International
Labour
Organization

▶ **Own-use provision of services: Measurement guide**

Guidance on implementing the ILO add-on module for *own-use provision of services* in national labour force surveys.

ILO Department of Statistics

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[1]ILO 2023a, 2023b, 2023c
[2]ILO 2023d: 23

Abbreviations

CAPI	Computer assisted personal interviewing
CATI	Computer assisted telephone interviewing
CAWI	Computer assisted web-based interviewing
CAUTAL	Classification of time-use activities for Latin America and the Caribbean
CTUR	Centre for time-use research
EG-TUS	Expert group on innovative and effective ways to collect time-use statistics
GDP	Gross domestic product
HETUS	Harmonised European time-use survey
ICATUS	International classification of activities for time-use statistics
ICLS	International conference of labour statisticians
ICT	Information or communication technology
ILO	International Labour Organization
ISCO	International standard classification of occupations
ISWGNA	Intersecretariat working group for national accounts
LFS	Labour force survey
LMIC	Low- and middle-income country
MTUS	Multinational time-use study
NSO	National statistics organisation / office
OPS	Own-use provision of services
PAPI	Paper assisted personal interviewing
QI	Questionnaire item
SDG	Sustainable development goals
SNA	System of national accounts
TU	Time-use
TUS	Time-use survey
UDCW	Unpaid domestic and care work
UN	United Nations
UNSC	United Nations Statistical Commission
UNSD	United Nations Statistics Division
WHO	World Health Organization

▶ 1. Introduction

Own-use provision of services (OPS), also termed "unpaid domestic and care work" includes a wide range of activities and responsibilities. It includes care for children and for adults with disabilities, illness, or age-related frailties, as well as routine housework, minor household repairs and decoration, and household management. A defining feature of OPS is that it is undertaken *for own final use.* That is, it is performed for oneself and/or for one's household or family members, without (expectation of) remuneration[3].

OPS was first brought within scope for official labour statistics in October 2013, following the endorsement of new international statistical standards by the 19th International Conference of Labour Statisticians (ICLS). These standards set out a comprehensive conceptual framework and attendant reference definitions to underpin production of statistics on OPS, alongside other "forms of work", in national labour force surveys (LFS). In the years since the 19th ICLS, the measurement of OPS has been accorded new priority in official statistics, reflecting renewed attention to the topic of unpaid domestic and care work in international and national policy circles.

This guide summarises the ILO's current recommendations for the measurement of OPS in national labour force surveys (LFS). Model LFS 'add-on' modules, explanatory notes, and guidance for national adaptation are included in the appendices to the guide. The recommendations contained in this guide are aligned to the 19th ICLS statistical standards, and to other relevant international standards, including the System of National Accounts (SNA) 2008[4] and the International Classification of Activities for Time-use Statistics (ICATUS) 2016[5]. The recommendations are also consistent with the UN Statistical Division's (UNSD's) updated guidance for the production of time-use statistics[6], and with guidance on the production of SDG indicator 5.4.1 ("the proportion of time spent in a day on unpaid domestic and care work by men and women")[7].

In developing this guide, the ILO partnered with National Statistical Organisations (NSOs) and independent research institutes to conduct a series of pilot tests. Piloting took place in three countries, between 2021 – 2023. It combined qualitative and quantitative tests to target key evidence gaps. This work informed refinements to the module's design and content, as well as recommendations around survey administration / fielding.

This guide has been developed for implementation in low- and middle-income countries (LMICs)[8]. It is designed to support NSOs to produce statistics on OPS when resource constraints or other considerations impede an independent time-use survey. The modules may also be appropriate when there is demand for interim statistics between decennial or quinquennial independent time-use survey rounds.

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[3]ILO (2013a)
[4]ISWGNA (2008)
[5]UN (2021)
[6]This guide is aligned to UNSD forthcoming (2024) updated international guidance on the production of time-use statistics, prepared by the United Nations Expert Group on Innovative and Effective Ways to Collect Time-Use Statistics (EG-TUS)
[7]UN (2023)
[8]For detailed reviews of considerations, issues, and challenges for time-use measurement in LMICs, see Esquivel, Budlender, Folbre, & Hirway (2008), Antonopoulos & Hirway (2009), Seymore, Malapit, & Quisumbing (2020), Charmes (2017, 2020).

▶ 2. Relevance of statistics on own-use provision of services

The production of official statistics on OPS has relevance for a wide range of public policy areas, especially when collected alongside detailed information on persons' labour force participation and employment situation.

In the past, OPS work was accorded low priority in official statistics, reflecting a broader preoccupation with market-oriented production. Over time, the absence of data on OPS led to blind spots and biases in economic and social analysis and evidence-based policy[9]. To this extent, the production of official statistics on OPS, and their uptake for policy and planning purposes, serves as an important corrective.

Data on OPS are particularly relevant for the design and monitoring of policies targeting gender-based inequities within societies. Stark gender-based divisions in the distribution of OPS work continue be observed in all regions of the world, with women and girls undertaking the major share of such work[10]. The existence – and persistence – of gender-based inequities in the division of OPS represents both a cause and effect of women's socio-economic marginalisation and adverse incorporation. Labour markets exemplify these wider tendencies. Heavy and unequal responsibilities for OPS represent a major barrier to women's labour force participation, and limit access to decent work and to workplace progression[11]. The effects tend to be more pronounced for the poorest in society, who lack options to outsource OPS responsibilities to the market and/or to invest in timesaving domestic appliances.

Women's disproportionate responsibility for OPS work is sometimes justified in terms of essentialist, and essentialising, notions purporting biological grounds for social divisions of labour. Such explanations tend to classify nurturing and caring behaviours as "female traits". These stereotypes can be pervasive, spilling over from the "private / domestic" to the "public" realm, with women disproportionately occupying roles in paid care work (care employment). Women's occupational segregation in traditionally under-valued and under-paid sectors such as care work further intensifies gender wage gaps[12].

Gender-based inequalities in OPS, in paid care work, and in the wider world of work are deeply inter-related[13]. As such, progress towards gender equality in labour markets and employment situations depends on parallel progress to address women's and girls' unequal OPS burdens. These interdependencies are increasingly recognised and acknowledged[14]. The ILO's influential 5R framework for decent work promotes efforts to recognise, reduce, and redistribute unpaid care work[15], alongside efforts to reward paid care work and to extend and guarantee representation to paid care workers[16]. The

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[9]See, for instance, Benería (1992), Wood (1997), Waring (1988, 1999, 2003), Esquivel (2011), Stiglitz, Sen, and Fitoussi (2009).
[10]ILO (2022)
[11]ILO (2022)
[12]ILO (2019), WHO & ILO (2022)
[13]ILO (2018)
[14]ILO (2023c)
[15]The influential "recognize, reduce and redistribute" model as it relates to unpaid care work was first developed by Diane Elson in 2009. See Elson (2017), note 11.
[16]ILO (2018: 25)

production of OPS statistics is a vital first step for the recognition, reduction, and redistribution of unpaid care work[17]. Data on OPS can directly inform policies to expand labour market participation, to promote gender equality in the workplace, to address gender pay-gaps, decent work deficits, excessive work burdens, and time poverty.

Data on OPS can also inform wider investments in the care economy[18], an area that is increasing in prominence, amidst reconfigurations in the social organisation of care and growing pressures on care provision, sometimes expressed as a "crisis of care"[19]. Data can also directly inform investments in public infrastructure and basic services (e.g., piped water and sanitation, electricity, cooking fuel, public transport), to reduce or redistribute OPS work. Over the longer term, successive rounds of data can inform monitoring, evaluation, and cost-benefit analysis of policy changes and related investments.

Data on OPS – in combination with other data – can also support valuation exercises, whereby the contribution of OPS work to the national economy is quantified in monetary terms. Valuation of OPS can permit transitions from household-based provision of services to market-based provision to be monitored, with important implications for the interpretation of national GDP figures, and for international comparability of the same[20].

Demand for national statistics on OPS has undergone a major resurgence in recent years. This guide has been developed to support NSOs to meet this growing demand for high quality and practicable data on a vital, but neglected, site of work.

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[17]Data from time-use surveys and modules are the recommended source for the monitoring of SDG 5 (UN 2023). Additionally, time-use data provide inputs for monitoring the wider 2030 Agenda for Sustainable Development. See ECLAC & UNSD (2020) for a review of the potential for time-use data to inform SDG monitoring.
[18]ILO (2023c)
[19]Fraser (2016)
[20]Stiglitz, Sen, and Fitoussi (2009).

▶ 3. Key concepts

The 19th ICLS standards provide the underpinning concepts and attendant reference definitions for the production of statistics on OPS in national LFS. This section briefly summarises the concepts of work and OPS, as set out in those standards.

