation, it appears that the TU modules were generally administered together with the parent survey in a single visit.

Table 12 Time-use modules by typology of parent survey and methods (2000-2016) (n=39)

	Diary-based approaches	Stylized questions	Unavailable details	Total
Household Budget Survey	8	1	0	9
Labour Force Survey	5	6	0	11
Living Standards Measurement Survey	2	8	0	10
Socio-economic Survey	6	2	0	8
Unavailable details	0	0	1	1
Total	21	17	1	39

Source: Authors' elaboration based on UNSD Time use data portal

70. Based on the information available, two main strategies appear to be used when attaching a time-use module to a LFS. On one hand, the majority of cases (6 practices) used stylized TU questions (a less costly but also less accurate method). On the other hand, a number of cases (5 practices) used full time-use diaries (more accurate than stylized questions but more costly and burdensome). Interestingly, despite the wide agreement on the usefulness, accuracy and feasibility of LTUDs, none of the practices identified used this approach in combination with an LFS (see Table 13).²⁷ Indeed, country experience with the use of Light Time-Use diaries is overall rather scarce (UNECE: 2013).²⁸

5.1.1 Modular diary-based approaches

71. Among time-use modules adopting diary-based methods, the use of a full diary is the most common practice (Table 13). Given the high respondent burden associated with this method, the full diary has been administered mainly alongside parent surveys that covering similar information at the person level, such as LFS and Socio-economic surveys. Existing survey documentation also reveal that full diaries were mainly administered through interviewer-assisted mode with reference to the previous day. By contrast, parent surveys that make extensive use of recall for detailed information, for instance, for expenditures over a long reference period, such as HBS or LSMS, tend to adopt a light diary as module to collect time-use data.

Table 13 Time-use diary-based modules by type of diary (2000-2016) (n=21)

	Full diary	Light diary	Unavailable details	Total
Household Budget Survey	2	5	1	8
Labour Force Survey	5	0	0	5
Living Standards Measurement Survey	0	2	0	2
Socio-economic Survey	5	1	0	6
Total	12	8	1	21

Source: Authors' elaboration based on UNSD Time use data portal

72. Overall, five sources attached a full time-use diary to a LFS. Such design started to be implemented relatively recently in Argentina (2005), Belgium (2013/2014), Brazil (2009), Mauritius (2003), and the United Republic of Tanzania (2014). The underlying common features of this practice include: (i) coverage of simultaneous activities, ranging from one to five parallel activities; (ii) measurement of context variables, with the simplest design capturing only location, followed by designs capturing both location and social context (e.g. with whom), and more complex designs also covering a wider set of contextual variables including means of transport and paid/unpaid nature of the activity.

²⁷ See: [ILO Department of Statistics, \(2018\) Statistics on Work – Brief no. 1](#) for further discussion.

²⁸ Given the small coverage of country practices (8) employing a Light Time-Use Diary (LTUD), further national practices reported by UNECE have complemented the identification list for modular TUS diary-based methods. Moreover, the inclusion of stand-alone TUS using a pre-coded diary has enriched the analysis of this specific group of practices. Overall, this review identifies 16 country practices implementing a LTUD, none of which has been conducted together with a LFS.

73. Four practices administered one-day diary and only the Belgian experience shed light on collecting data using a diary for two specified days (one weekday and one weekend day) through a modular approach. The latter design also gathered time-use information from all individuals in the household aged 10 and above (see Box 7), whereas the most common practice has been to select one respondent in each household within a sub-sample of households and administer a recall interview

Box 7 Gathering time-use data with reference to two diaries/days: the experience of the Belgian LFS (2013/2014) in implementing HETUS Guidelines

The [Guidelines for the Harmonized European Time-Use Surveys](#) (HETUS) (2008) recognize that using one diary day is acceptable in view of costs and respondent burden but it recommends gathering time-use data on two days, one week-end day (i.e. Saturday – Sunday) and one weekday (i.e. Monday – Friday). A second recommendation foresees linking the diary to a weekly schedule of working time for measuring actual hours worked and complementing the LFS estimations.