3.1. Work

In October 2013, the 19th ICLS adopted a new resolution on international standards "concerning statistics of work, employment, and labour underutilization"[21]. These standards superseded those adopted under the 13th ICLS Resolution "*concerning statistics of the economically active population, employment, unemployment and underemployment*"[22], which had set the scope for labour statistics for over 30 years.

The 19th ICLS standards introduced an internationally agreed statistical definition of "work" as a reference concept. Under this definition, work "*comprises any activity performed by persons of any sex and age to produce goods or to provide services for use by others or for own-use*" [23]. This definition encompasses all paid and unpaid productive activities and applies regardless of the (in)formality or (il)legality of the sector and status of the work, or the economic unit in/for, which it is performed.

These standards are especially notable for extending the remit of labour statistics to encompass work activities that fall outside of the system of national accounts' (SNA) production boundary but within the broader SNA general production boundary[24].

All work (i.e., all production of goods or provision of services) falls within the SNA general production boundary. This means that, in macro-economic terms, all work is recognised as economically productive. All non-work (i.e., all activities that do not involve production of goods or provision of services) falls outside of the SNA general production boundary. In the case of non-market-oriented activities, this dividing line centres the market-mediated delegability of the activity in question. Activities that fail to meet this "third-person criterion"[25] (i.e., activities that cannot be performed by another person on one's behalf, e.g., sleeping, learning, recreation) fall outside of the general production boundary[26].

While the SNA general production boundary recognises all work as economically productive, a narrower, "production boundary" determines which economically productive activities are included – and which excluded – in estimates of core macro-

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[21]ILO (2013a)

[22]ILO (1982)

[23]ILO (2013a: 3,7)

[24]The 19th ICLS concept of work is aligned to the General production boundary as defined in the System of National Accounts 2008 and its concept of economic unit that distinguishes i. market units (i.e., corporations, quasi-corporations, and household unincorporated market enterprises); ii. non-market units (i.e., government and non-profit institutions serving households), iii. households that produce goods or services for own final use.

[25]The "third person criterion" was originally developed by Margaret Reid (1934:11), formulated as follows "If an activity is of such character that it might be delegated to a paid worker, then that activity shall be deemed productive".

[26]Certain activities are excluded from the general production boundary on grounds other than the third person criterion. These include begging and stealing, and "self-care" activities (e.g., personal grooming, health, hygiene).

economic indicators, including gross domestic product (GDP)[27]. Such indicators occupy a central role in public policy, planning, and budget decisions, focussing attention and resources on a sub-set of economically productive activities.

Prior to the introduction of the 19th ICLS standards, labour statistics' coverage of work activities was identical with the narrower of the two SNA production boundaries. This covers all work performed for pay or profit, as well as selected unpaid work activities, (unpaid traineeships / apprenticeships, organisation-based volunteer work, direct volunteer work to produce goods, and own-use production of goods).

▶ **Figure 1: 19th ICLS forms of work framework, alignment to the national system of accounts (SNA)**
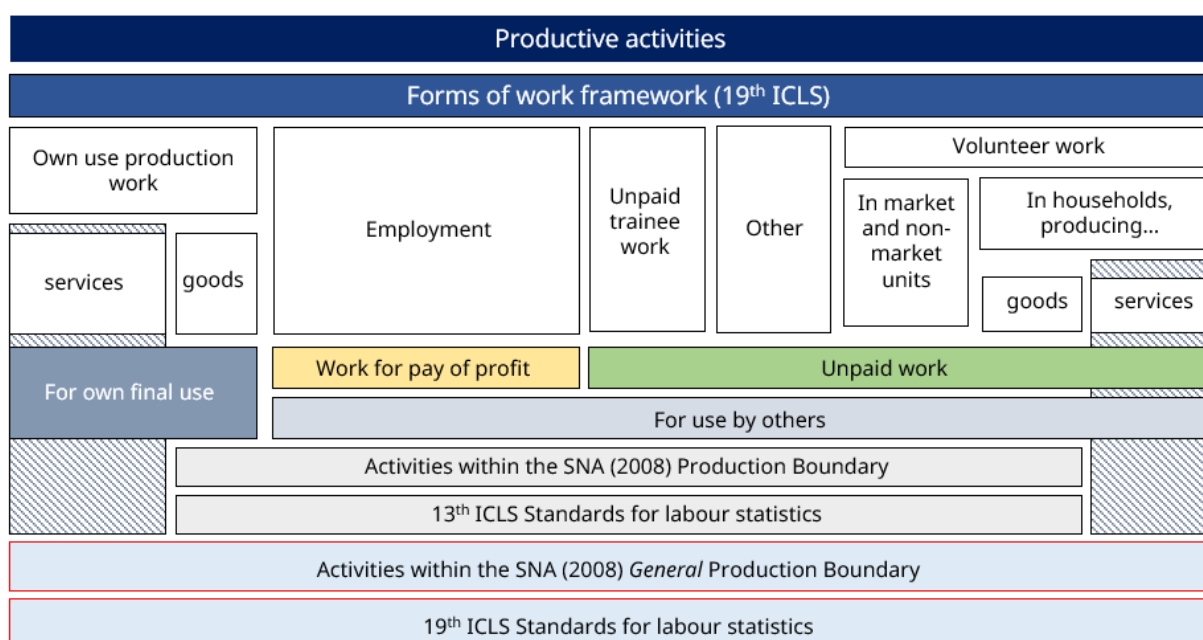
Unpaid household services

Source: Adapted from 19th ICLS Resolution I: Resolution on work, employment and labour underutilization

With the introduction of the 19th ICLS, the remit of labour statistics was extended to recognise all work as eligible for coverage in labour statistics. This resulted in a realignment of labour statistics to the SNA general production boundary, bringing unpaid household services work within scope for labour statistics.

In expanding the scope of labour statistics to recognise all work, the 19th ICLS standards also narrowed the concept of "employment" for the purpose of labour force statistics (to encompass only "work performed for pay of profit"). Under the previous (13th ICLS) standards, the concept of employment was expansive, collapsing all activities within the SNA (2008) production boundary in a single "employment" category[28].

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[27]While highly stable, the boundary is not immutable – previously excluded economically productive activities have been admitted within the production boundary in the past. Notably, the 1993 SNA expanded the scope of subsistence production work (own use production of goods) admitted to the production boundary to include water collection for own-use, production of clothes and handicrafts *entirely* for own-use, major repairs, and harvesting and storage of crops (Harrison 2005: 147-152, Benería,1999).

[28]In practice, certain – often highly feminised – productive activities included in principle (e.g., gathering household fuel, fetching water from natural sources, preserving foods, etc.,) were prone to omission from this wide employment category.

These twin changes[29] resulted in a dual measurement framework for labour statistics, integrating statistics on labour market engagement alongside statistics on different paid and unpaid productive activities. At a conceptual level, this entails parity in the treatment of different forms of work for the purposes of statistical measurement.

3.2. Own-use provision of services

The 19th ICLS recognises five separate and mutually exclusive "forms of work"[30], with persons potentially occupying multiple work situations within a given reference period. These are:

a) Own-use production work comprising production of goods and services for own final use.

b) Employment work comprising work performed for others in exchange for pay or profit

c) Unpaid trainee work comprising work performed for others without pay to acquire workplace experience or skills.

d) Volunteer work comprising non-compulsory work performed for others without pay.

e) Other work activities (not defined in the resolution but encompassing activities such as court mandated unpaid work).

OPS forms one of two sub-categories under (a), own-use production work (alongside own-use production of goods). At a general level, own-use production work refers to productive activities for own final use. That is, production of goods or provision of services "where the intended destination of the output is mainly for final use by the producer...or final consumption by household members, or by family members living in other households"[31]. Four separate "activity clusters"[32] are distinguished, as follows:

(i) household accounting and management, purchasing and/or transporting goods

(ii) preparing and/or serving meals

(iii) cleaning, decorating, and maintaining one's own dwelling or premises, durables and other goods, household waste disposal and recycling, gardening, caring for domestic animals or pets

(iv) childcare and instruction, transporting and caring for elderly, dependent or other household members, etc.

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[29]A third, related, change ushered in by the 19th ICLS standards relates to the treatment of unemployment, refined to permit a wider range of labour under-utilisation indicators, covering *time-related unemployment* and *potential labour force,* as supplements to the unemployment rate (which remains a key indicator for labour force statistics).

[30]ILO (2013a: 3: 7), ILO 2023e

[31]ILO (2013a: 5: 22D), ILO 2023e

[32]ILO (2013a). The term "activity cluster" is not defined in the 19th ICLS Resolution I, but clarification is provided in a separate report (ILO 2013b).

This categorisation maps onto multi-dimensional concepts of social reproduction and unpaid domestic and care work. It permits domestic work and indirect care work (activity clusters i – iii) to be distinguished from direct care work (activity cluster iv) in statistical outputs and indicators (discussed in Section 9, *Key Indicators and Tabulations*).

▶ **Figure 2: Own-use provision of services, mapped to multi-dimensional concept of unpaid care work**
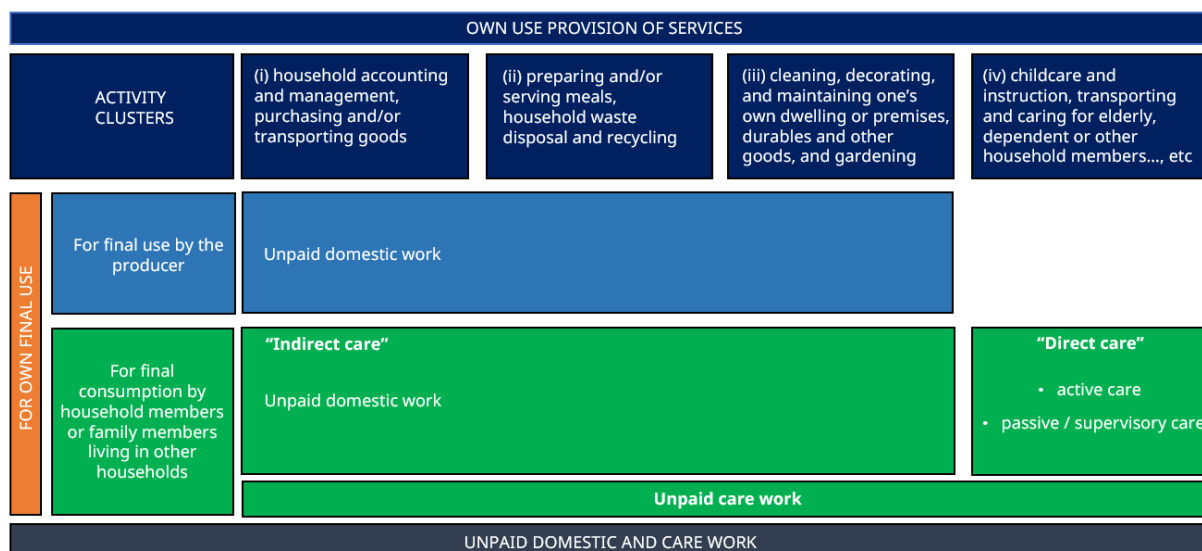
The direct / indirect care distinction provided a useful organising framework for the development of the ILO's OPS measurement tools. "Indirect" care work refers to the provision of services which underpin daily life (such as cooking, cleaning, laundry, household maintenance and management), and form the pre-conditions for direct care[33]. "Direct" care work refers to relational care activities and responsibilities between care-provider(s) and care-recipient(s)[34].

The category of direct care may be further sub-divided to distinguish "active" dimensions of caregiving (such as feeding, bathing, dressing, providing medical care, accompanying places), and "passive" or "supervisory" dimensions, expressed in caregiver presence, availability, and readiness to respond to the care recipient's needs. A multi-dimensional concept of caregiving has several, important implications for the operationalisation of OPS activity cluster (iv).

"Passive" or "supervisory" dimensions of caregiving have been demonstrated to be highly prone to under-reporting. Often taken-for-granted by respondents as a background constant, passive care can best be understood as corresponding to a particular "state of mind"[35], expressed in being present, attentive, available, watchful. Understood as a "state of being", rather than of "doing", time spent on passive care is especially prone to omission or misrepresentation when measurement tools operationalise caregiving as a series of discrete, isolated activities[36]. There is evidence that measurement approaches which do not explicitly incorporate a multi-dimensional concept of care disguise passive care in inflated estimates of carer's leisure time, while also underestimating gender-

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[33]ILO (2018:6)
[34]ILO (2018:6)
[35]Budig and Folbre (2004)
[36]Folbre (2006)

based differences in time allocations to caregiving and leisure time[37]. Similarly, while capturing important dimensions of unpaid care work, the sum of time recorded as active care work is not an adequate proxy for the true "time costs" (total care time) of caring for children, or for adults with illnesses, disabilities, or age-related frailties leading to additional care and support needs[38]. Relatedly, the exclusion of passive care may also undermine efforts to assign credible shadow monetary values to OPS through satellite, or extended, national accounts[39].

Alongside underestimation of total care time, limiting measurement of direct care to active care work has been shown to obscure the extent to which care activities are non-deferrable and/or substitutable, since the timing and tempo of recorded direct care activities (and other time-use) may be dictated by a broader (unrecorded) passive care context[40]. Adequate measurement of passive dimensions of caregiving requires additional survey items, however, increasing the interview duration. The ILO OPS module's treatment of passive / supervisory care is aligned to the UN EG-TUS provisional definition of supervisory care. Section six of this guide details the measurement approach developed to capture supervisory dimensions of direct care work, alongside other dimensions of OPS work.

▶ Box 1: UN EG-TUS provisional statistical reference concept for supervisory care

The UNSD Expert Group on Time-use Statistics[41] has developed a provisional reference concept for the statistical measurement of supervisory care, as follows:

Unpaid supervisory care refers to the time the caregiver is in hearing or visual proximity to a dependent household or family member to provide unpaid caregiving services, should such need arise. The provision of supervisory care does not require the active involvement implied in the provision of those caregiving services where an interaction between the caregiver and dependent household or family member is needed. Supervisory care may occur at any location where the dependent household or family member is present and in close proximity with the caregiver. There is no requirement for bodily proximity of the caregiver with the dependent household and family member, such as being in the same room. More specifically, the provision of unpaid supervisory care includes:

- Time when the caregiver engages in other activities in parallel, including remunerated activities listed in ICATUS-2016 Major Division 1, provided the caregiver remains accessible and in proximity should the need to provide caregiving services arise.

- Time when the dependent household or family member is engaged in activities alone, including sleeping.

- Time when the caregiver is not interacting with the household or family member- but is 'on-call' should unpaid caregiving services be needed. This includes personal activities, such as sleeping.

- Unpaid supervisory care comprises hours related to being *on call* for the direct provision of unpaid caregiving services. It is classified as an activity under Group 416 (minding children) and 425 (passive care for dependent adults) …it excludes time spent on [other] productive activities falling under ICATUS 2016 Major Division 4, including help to non-dependent household and family members (Division 43).

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[37]Bittman and Wajcman (2000), Gershuny (2000, 2012), Bryson (2007)
[38]Craig (2002)
[39]Holloway and Tamplin (2001)
[40]Carrasco and Serrano (2011) draw attention to the parallels with certain occupations, where a part – and sometimes the major part – of the working time is acknowledged to involve a state of being "on call", and is recognised, recorded, and remunerated indivisibly from more "active" aspects of the work. They offer the example of fire fighters.
[41]Provisional definition developed by the *United Nations Expert Group on Innovative and Effective Ways to Collect Time-Use Statistics (EG-TUS)* sub-group on the measurement of supervisory care.

▶ 4. Data sources

The 19th ICLS standards recognise time-use surveys (TUS) as the main measurement approach for the production of statistics on own-use provision of services[42], noting that LFS add-on modules can be a useful source when the objective is "to capture general patterns of participation of the population in different forms of work"[43]. This is consistent with broader international guidance on the production of statistics on unpaid domestic and care work (including the production of SDG indicator 5.4.1.)[44], which specify time-use surveys or time-use modules attached to multi-purpose household surveys, as the appropriate data source for statistics on unpaid domestic and care work[45].

4.1   Key features of time-use surveys

Time-use measurement relies on one of two main approaches, termed "diary" and "stylised"[46]. A variety of formats are available within each. In recent years, 'hybrid' diary instruments, which combine aspects of each, have been the subject of growing interest.

Diary measurement formats are characterised by the chronological reporting of time-use over the 24 hours of a day, sometimes for multiple days. The respondent records (if self-administered) or reports (if interviewer-administered) how they spend (if contemporaneous) / spent (if retrospective) their time, from a designated moment, conventionally 4am or 12midnight[47], or from the moment that they wake/woke up. The exercise is sometimes repeated for multiple days. Within this broad approach, several different formats are available.

One key site of variation within the diary approach relates to episode structure. Episodes may be open-ended or pre-defined / fixed. In the former, the respondent records (or reports) the start and end times of each activity. In the latter, the 24 hours of the day are divided into, usually equal[48], intervals of between five minutes and 60 minutes, ready to be populated with respondents' activity/ies.

Formats also vary according to whether activities are open-coded or pre-defined. In the former, activities are recorded verbatim, in the respondents' own words, and are subject to coding at the data processing stage. In the latter, the respondent (if self-administered) or interviewer (if interviewer-administered) selects the code that most closely corresponds to the activity from a pre-specified list. The convention is to refer to diaries with pre-designated activity codes as "light" / "lite" diaries and to open-code diaries as "full" diaries.