Belgium applied such survey design coupled with the LFS in 2013-2014 (BTUS). The Technical Report of the survey provides an in-depth description of the methodology. It states (p. 4) that after completing the LFS13 questionnaires, households were asked if they were willing to participate in BTUS13. If agreed, all household members of at least 10 years old were given two diaries, one for a weekday and one for a weekend day, as well as a drop-off questionnaire and a work grid for the working household members. In order to ensure a balanced spread of all possible ordered combinations of one weekday and one weekend day, Statistics Belgium developed an algorithm to automatically determine such a combination randomly as soon as the household agreed to collaborate. Finally, all household members were asked to complete the two diaries at the same two diary days. After the combination of weekday and weekend day was communicated to the household, household members could delay this specific combination with a maximum of three weeks. The Technical Report also highlights (p. 13) that all respondents filled in one week and one weekend day but there were very few respondents (11) with only one day matching with the rest of the household, and 27 respondents with two non-matching days.

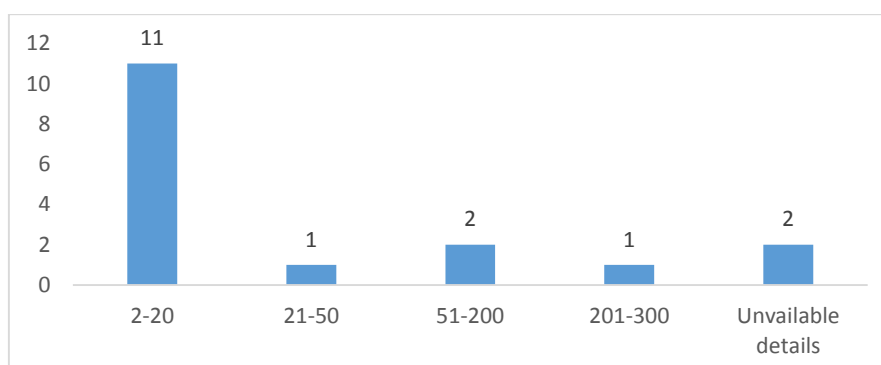
74. Use of light diaries with pre-coded activity lists were identified in 8 practices. A deeper examination of the approaches used in the light-diary modules revealed important differences in the time intervals and activity lists used. The common practice in less developed context was to use a one-hour time slot, whereas 10-15 minutes intervals were used in more developed settings. Furthermore, Madagascar included a question to assess whether the reference day was an overall atypical day because of national or religious holidays, and whether the reference day showed any peculiarities for the individual (e.g. a working day, travel, ceremony, etc.). The list of activities tended to range from 11 to 77 activity titles. None of these TU modules foresaw to capture simultaneous activities and contextual variables in their design. The only exception is the time-use modules of the Omnibus Survey in the UK (2005), which specifically accounted for simultaneity and disaggregated mode and purpose of travel, whereas the remaining country practises treated travelling as a generic activity without disentangling the purpose (i.e. for work or school).
75. Based on survey documentation, retrospective leave-behind and self-compiled diaries appear to be the main method for data collection for the majority of LTUD (not shown). Such methodological choice seems to be facilitated by the integration of the module with a multi-visit data collection strategy, which concentrated field work in the same geographical area over a prolonged period of time (usually several weeks) to allow for multiple visits to the same

household. An interviewer administered time diary was the preferred method only in the UK (2005). In this source, an explicit preference has been included so that the diary was to be administered by the enumerator rather than completed by respondents in view of quality assurance.

5.1.2 Modular stylized questions

76. Modules adopting stylized questions show a higher degree of integration with the parent survey in comparison to diary-based modular approaches. For instance, time-use modules adopting stylized questions were in the majority of cases (11 sources) administered to the same sample of the parent survey and alongside other modules, with the only exception of Mexico that used a subsample to apply the time-use module in a separate visit (not shown). Overall, time-use statistics were collected from all household members that meet the age requirements.²⁹ In general, the criteria regarding the minimum age limit and informant were the same as the labour force module (12 sources), ranging between 5 and 18 years (not shown). Proxy respondents were allowed in almost all countries, except Bolivia, Dominican Republic, and Ecuador where the information was collected only through direct respondents.
77. The most common data collection mode (12 out of 17) was Paper and Pencil Interview (PAPI). Computer Assisted Personal Interviewing (CAPI) was conducted in Colombia, while only Switzerland conducted Computer Assisted Telephone Interviewing (CATI). Uruguay used a mixed mode method, with CAPI in Montevideo and PAPI in the rest of the country (not shown).
78. Country practices in modular stylized questions vary. The ILO Review identifies two main patterns (not shown). The most common pattern investigates first whether the respondent participated in the activity (e.g. *Yesterday, did you do any unpaid household work?*) and if so, it then proceed asking how much time he/she spent in that activity. The second pattern requests the respondent only to estimate the volume of time dedicated to specific activities. Overall, the number of questions – including the question on participation – ranges between 2 and 265 (Figure 6). Although the most common practice (11) was to collect information on time-use using a module with 2 to 20 stylized questions, a small number of countries (Dominican Republic, Mexico, and Uruguay) employed a much larger number of questions (50+).

Figure 6 Number of question in the time-use modules using stylized questions (2000-2016) (n=17)



Source: Authors' elaboration based on ILO desk review of methodological documentation

²⁹ Only Switzerland selects one respondent for the module.

79. The most common reference period for all measurement domains is the use of “one week”, implemented as the calendar week before the interview, the last seven days before the interview, or a typical “per week” (Table 14). It follows the use of a day or 24-hour, implemented as the day before the interview. In Costa Rica, the reference period was the last two days before the interview if the day before the interview was a Monday. Within the domain of own use production of goods and unpaid domestic services, Malawi used both reference periods: one day and the last seven days before the interview. Rare is the adoption of the “last four weeks” before the interview to measure time spent in unpaid volunteer, trainee and other unpaid work.

Table 14 Type of reference period for productive domains in modular stylized questions (2000-2016) (n=17)

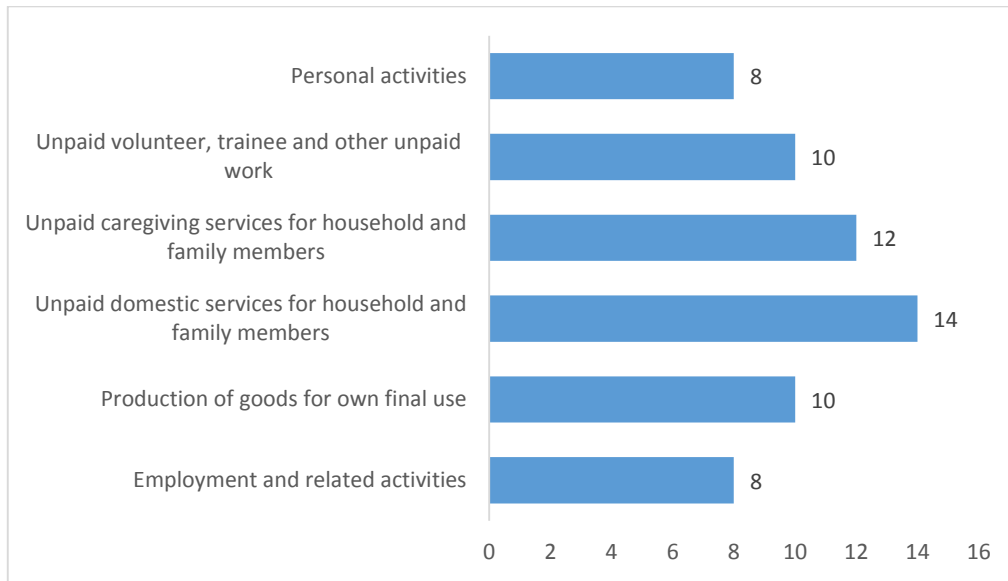
Reference period	Employment and related activities	Production of goods for own final use	Unpaid household domestic services	Unpaid household caregiving services	Unpaid volunteer, trainee and other unpaid work
Day					
1 day before the interview	1	2	4	3	2
1 day before the interview (If Monday, 2 days before the interview)	1	1	1	1	1
Last working day and last free day	1	1	1	1	1
One week					
Last 7 days before the interview	2	2	1	1	1
1 calendar week before the interview	0	3	3	2	2
1 calendar week before the interview (Monday to Friday, and Weekend)	1	1	1	1	1
Per week	2	1	3	2	1
Four weeks					
4 weeks before the interview	0	0	0	0	1
15 days before the interview	0	0	0	0	1
Not applicable	7	5	1	3	5
Missing information	2	2	3	3	2
Total	17	18*	18*	17	18*

Source: Authors' elaboration based on ILO desk review of methodological documentation

* Note that one country may have used more than one reference period within the same measurement domain.