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[42]ILO (2013a: 13-14: 67B)
[43]ILO (2013a: 13-14: 67A)
[44]UN (2023)
[45]UN (2005)
[46]Approaches used outside of survey contexts, such as immersive observation, experience sampling methods (ESM), and deployment of wearable technologies, are omitted from discussion as beyond scope.
[47]Michelson (2005)
[48]In some cases, longer intervals are assigned to night-time hours, during which most respondents are presumed to be sleeping, to condense the diary exercise.

Further variations, applicable to both light and full diaries, include the presence of fields to record "multi-tasking", i.e., activities undertaken simultaneously or over-lapping[49], and/or contextual information such as location, presence of others, beneficiary, remuneration, use of ICT, and affect.

In a stylised format, respondents report participation in, and total time dedicated to, an activity or activity-class over a specified reference period, usually either a seven-day week or one or more 24-hour day(s). While diary formats record the timing, sequencing, and duration of activities, stylised formats provide only participation and total duration.

Stylised questions may be framed in terms of a specific reference period, e.g., "Yesterday (or last week), how much time did you spend doing (activity X)?" Alternatively, questions may be phrased more generally in terms of usual or typical practices, e.g., "How many hours a day (or a week) do you usually spend doing (activity X)?"[50].

The term "stylised" originated in this latter framing. The resulting time-use estimates are "stylised" in that they refer to a hypothetical construct – the "typical" day, week, month, or other reference period – rather than a concrete, actual, reference period[51]. Contemporary usage of the term "stylised" has expanded to incorporate "actual" and "usual" framings. The distinctiveness of the approach is defined in opposition to the diary format[52].

In practice, stylised approaches vary in breadth of coverage. At one end of this spectrum are "stylised analogues of time diaries"[53]. The scope of activities covered in such "stylised analogues" is deliberately comprehensive, the goal being to capture – at varying levels of detail – all activities the respondent performed for a given reference period[54]. The comprehensive list of activities included in stylised analogues permits a level of activity coverage approaching that of diary formats.

At the other end of the spectrum are short question series, which forego a full accounting of respondents' time-use, to restrict investigation to a limited number of activity classes. Current international guidance cautions against the latter approach, noting that, where a stylised approach is adopted, "it is important that the listed activities be as comprehensive as possible in order to capture all of the activities that the respondent performs during a given day"[55]. Table one, below, summarises the key features of common time-use measurement formats.

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[49]Measurement of simultaneity presents a number of (non-trivial) considerations for questionnaire design, data collection, data processing, analysis, and reporting phases (Ironmonger, 2003, 2004).

[50]There is broad consensus that "typical" period questions place greater cognitive demands on respondents than do specific period questions (where the specific period is sufficiently short and recent).

[51]Juster, Ono, and Stafford (2003)

[52]Terminology relating to time-use measurement instruments remains somewhat unstandardised. Within the peer-review literature, stylised approaches are sometimes restricted to investigations of "usual" or "typical" time-use and sometimes applied expansively. Practice varies considerably. The most recent published international guidelines (UN 2005: 15) applies the expansive definition (i.e., encompassing "actual" and "usual").

[53]UN (2005:15)

[54]UN (2005:16)

[55]UN (2005:15)

Table 1: Comparison of common time-use measurement approaches

Format / Features	Full diary	Light diary	Stylised analogue	Stylised, restricted domain(s)
Reference periods	• 24-hour day(s), actual	• 24-hour day(s), actual	• 24-hour day(s), actual • 24-hour day(s), typical • 7-day week, actual • 7-day week, typical	• 24-hour day(s), actual • 24-hour day(s), typical • 7-day week, actual • 7-day week, typical
Activity coverage	• Comprehensive domain coverage • Verbatim activity record • Timing, frequency, sequencing, duration of activities	• Comprehensive domain coverage • Exhaustive pre-coded activity list • Timing, frequency, sequencing, duration of activities	• Comprehensive domain coverage • Utilises direct / summary questions • Summed totals for activities	• Limited / targeted domain coverage • Utilises direct / summary questions • Summed total(s) for *targeted* activities
Timing and duration	• Open episodes • Closed / fixed episodes	• Open episodes • Closed / fixed episodes	• Summed durations in minutes/hours	• Summed durations in minutes/hours
Contextual items	• Location • Mode of transport • With whom • For whom • Payment • Use of ITC • Affect / satisfaction	• Location • Mode of transport • With whom • For whom • Payment • Use of ITC • Affect / satisfaction	N/a	N/a
Simultaneity / multi-tasking	• Supports disaggregated reporting and analysis of concurrent activities (in addition to consecutive)	• Supports disaggregated reporting and analysis of concurrent activities (in addition to consecutive)	• Simultaneous activities may be collapsed in summed estimates of total caregiving time	• Simultaneous activities collapsed in summed estimates of total duration
Supervisory dimensions of unpaid care work	• Permits records of timing, frequency, sequencing, duration of simultaneous activities • Supports comprehensive and complementary strategies to reduce under-reporting	• Permits records of timing, frequency, sequencing, duration of simultaneous activities • Supports comprehensive and complementary strategies to reduce under-reporting	• Summary estimate for duration (relies on direct question, difficult to isolate in practice). Prone to double counting.	• Summary estimate for duration (relies on direct question, difficult to isolate in practice). Prone to double counting.
Response burden	• Sequential narrative structure and context probes designed to anchor memory and promote recall. • Burden is heightened for respondents with limited "clock time" familiarity.	• Sequential narrative structure and context probes designed to anchor memory and promote recall. • Burden is heightened for respondents with limited "clock time" familiarity.	• Respondents abstract, interpret, calculate, and sum activities • Burden is heightened for respondents with limited "clock time" familiarity • Burden is heightened for respondents with low numeracy	• Respondents abstract, interpret, calculate, and sum *targeted* activities • Burden is heightened for respondents with limited "clock time" familiarity • Burden is heightened for respondents with low numeracy

In recent years, hybrid diary instruments – which include direct question items, familiar from the "stylised" approach, alongside a core diary roster – have increasingly been promoted as a response to a range of measurement, operational, and statistical considerations[56]. Hybrid approaches are not new within time-use research. They emerged as an extension of diary-based approaches, as a way to measure time-use alongside respondent's subjective attitudes to, and perceptions about, time-use. Early approaches combined diaries with direct question series, from which indices were developed. Examples include scales for wellbeing and family adjustment[57], for "feeling rushed" / "busy"[58], or under "time crunch"[59], for satisfaction or enjoyment[60], and for perceived level of autonomy / agency over time-use[61].

Hybrid approaches capitalise on the respective strengths of diary and stylised formats. Data generated by stylised approaches have generally been found to be more susceptible to error, and thus less accurate, than diary-based data[62]. This is largely attributable to the greater cognitive burden imposed as respondents are obliged to recall and aggregate numerous discreet instances of a particular activity class[63]. In this regard, the "chronological reporting" feature of diary instruments is a considerable advantage. By mapping closely onto autobiographical memory, measurement error is reduced.

Stylised data have also been shown to be more vulnerable to measurement error originating in social desirability bias than are diary data[64], with the weight and direction of its effects varying by social context[65]. Social desirability bias is often invoked to explain why stylised estimates of OPS work are inflated for certain population groups but not for others, introducing systematic error in styled estimates. This relates to a second common, though not universal[66], finding in the comparative literature, whereby the inflation of stylised estimates relative to diary estimates is found to vary with respondents' characteristics, introducing systematic error[67]. Overestimation bias (whereby the duration of more preferred activities is over-estimated, and the duration of less preferred activities under-estimated) has similarly been found to undermine the validity of stylised time use estimates in some settings[68].

Conversely, diary estimates tend to bias reporting towards time spent on "activities", at the expense of time occupied with responsibilities (such as passive child- or elder-care), which may obscure the 'true' time spent on OPS. The inclusion of targeted direct probe(s)

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[56]Gershuny (2012), Folbre (2021: 53)

[57]Pleck, (1985)

[58]Pleck (1985), Michalson, (1985)

[59]Robinson and Godbey, (1997)

[60]Harvey (1999:4)

[61]Michelson (1985)

[62]Robinson (1985), Bianchi, Milkie, Sayer, and Robinson (2000),

[63]Bonke (2005), Schwarz (2007). Walthery & Gershuny (2019) describe methods to increase the reliability of stylised estimates.

[64]Whereby respondents over-estimate time spent on socially desirable activities and omit, or under-estimate time spent on converse activities. Within diary approaches, early research by Robinson (1977) found retrospective diaries to be less prone to social desirability bias than prospective diaries.

[65]Hofferth (1999).Press and Townsley (1998), for example, attribute over-reporting of UDCW time to respondents' attitudes to gendered divisions of labour and wider social norms concerning the same.