80. Unpaid domestic services for the household and family members, and unpaid household caregiving services are two most common productive domains measured through stylized questions in 14 and 12 sources, respectively (Figure 7). The measurement of own use production of goods and volunteer, trainee and other unpaid work is the second most common pattern. Over half of the countries (10) dedicated questions to these productive domains. The measurement of employment and personal activities is less common in TU modular approaches using stylized questions (see Figure 7).

Figure 7 Number of countries measuring productive domains through modular stylized questions (2000-2016) (n=17)



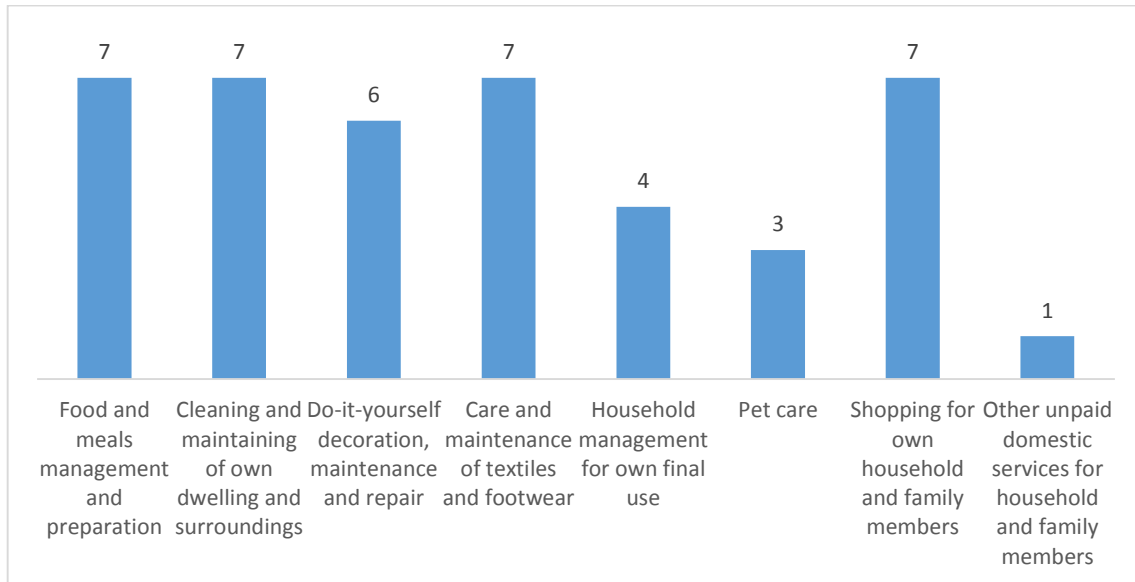
Source: Authors' elaboration based on ILO desk review of methodological documentation

81. The ILO Review notes that the measurement of employment in modular TU approaches using stylized questions is not a common practice. This is closely related to their inclusion in parent surveys that cover measurement of employment and job search in dedicated modules. This is particularly the case in Labour Force Surveys, but also in socio-economic surveys that include a labour force module generally before the TU module. Thus, TU in these practices serves to collect time-use information on additional activities not covered in the previous modules. In the case of Malawi and Nepal, the module on time use was fully integrated into the Labour Force Section.³⁰
82. Among countries including questions on paid work (8) in modular approaches, the number of questions is limited, ranging between one and six, with the exception of Dominican Republic where the upper limit was 53 questions. Most of the countries for which the domain was included, measured participation in a separate question and included questions regarding commuting time.
83. Nearly all countries collect information in the domain of unpaid household domestic services. The number of questions is greater than for other domains, ranging between 1 and 119. In most cases, participation was measured in a separate question, and two countries included one global question at the beginning to measure participation in all related-activities. Time spent travelling, especially for shopping and pay bills, was measured in a separate question only in Uruguay. Costa Rica mentioned within a question that the informant should take into consideration travelling time when estimating the time spent. In terms of ordering of the domains, a specific pattern emerges. That is, the domain of unpaid household caregiving services is usually placed after questions investigating time spent in unpaid domestic services.

³⁰ Malawi included specific questions, which allow identify employment related to agriculture, non-agriculture and part time or ganyu labour. The word 'ganyu' is widely used in Malawi to describe a range of short-term rural labour relationships, the most common of which is piecework weeding or ridging on the fields of other smallholders, or on agricultural estates.

84. Within the domain of unpaid household domestic services, over half of the countries included separate questions to measure participation and time spent in specific related activities (Figure 8). Shopping for own household, food and meals management and preparation, cleaning, and care of textiles are the most frequently activities measured within the domain of unpaid household work. In contrast, time spent in household management as well as pet care are measured on a less frequent basis.

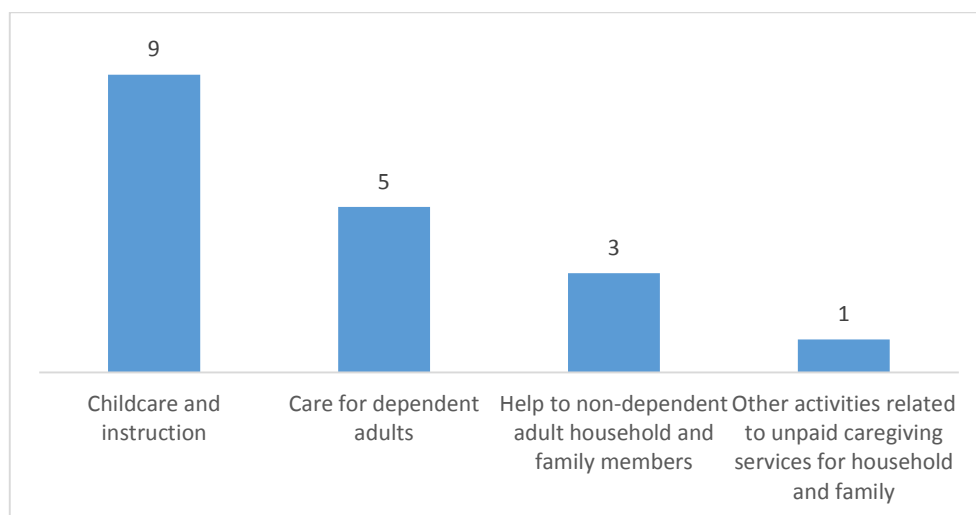
Figure 8 Specific activities in the domain of unpaid household services (2000-2016)



Source: Authors' elaboration based on ILO desk review of methodological documentation

85. In the domain of unpaid caregiving services for household and family members, most countries specifically ask the respondent about time spent in childcare and instruction, and care for ill, elderly and disability persons (Figure 9). The time spent travelling, especially to accompanying persons, was measured in a separate question only in Mexico. Furthermore, Argentina mentioned within a question that the informant should take into consideration travelling time in his/her estimated time.

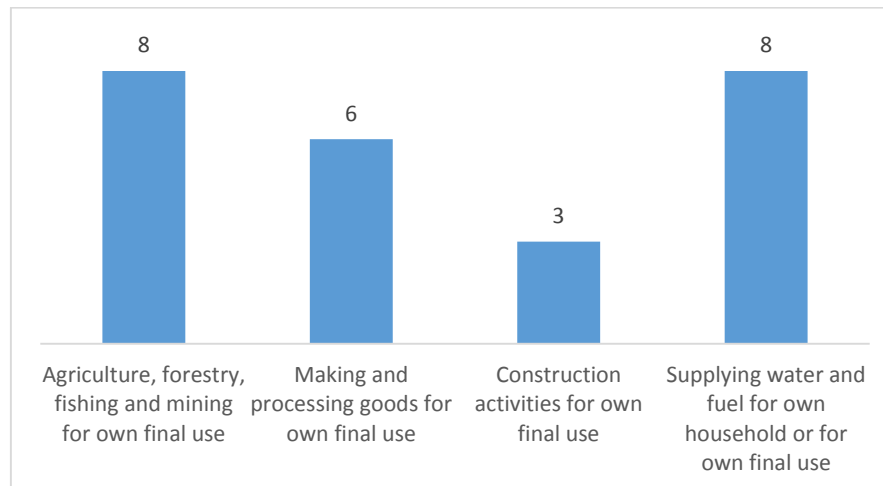
Figure 9 Specific activities in the domain of unpaid household caregiving services (2000-2016)