[66]For instance, Baxter and Bittman (1995), Marini and Shelton (1993), Niemi (1993), Robinson (1985) find that the gap between stylised and diary estimates is similar across sub-groups, meaning stylised estimates, though biased, can still support ordinal scaling.

[67]Kan and Pudney (2008), Kan (2008)

[68]Press and Townsley (1998), Kitterød and Lyngstad (2005), Otterbach et al., (2010).

characteristic of stylised instruments provides a way to address under-identification of activity/ies omitted from spontaneous diary reports. Since neither approach is exempt from measurement error, hybrid approaches offer a basis for improved estimation by combining features from both[69].

4.2 Modular time-use measurement

The OPS add-on module forms part of a wider move to modularise LFS, with add-on modules complementing core LFS content. At a general level survey modularisation refers to the process of splitting – and flexibly reconstituting – sample surveys as a series of "core" and "add-on" modules (i.e., blocks of questions) related to one or more specific topic(s) or sub-topics[70]. While not new, interest in survey modularisation has grown in recent years, as NSOs have sought to modernise their survey operations. As a result, the traditional stovepipe model of statistical production has come under greater scrutiny.

Under the stovepipe model, surveys are organised around a broad domain, each with their own statistical production process. The survey and sample design, data collection, data processing, and release phases are planned and undertaken independently from other domain-based surveys[71]. In contrast, modularisation seeks efficiencies, cost savings, and enhancements to data quality, by jointly organising key features of the statistical process for multiple surveys, separated into their respective "core" and "add-on" modules[72].

The chief attraction of modular survey designs rests on their relative adaptability and versatility. While certain questionnaire content (composed of "core" modules) remains constant (across time or countries), *add-on* modules can be incorporated or eliminated in line with required periodicity, or in response to differing or changing social contexts, information needs, and policy priorities[73]. As a result, data comparability is increased, without sacrificing relevance to specific national circumstances, contexts, and priorities. A further important motivating factor is the desire to minimise respondent burden, in a context of ever-growing data demands.

Another advantage of the modular approach relates to the expanded scope for multivariate analysis, a result of having data for the core survey modules and the add-on module(s) for identical sample units, which can result in very rich data, capable of supporting a wide range of analyses[74]. Modular approaches also permit economies of scale, with the fixed costs of administering a nationally representative survey largely provided for under the core survey budget. As a result, the mobilisation of funds for time-use measurement may be restricted to the variable costs incurred by the introduction of the additional module(s).

The modular approach also allows for topics covered by add-on modules to be embedded within the national survey infrastructure, scheduled for periodic inclusion

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[69]Schulz & Grunow (2012) argue for closer attention to the reasons why estimates "differ so markedly"
[70]Eurostat (2010)
[71]Ioannidis, Evangelos, *et al* (2016)
[72]Karlberg, Martin, *et al* (2015)
[73]Reis (2013)
[74]Ioannidis, Evangelos, *et al* (2016)

alongside core statistical topics, and funded centrally (and/or integrated within proposals to mobilise funding). This may result in increased periodicity of statistical collection for important, but historically neglected topics, such as own-use provision of services.

In a traditional stand-alone time-use survey, the survey population, the survey periodicity and reference periods, the sample design, and the field operations are optimised towards a single purpose – the production of time-use statistics. The questionnaire content is weighted towards obtaining a very detailed time-use record – usually in a "full" diary format or a comprehensive stylised analogue. "Background forms", included to record essential household and individual level information are kept comparatively light – sufficient to support key multivariate analyses of the relationships between household and individual characteristics and time-use.

In contrast, in a modular time-use approach, a time-use record is attached to a "host" or "parent" survey – usually an established, nationally representative household sample survey. In this scenario, the survey design and field operations are optimised to the parent survey (though some adjustments to accommodate features specific to time-use measurement will normally be necessary), and the time-use record is kept comparatively light. The background forms included in an independent time-use survey are omitted, substituted by the core content in the parent survey. This shifts the distribution of the survey content from being weighted towards the time-use record, to being weighted towards the core survey content.

Where an independent / stand-alone time-use survey is feasible, it will normally be the preferred approach. Modular approaches should only be considered when resource constraints or other practical considerations impede an independent time-use survey. A modular approach may also be appropriate when there is demand for interim statistics between decennial or quinquennial independent time-use survey rounds. A "full diary" approach will rarely be suitable for modular application.

The need to balance depth of coverage against ease of implementation and affordability, and to maintain the integrity of the parent survey, while generating informative, if less than fully comprehensive, time-use data, results in trade-offs. This will generally mean the use of a "light diary" or "stylised analogue" approach. Relative to a full, verbatim diary, such approaches reduce the time it takes to complete the survey, and provide substantial efficiencies at the data-entry, cleaning, and analysis stages, so minimising the time-lag between data collection and data release.

To avoid compromising data quality, modular time-use measurement usually demands adjustments at the sample design and survey implementation phases. These changes will normally be limited to the time-use module, allowing for the parent survey to proceed as normal – unless there are efficiencies / data-quality advances to be gained by modifying the overall design. Section seven of this guide includes recommendations for adjustments to the sample design and field operations for the OPS module.

▶ 5. Recommended topics for data collection

The standard approach for measuring OPS, the time-use survey (or modular equivalent), collects data on all time-use, for a given reference period. That is, data collection is not restricted to time spent on OPS, but includes other forms of work, as well as non-work activities.

While it may seem excessively expansive, there are strong methodological justifications for this approach. Firstly, OPS work tends to be particularly susceptible to recall bias. This is because it is often undertaken at irregular intervals, which vary in duration, and it's timing is somewhat "discretionary", to the extent that it is not typically subject to regimented, externally imposed schedules[75].

Relatedly, OPS work is often undertaken alongside other activities, as and when the opportunity or the need arises. This reduces its resonance and prominence in recall-based accounts. Secondly, some dimensions of OPS are especially prone to social desirability bias, which is amplified when data collection is restricted to a single activity domain. Collecting data on OPS within a fuller accounting of daily time-use is recommended to address these measurement issues.

To enable the production of OPS indicators and subsequent analysis of the scale and scope of OPS, the ILO recommends that data collection includes:

- Time use activities (with comprehensive domain coverage)
- *Optional:* Simultaneous time-use activities (with comprehensive domain coverage)
- Duration of activities in minutes and hours
- Contextual data (conditioned by activity)
    - Location / Travel purpose
    - Co-presence
    - Beneficiary type
    - Market orientation
- Direct questions on passive/supervisory care for household and family members

These data enable OPS work to be accurately identified and measured in line with the latest international statistical standards. Users may consider collecting additional data, where a strong justification exists. For instance, specific measurement objectives may require the inclusion of additional context items for i) mode of transport, ii) affect / wellbeing, and/or iii) use of ICT. These latter context items have been omitted from the LFS add-on module because they are not essential for the accurate identification and measurement of OPS or for the production of core indicators on the topic.

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[75]Kittererød and Lyngstad (2005)

The use of context items has been restricted to minimise respondent burden and interview duration. Similarly, hard-to-measure dimensions of unpaid caregiving related to mental load and emotional labour are treated somewhat lightly in the LFS add-on module[76].

While a number of small-scale time-use studies have attempted to quantify the time devoted to such "invisible" household labour, the topic needs further development prior to fuller integration in the OPS module[77].

Countries may reasonably consider these, and other, items for incorporation in the LFS add-on module as part of national adaptation, care is, however, needed to avoid impeding the module's ability to collect the data envisaged under its original design. The potential for response burden, interview duration, and data processing time and resources to be negatively impacted should be carefully assessed.

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[76]The LFS add-on module's pre-coded activity listing contains an item (activity code 12: "Paying bills, budgeting, administration, planning, organising"), which may go some way to capturing mental load / emotional labour, but falls short of a comprehensive accounting.
[77]See Erickson (2005), Eichler and Albanese (2007), Shaw (2008), Ciciolla and Luthar (2019)

▶ 6. Labour force survey add-on modules

The LFS add-on module for OPS is a *hybrid light diary* format time-use measurement tool. The tool has been developed for interviewer administration in face-to-face mode. It is available as a *computer assisted personal interviewing* (CAPI) tool in CSPro software[78]. The add-on OPS module is composed of three core series and one optional series. Within each series, optional items may be activated or deactivated, depending on the measurement objectives.

The first series in the module is a light time-use diary, which records the timing, sequencing, and duration of activities undertaken over a 24-hour day.

The second is a stylised question series, dedicated to the recovery of supervisory care provision.

The third is a short "typical day" series, which records whether the reported diary day is unusual in any way.

The fourth, optional, series, assesses respondent facility with "clock time". It is only relevant for settings in which "clock time" is not the dominant temporal framework.