Source: Authors' elaboration based on ILO desk review of methodological documentation

86. In the domain of own provision of goods, most of the questions on specific items were related to agriculture, hunting and fishing, fetching water and gathering firewood. Six sources measured making and processing goods for own final use and only three country practices specifically devoted questions to the measurement of time spent in construction activities for own final use (Figure 10).

Figure 10 Specific activity in the domain of own use production of goods (2000-2016)



Source: Authors' elaboration based on ILO desk review of methodological documentation

87. Overall, an in-depth review of modular TU approaches reveals that these are most commonly attached to an LFS followed by LSMS and HBS. Less common is the use of TU modules in Socio-economic and other general surveys. Two different data collection strategies tend to be used in modular TUS. On one hand is the use of diaries, which tend to be paired with parent surveys conducted over multiple visits. On the other hand is the use of stylized TU questions which appear to be more commonly applied with the parent survey during a single visit. In LFS, the most common practice appears to be using either a full diary, or altogether stylized questions. No use of Light TU-diaries attached to an LFS were identified by the Review. More so, important differences are observed in the range of activities covered and level of detail, the reference period and/or time-interval and other important data collection features, both in modular light-TUS and stylized questions. Nevertheless, a strong emphasis on collecting information on productive activities is observed.

Concluding remarks

88. The ILO Review of country practices in time-use measurement indicates that collection of TU data is not widespread despite its primary role in measuring unpaid productive activities in particular. Regional data gaps are particularly severe in Africa and the Arab Regions and among low income countries. Furthermore, the Review found that the frequency of data collection of time-use data is highly sporadic and time-series for the same country are rarely available. However, it is possible that additional country practices may exist but are not reflected in the international repository of time-use measurement.

89. The Review concludes that international comparison of time-use data suffers from a lack of uniform application of methods. Even though independent Time-use Surveys tend to rely on diary-based methods, differences prevail in the designs, reference periods and classifications

hampering comparability among countries. Similarly, approaches based on stylized questions show significant differences in the level of details, and reference periods asked about activities performed. Such heterogeneity in applied methods also affects comparability of time-use data across countries.

90. The Review welcomes the increase use of modular approaches in the period 2000-2016 as a promising feature of time-use measurement. This trend appear to be particular beneficial in less developed settings. Time-use modular approaches can offer a valid alternative – but not substitute – to independent TUS. Such type of source is particularly cost-effective when measurement objectives are related to estimating the average time spent in selected productive activities rather than documenting time-spent across detailed domains. For example, indicators related to average time spent in given domain, such as SDG 5.4.1 on unpaid household provision of services, could be produced using modular approaches that can be attach to a household survey on a regular basis, as part of a strategy that includes conduct of in independent TUS covering all domains, on a less frequent basis.
91. Despite the potential use of modular TUS approaches, limited international guidance exist on their design and use. In particular, to promote regular measurement of participation and time-spent in productive activities, requires the inclusion of key contextual variables as well as the coverage of simultaneous activities. These two features, however, appear to be seldom included in TU data collection, and when included, practices tend to be very diverse.
92. More so, the Review highlights the overall limited use of Light Time-Use Diaries and their lack of use as attachment to an LFS. Rather, TU modules attached to a LFS appear to rely either on the use of full time use diaries (more accurate than stylized questions but more costly and burdensome) or on stylized questions (a less costly but also less accurate method).
93. LFS could be well positioned to act as parent survey when measurement objectives focus on estimating the participation and time-spent in selected productive activities. LFSs are conducted on fairly regular basis and support detailed measurement of paid productive activities (i.e. employment). This information (in particular on selected characteristics of the main/second/other job such as type of establishment, status in employment, occupation, industry) can be used to facilitate collection on TU data using a light-diary, for example, with a focus on selected productive activities as needed to support high-level monitoring and policymaking. This Review concludes that there is great scope for exploring potential synergies between LFS and modular TU approaches as part of a broader data collection strategy to improve the availability and frequency of data on participation and time-spent in paid and unpaid forms of work.
94. In accordance with the 19th ICLS Resolution, more collaborative work is needed to improve the availability of better data on productive activities and different forms of work, to support international comparability and to identify feasible options in particular for countries with limited or no data in this area. In particular, there is a need for methodological work including testing to develop light time use modular approaches suitable for attachment to LFS that are cost-effective and at the same time, minimize potential sources of measurement error. This review has documented useful national practices and experiences that can be used to inform this important methodological work.