The CAPI tool includes features to reduce erroneous / missing data fields (including restrictions on data-entry format, automated updates, and warnings for incongruous entries).

6.1   Measurement of timing, sequencing, and duration

The OPS add-on module records respondents' time-use retrospectively for a 24-hour reference period in a light time-use diary. Information on the timing, sequencing, and duration of activities is reported in a "roster format". The roster begins at 4am on the day preceding the interview and ends at 4am on the day of the interview. The initiation of the diary day at 4am is a standard convention in time-use measurement (an alternative convention is to begin at 12midnight). Generally – but not always – respondents are asleep at 4am so the diary "catches" the beginning of the waking day.

The time-use roster is organised around 96 x 15-minute fixed episodes to cover the 1,440 minutes / 24 hours of the day[79]. Subsequent to the initial diary entry at 4am, start times for each activity are automatically updated, based on end-time entered for the preceding activity. The end-time of the activity is entered on a drop-down menu, to the nearest 15-minute interval.

The adoption of fixed episodes in place of open episodes represents a trade-off between different aims. A fixed episode approach limits scope to record activities performed for a shorter length of time and/or exaggerates (or underestimates) duration if recorded to the nearest interval. However, the use of fixed episodes dispenses with the need for

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[78]The tool can be requested directly from the ILO Statistics Department (contact: statistics@ilo.org).
[79]The 15-minute closed episode approach is a long-established practice in time-use research (Michelson 2005).

interviewers to manually enter activity times in hours and minutes (removing an important source of error and benefiting interview flow, so respecting the more conversational interview style[80] characteristic of interviewer-administered time-use surveys), and considerably simplifies data collection, analysis, and processing.

Open episodes allow for shorter-duration activities to be recorded but result in greater variability in data quality and the resulting data files are extremely cumbersome to analyse[81]. In practice, "rounding" is common in open episode format diaries, with respondents reporting time-use to the nearest five- or ten- minute increment.

Nationally representative time-use surveys have historically favoured fixed episodes for these reasons[82]. The interviewer guide and training curricula developed by the ILO emphasise the importance of consistent coding practices when coding to fixed episodes to minimise interviewer-level variations as a source of error and potential bias.

6.2   Activity coverage

A characteristic feature of light diary tools is that time-use is assigned to pre-coded activities during questionnaire administration. This contrasts with full diary tools, which record time-use verbatim for subsequent coding at the data-processing stage. The OPS add-on module includes 41 pre-coded activities, accessed via a dropdown menu programmed in the CAPI tool[83].

The activity listing comprehensively records respondents' time-use over the course of a 24-hour day. Activity codes are aligned to the UN *International Classification of Activities for Time-use Statistics 2016* (ICATUS-16)[84].

ICATUS-16 is a three-level hierarchically organised scheme with nine major divisions (one-digit), disaggregated across 56 divisions (two-digit), and 165 groups (three digit). The scheme is harmonised to the SNA (2008), and the 19th ICLS forms of work framework. Table 2, below, summarises the correspondence of ICATUS-16 and the 19th ICLS OPS activity clusters.

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[80]In practice, interviewer administered, diary format time-use surveys and modules tend to blend standardized interviewing with conversational techniques. This is a tendency that has been noted more broadly within survey research, with departures from standardised survey interviewing found to be common in practice, leading to "extensive unscripted conversation between the interviewer and the respondent"…."even when interviewers are instructed to use standardized interviewing" (Bell, Fahmy, and Gordon, 2014). While there is evidence that conversational interviewing can lessen response bias for complex survey topics, relative to standardized interviewing, implemented poorly, it risks introducing error, and potentially bias due to interviewer-effects (Bell, Fahmy, and Gordon (2014), Brady, Conrad, Kreuter, Mittereder (2018)). The LFS OPS add-on module includes standardized item wordings, probes, and prompts for interviewers, emphasised in training. Training curricula and interviewer guidance highlight where, when, and how conversational interview techniques should be used / avoided, as the respondent narrates their diary day. Some degree of flexibility is warranted, to encourage and maintain the narrative flow, while minimising scope for interviewer-effects to bias data.

[81]United Nations (2005: 55)

[82]UNECE (2013)

[83]Pilot versions of the tool experimented with between 31 and 51 activity codes at input stage, prior to finalising at 41. Coincidentally, this is identical to the number of activities derived for purposes of international comparison of time-use data by the original multi-national time-use study (MTUS) programme when first developed in the 1980s as the major repository of time-use data (since expanded from 41 to 69) (Gershuny, Vega-Rapun, Lamote (2020)).

[84]UN (2021)

Table 2: Own-use provision of services work mapped to ICATUS-16 divisions

19th ICLS forms of work framework: Own-use provision of services, Activity clusters	Corresponding ICATUS-16 Major Divisions and Divisions
(i) Household accounting and management, purchasing and/or transporting goods	**ICATUS Major Division 3:** *Unpaid domestic services for household and family members* **ICATUS Divisions at 2-digit (3_)** 35: Household management for own final use 37: Shopping for own household and family members 38: Travelling, moving, transporting, or accompanying goods or persons related to unpaid domestic services for household and family members 39: Other unpaid domestic services for household and family members
(ii) Preparing and/or serving meals	**ICATUS Major Division 3:** *Unpaid domestic services for household and family members* **ICATUS Divisions at 2-digit (3_)** 31: Food and meals management and preparation 39: Other unpaid domestic services for household and family members
(iii) Cleaning, decorating, maintaining one's own dwelling or premises, durables and other goods, household waste disposal and recycling, gardening, and caring for domestic animals or pets	**ICATUS Major Division 3:** *Unpaid domestic services for household and family members* **ICATUS Divisions at 2-digit (3_)** 32: Cleaning and maintenance of own dwelling and surroundings 33: Do-it-yourself decoration, maintenance, and repair 34: Care and maintenance of textiles and footwear 36: Pet care 39: Other unpaid domestic services for household and family members
(iv) Childcare and instruction, transporting and caring for elderly, dependent or other household members, etc.	**ICATUS Major Division 4:** *Unpaid caregiving services for household and family members* **ICATUS Divisions (4_)** 41: Childcare and instruction 42: Care for dependent adults 43: Help for non-dependent adult household and family members 44: Travelling and accompanying goods or persons related to unpaid caregiving services for household and family members 49: Other activities related to unpaid caregiving services for household and family members

Figure three, below, provides a detailed view of the correspondence between the 41 pre-coded activities contained in the LFS add-on module for OPS and the corresponding ICATUS-16 codes at one-, two- and three-digit level. Correspondence tables to support aggregation to OPS activity clusters are provided in Appendix III.

▶ Figure 3: OPS add-on module activity codes, aligned to ICATUS-16

ACTIVITY DOMAIN (ICATUS-16)

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

CONTEXT-BASED CLASSIFICATION

a Remunerative motive (income generating for individual or household)
b No remunerative motive + For whom = self / hh member(s) / family member(s)
c No remunerative motive + For whom = other

RECOVERY-BASED CLASSIFICATION

d Probed-for childcare
e Probed-for adultcare

			ICATUS DIRECTORY	ACTIVITY CODE	ONE (a)	TWO (b)	THREE (b, d, e)	FOUR (b, d, e)	FIVE / FIVE (b, c)	SIX	SEVEN	EIGHT	NINE
				1 Sleeping or napping									91
9				2 Personal hygiene and health									93, 94
				3 Eating or drinking									92
	5	3		4 Cooking / baking / preparing / serving food or drinks / cleaning dishes	11, 13		31		522				
	5		2	5 Manufacturing / processing foods, beverages, herbs, medicines, tobacco	127	221			519, 529				
		3		6 Cleaning and tidying indoors	11, 13		321, 324, 325, 329		519, 529				
				7 Outdoor cleaning and upkeep	11, 13		322, 323, 324, 329		519, 529				
			1	8 Pet care (includes feeding, exercising, cleaning, grooming)	11, 13		36		519, 529				
	5			9 Decorating or minor repairs and maintenance of buildings, durable goods, vehicles, machinery	11, 13		33		519, 529				
				10 Laundry / repair or maintenance of clothes, textiles, shoes	11, 13		34		519, 529				
				11 Shopping for/purchasing goods	11, 13		37		512				
				12 Paying bills, budgeting, administration, planning, organising	11, 13		35	417, 426	524				
				13 Providing physical care or comforting children (feeding, cleaning, bathing, giving medical care, soothing…)	11, 13			411, 412	513				
				14 Teaching, helping, talking with, or reading to children	11, 13			413, 414	513				
	5	4	1	15 Playing games and sports with children	11, 13			415	513				
				16 Attending children's sports or games match, play, dance or talent show, or similar (includes training, practice, rehearsals)	11, 13			416	513				
				17 [Minding or watching over] children	11, 13			416	513				
				18 Providing physical care, practical assistance, or emotional support to adults with a disability, illness, or frailty	11, 13			421–424,426,429,431–439	514				
				19 [Minding or watching over] adults with a disability, illness, or frailty	11, 13			425	514				
				20 Waged or salaried employment / self-employment / paid traineeship	11, 12, 13								
	5		1	21 Helping without pay in a family or household business	12, 13				515				
				22 Looking for paid work or setting up a new business	16, 17								
	5			23 Unpaid traineeship or internship					53				
	5			24 Volunteering / community or social organising/ environmental / nature conservation / protection of wild or street animals					51, 52				
	6			25 Studying, learning	15					61,62,63,69			
				26 Growing crops, including kitchen garden, (clearing, planting, fertilising, irrigating, weeding, picking / harvesting)	121	211			529				
				27 Tending to livestock / Milking, collecting eggs, wool, dung, other livestock products	122	212			529				
				28 Gathering / processing firewood, straw	129	241			529				
	5	2	1	29 Fetching water from natural source	129	242			529				
				30 Fishing / Aquaculture / Gathering wild products / [Hunting or trapping animals]	123 –125, 129	213 – 217			529				
				31 Forestry / Logging / Mining / Quarrying	126, 128	218, 230			529				
				32 Construction, major renovations, or major repairs	127	222 – 229			529				
				33 Weaving, knitting, sewing, embroidering, tanning, bead-, textile- / leather- / metal-, wood- / stone- / brick- work	127	222 – 229			529				
	7			34 Socializing, visiting with, talking to friends / family / neighbours							74		
				35 Religious practice (individual or collective)							72, 73		
				36 Participating in community festivals, celebrations								81	
	8			37 Attending cultural / entertainment / sports events								83	
				38 Playing sports or doing exercise								84	
				39 Watching tv shows, movies, online visual media / Reading for leisure / Listening to music, radio, podcasts, online audio media								82, 85	
				40 Hobbies, games, pass-times, relaxing								82, 85	
9 8 7 6 5 4 3 2 1				41 Travelling or commuting / Transporting or accompanying people or goods	18	25	38	44	54	64	75	86	95

All nine ICATUS-16 major divisions are represented by the 41 pre-coded activities included in the model OPS module[85]. The level of disaggregation varies by activity domain, with a greater number of codes dedicated to priority domains and/or domains known to be prone to under-reporting, and fewer codes assigned to domains less prone to measurement error and/or of lower substantive priority.

▶ Box 2: Time spent travelling or waiting

Travel time and waiting time are special cases in time-use measurement. The treatment of travel and waiting time in the model OPS add-on module is aligned to ICATUS-16.

ICATUS-16 includes dedicated codes to record travel time within each major division. The model OPS tool adopts a comparable approach, modified to support the light time-use diary format. As such, the activity listing includes a dedicated activity code for travelling (code 41). When travel time is input, a conditional context item activates to assign a reason for travel. The "reason for travel" context item is included to streamline analysis. In the absence of this context item, the allocation of travel time to associated activities at the data processing stage can be time-consuming and error prone.

While travel time is recorded separately at the input stage, it should be assigned to the associated activity (i.e., the activity motivating the travel) during data processing, to support reporting consistent with ICATUS-16 and to enable international comparison of time allocations. The model OPS tool includes a separate provision for travel time that is inseparable from and simultaneous with the associated activity to be recorded as time spent "in transit" (for instance, time spent in employment as a delivery person or courier, or as a taxi / bus / train driver, or time spent running, jogging, hiking for exercise).

ICATUS-16 does not assign a code for time spent "waiting". The guidance[86] directs that "waiting" time be coded under the associated activity at the input stage (i.e., the activity which involved time spent waiting). In line with ICATUS-16, the model OPS tool omits "waiting" from the activity listing. Countries may, however, consider the inclusion of a dedicated activity code for "waiting" during national adaptation of the model tool, where demand exists.

ICATUS-16 guidance acknowledges that the disaggregation of time spent waiting from the associated activity can be analytically informative, e.g., for analysis of time-stress or time-poverty. It can also inform policies and interventions for the delivery of public services (e.g., public transport, sanitation, and household fuel).

As such, the ICATUS-16 guidance includes provision for countries to add a category for "waiting", where justification exists. In such cases, waiting time may be separately analysed and reported on, but should ultimately be assigned to the associated activity, to support reporting consistent with ICATUS-16 and enable international comparison of time allocations, requiring additional coding to assign waiting time to associated activities at the data-processing stage.

Three additional codes are available in the activity listing to record "other, specify" (code: 42), "nothing else" (code 43, relevant when the optional simultaneous activity field is activated) and "don't know / don't remember" (code: 97). The 41 activity codes provide for

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[85]Countries are increasingly adopting ICATUS-16 for their time-use surveys or designing / adapting their national classifications to align to ICATUS-16. ICATUS is broadly comparable with established regional classifications, including the *Harmonised European Time Use Survey* (HETUS) classification scheme and the *Classification of Time-Use Activities for Latin America and the Caribbean* (CAUTAL) scheme. Though some variation remains among these schemes, they are largely interoperable (UN, 2021, annex 1)

[86]UN (2021: 7, 14)

comprehensive time-use coverage. The "other, specify" field is included as a quality control measure. In cases where an interviewer struggles to code reported time-use, it is preferable that the activity is recorded verbatim, for subsequent assignment to the corresponding code at the processing phase, rather than incorrectly coded. In practice, utilisation of the "other, specify" field should be minimal. Interviewer training, and national adaptation of the OPS-module interviewer guide, which lists inclusions and exclusions for each activity code, can minimise reliance on the "other, specify" field.

6.3 Context items

Context items serve a variety of functions in the model OPS module. Their inclusion supports correct assignment of respondents' time-use to higher level activity domains (including 19th ICLS forms or work and ICATUS-16 major divisions). They also promote recall, and permit richer analysis of time-use, particularly in the context of unpaid caregiving. Four conditional, nested, context items are programmed in the CAPI tool[87]:

- Location (substituted by "travel purpose" for travel episodes)
- Co-presence
- Beneficiary
- Market orientation

The activation of each context item is conditioned by the activity reported as well as by responses to preceding context items. Response burden and interview duration are therefore minimised to the extent possible.

Location: The context item "location" is recorded for all activity codes. It is important to maintain a record of where respondents spent their time, even when sleeping, on the diary day. This is because time away from home may result in reduced time spent in OPS work and / or more time spent in employment (if, e.g., travelling for a work or business trip) or recreation (if, e.g., on holiday / vacation).

Information about location is analytically informative for a wide range of topics, including the operation of seclusion norms, access to the public sphere, loneliness / social isolation (in combination with the "co-presence" item), home-based working and homeworking, work-life balance, time-poverty, and time-stress, etc.,

The location item serves a second purpose. It can help to anchor respondent recall of other dimensions of their time-use for the diary day (e.g., what they were doing, who they were with)[88].

Lastly, the location item incorporates a quality control feature, to limit under-reporting of travel time (a known tendency in recall diaries) and prevent compensatory over-estimation of time spent in other activities. If the interviewer codes a change in location

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[87]The context items included in the model OPS module are aligned to those recommended for the UNSD minimum harmonised instrument for time-use statistics (UNSD, 2023). This reflects a broad consensus that these items are "need to have" not simply "nice to have".
[88]The strength of "location" as a recall anchor is such that it has been suggested it should preface activity in interviewer mode diary approaches in settings with low literacy / numeracy / familiarity with clock time (Ås 1978).

in the absence of an intervening travel episode, for instance, a respondent reports being at home eating breakfast (Location: Own home) and next reports employment (Location: Workplace), a soft-check warning will activate, requiring the interviewer to probe for intervening travel episodes.

Travel purpose: The travel purpose item is activated when an episode of travel is recorded (it substitutes for location in such cases). This item permits travel episodes to be correctly assigned to the relevant activity domain, providing a key input for the identification of OPS activities. The inclusion of this item offers efficiency gains at the data cleaning, processing, and analysis stages. In the absence of an item to record reason for travel directly, travel episodes must be assigned to the corresponding activity based on preceding or subsequent non-travel activities. This is a time-consuming process and can result in mis-assignment where ambiguities exist.

Co-presence: The co-presence or "with whom" item is conditionally activated, based on the reported activity. It is activated for all activity codes, with the exception of Code 01: Sleeping. It permits time spent alone and in the company of others to be disaggregated and can serve as a proxy for time spent in supervisory or passive caring roles. The wording of the co-presence item specifies a "proximity" condition for assigning co-presence. This phrasing is included to avoid ambiguity and to aide respondent comprehension.

Where co-present children (aged under 18 years) are reported, an embedded field records their age(s), as banded ranges. This is in keeping with ICATUS-16 guidance for co-presence items to acknowledge the different types and intensity of care needs for children at different ages[89]. As with the location item, the co-presence item assists respondent recall, providing an anchor point for reporting of the diary day.