References

- Anderson and Reynolds. (2016) [Measuring Time Use](#). EPAR Research Brief no. 318.
- Bonke. (2005) [Paid work and unpaid work: diary information versus questionnaire information](#). Social Indicators Research. Vol. 70, pp. 349 - 368.
- Budlender. (2007) [A Critical Review of Selected Time Use Surveys](#). United Nations Research Institute for Social Development. Gender and Development Programme Paper Number 2.
- Data2X. (2018) [Invisible No More? A Methodology and Policy Review of How Time Use Surveys Measure Unpaid Work](#).
- Esquivel, Budlender, Folbre, Hirway. (2008) [Explorations: Time-Use Surveys in the South](#). Feminist Economics. Vol. 14, pp. 107 - 152.
- Frazis and Stewart. (2012) [How to Think about Time-Use Data: What Inferences Can We Make about Long- and Short- Run Time Use from Time Diaries?](#). Annals of Economics and Statistics. No. 105/106, pp. 231-245.
- Hirway. (2010) [Time-Use Surveys in Developing Countries: An Assessment](#) in Unpaid Work and the Economy: Gender, Time Use and Poverty in the Global South, Palgrave Mcmillan.
- Hofferth, S. (1999). [Family reading to Young Children: Social Desirability and Cultural Biases in Reporting](#). Paper presented at a workshop on the Measurement and Research on Time Use, Committee on National Statistics, National Research Council, Washington D.C.
- ILO and UNDP. (2018) [Time-use surveys and statistics in Asia and the Pacific. A review of challenges and future directions](#). Bangkok: ILO.
- ILO. (2013) 19th International Conference of Labour Statisticians. [Resolution I concerning statistics of work, employment and labour underutilization](#). Geneva: ILO.
- Kan and Pudney. (2008). [Measurement Error in Stylized and Diary Data on Time Use](#). Sociological Methodology, Vol. 38, pp. 101 - 132.
- Robinson, John P. (1985). "The Validity and Reliability of Diaries versus Alternative Time Use Measures." In Time, Goods, and Well-being, eds. F.T. Juster and F.P. Stafford, pp. 33–62. Ann Arbor, MI: Institute for Social Research.
- Schulz and Grunow. (2012) [Comparing Diary and Survey Estimates on Time Use](#). European Sociological Review, Vol. 28, pp. 622 - 632.
- Seymour, Malapit, Quisumbing. (2017) [Measuring Time Use in Development Settings](#). World Bank Policy Research Paper 8147.
- Stiglitz, Sen, Fitoussi. (2009) [Report by the Commission on the Measurement of Economic Performance and Social Progress](#).

UNDP. (2015) [Time Use Across the World: Findings of a World Compilation of Time Use Surveys. Human Development Report Office](#). Background Paper. New York: United Nations Development Programme.

UNECE. (2013) [Guidelines for Harmonizing Time-Use Surveys](#). New York: United Nations.

UNECE. (2017) [Guide on Valuing Unpaid Household Service Work](#), New York and Geneva: United Nations.

United Nations. (2005) [Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work](#). New York: United Nations.

UNSD. (2017) [International Classification of Activities for Time Use Statistics 2016 \(ICATUS 2016\)](#). New York: United Nations Department of Statistics.

UN Women (2018), [Turning promises into action: gender Equality in the 2030 Agenda for Sustainable Development](#). New York: UN Women.