The co-presence item also incorporates a quality control feature, to limit misreporting of childcare activities. Where a direct childcare activity is reported in the absence of co-present children, a soft-check warning will activate, requesting the interviewer to probe for co-present children.

Beneficiary: The beneficiary or "for whom" item is conditionally activated to permit "economically productive" activities to be accurately assigned to higher-level activity domains. It plays an essential role in the identification of OPS activities and is vital for the correct assignment of activities to the appropriate form of work, in cases where ambiguities exist.

Market orientation: The market orientation item is conditionally activated in rare cases where the beneficiary item is insufficient to permit confident assignment of productive activities to a single form of work. It supports the recovery of otherwise unreported / under-reported income-generating or own-use production (subsistence) activities

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[89]UN (2021:12)

undertaken by the respondent for her/himself individually or for the household / family as a whole.

Other context items: The model OPS module is designed to minimise response burden and to maximise efficiencies at the data collection, data processing, and data analysis and reporting stages. For that reason, the embedded context items are restricted to those required for the production of core indicators and/or to support data quality. Countries may, however, wish to consider including additional context items as part of national adaptation of the model OPS module, to meet user-demand for data on additional topics.

Additional candidate items include: i) mode of transport (activated for travel episodes and activities occurring in-transit), ii) use of information or communication technology (ICT), iii) affect / wellbeing / enjoyment iv) time-stress or "harriedness".

The incorporation of additional context items will inevitably inflate the module duration and so will require careful consideration to balance competing needs and priorities. A clear analysis plan should be developed in advance of the inclusion of additional context items, and the revised questionnaire should be subject to pre-testing prior to roll-out at scale. Time should be allowed for the adaptation of the CAPI tool to incorporate additions and ensure proper routing is maintained.

6.4   Simultaneity / Multi-tasking

The OPS add-on module contains an optional field to record instances of simultaneity and multi-tasking. When activated, this item prompts the interviewer to ask the respondent if s/he was doing anything else at the same time as the spontaneously reported activity.

The inclusion of this "global simultaneity" field activates context items as relevant, to support activity classification. Once activated, the simultaneity field triggers for all activities, with the exception of "sleeping / napping".

When this optional "global simultaneity" field is deactivated, a single activity is recorded for each reported sequence of time (a separate supervisory care recovery sequence is included in the model OPS module to record direct care responsibilities concomitant with reported sleep time, as described in section 6.5). The accompanying interviewer guide emphasises the importance of differentiating sequential and simultaneous activities in the diary record.

6.5 Supervisory dimensions of caregiving

The OPS add-on module contains a short, stylised question series to "recover" instances of supervisory care that are under- or un-reported in the main diary roster. This series is administered at the conclusion of the diary roster. The series contains separate fields to

record supervisory care responsibilities for children (aged under 18)[90] and for adults (aged 18 or over) who require assistance or help from others to undertake daily activities due to illness, injury, frailty, or disability[91].

The timing, sequencing, and duration of supervisory care responsibilities are recorded in rosters which replicate the 4am – 4am 96 x 15-minute increments of the main diary roster. Additional fields record the relationship of the caregiver to the care recipient(s). This series is designed to correct for the tendency for supervisory or background / on-call unpaid care responsibilities to be omitted from diary reports.

The record of supervisory care time is deactivated for parallel instances of OPS-based direct child / adult care (as relevant) reported in the main diary roster, to avoid inadvertent double counting of OPS care episodes. The record of supervisory care time is not restricted for OPS-based indirect care episodes recorded in the main diary, to permit analysis of simultaneity cutting across different OPS activity clusters.

6.6 Additional question series

A short "typical day" series is included to record whether the reported diary day is unusual in any way. This series permits apparent anomalies in the time-use record to be contextualised. A final, optional, series is available to permit assessment of respondent familiarity and ease with "clock time"[92]. This series asks respondents to report what time it is. Respondents who are unable to report the time are asked to estimate. The interviewer records the response and the means by which the respondent reported or estimated the time (e.g., reference to a watch, clock, mobile phone /electronic device, an external schedule or timetable, the position of the sun, etc.,). This series is relevant only for settings in which temporal frameworks other than "clock time" dominate.

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[90]This approach builds on innovations originating with NSOs in New Zealand, Canada, and the US.

[91]NSOs in Ecuador and Mexico were among the first to extend data collection on supervisory care to adults.

[92]The theoretical literature on time-use measurement highlights some limitations imposed by the underlying concept of clock-oriented time, or "clock time". Briefly, clock time - expressed in homogenous and divisible units of hours and minutes - regulates time as a series of discrete activities, externally imposing a rigidity of duration, timing, tempo, and rhythm upon the activities of daily life (Adam 1988, 1989). Historically, clock time has been contrasted with "task-oriented" conceptions of time. In contrast to clock time, within a task orientation, activities are planned or unfold in relation to one another. Transitions between activities occur without reference to the external cue of the clock. The incidence, pace, and intensity of tasks are conditioned by the activity itself, and the boundary between work and other aspects of social life is somewhat fluid, as tasks overlap, intersperse, and drift into one another (Pickering 2004). A diversity of social understandings and sense of time co-exist and regulate time use to varying extents within societies, with different forms of work and non-work subject - to a greater or lesser extent - to different temporal regimes (Davies 1994, Everingham 2002).

▶ 7. Attaching the OPS add-on module to national LFS

The OPS module has been developed for attachment to national LFS. This has many potential benefits. National LFS tend to be characterised by relatively large sample sizes, rigorous sampling, and data collection methodologies that ensure the representativeness of the data and minimise threats to data quality, as well as protocols for secure data transfer and storage, and timely release. As a result, the embedding of this add-on modules within an established LFS can enhance acceptability and up-take of statistics on the topic.

When assessing the suitability of a specific national LFS for attachment of the OPS module it is important to thoroughly assess compatibility. National implementation practices for LFS vary in key respects (including temporal coverage, periodicity, data collection mode(s), permissibility of proxy response). The attachment of the OPS module may require non-trivial modifications to LFS field operations, the extent of which will vary according to current LFS practices. Modifications may impact timelines and resource needs, meaning that sufficient lead time should be allowed for planning. The following sections summarise the key considerations.

7.1   Target population

The recommended target population for the OPS add-on module is identical with that of the LFS. National LFS specify the target population as the working-age resident population of the country living in private households (therefore excluding persons below working age and persons resident in collective or institutional settings). In cases where there is interest in measuring OPS for children below working age or for persons residing in institutional settings, alternative approaches may need to be considered (such as independent time-use surveys or alternative parent surveys). It should be noted that the ILO's add-on OPS module has been developed for the working age population[93]. The tools are not intended for the measurement of younger children's time-use[94].

7.2   Frequency and periodicity

When considering attaching the LFS add-on OPS module to a national LFS, the latter's temporal coverage is a key consideration. Independent time-use surveys are ideally organised over the 365 days of the year on a continuous basis. This design permits indicators to be generated at the level of activity domain, accounting for seasonal variations in participation, volume, and intensity over the course of a calendar year. It also negates – or at least minimises – reliance / dependency on model-based assumptions to support valuation exercises – whereby non-market orientated

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[93]The OPS module is based on an assumed age threshold for the working age population of 15 years and over. For countries where a different age threshold is used, the target population can be updated accordingly.
[94]UNICEF (2023) has released time-use modules for attachment to MICS (multiple indicator cluster surveys) to measure children's time-use, available here.

"productive activities" are accorded shadow monetary values – as analogous to GDP contributions.

In practice, however, this design feature (continuous sample distribution across the 365 days of the year), may be absent from – and implausible to implement in – a national LFS. In this scenario, it may be necessary to compromise the temporal coverage of the OPS module to consider (in order of preference, based on sensitivity to seasonal effects) i. monthly, ii. quarterly, iii. biannual, or iv. annual / less than annual coverage.

While this consideration is not unique to the OPS add-on module (the same dilemmas apply to the LFS itself and will often apply to independent time-use surveys in more resource constrained contexts), it may serve as a decisive factor – all else held constant – in ranking exercises to select among alternative candidate parent surveys for modular measurement of OPS.

7.3 Sampling considerations

Time-use measurement imposes a number of sampling considerations, which require careful review at the planning stage.

Reference periods and diary days

The 19th ICLS standards specify reference periods appropriate to each form of work, "based on the intensity of participation and working time arrangements"[95]. For own-use provision of services, the reference period is specified as "one or more 24-hour days within a seven-day or one-week period"[96]. The short, 24-hour, reference period is favoured in time-use measurement as it less prone to recall bias[97]. However, it has a number of implications for the sample design, as well as for field operations, and data analysis.

In addition to generating a probabilistic sample of persons, the sample design for time-use measurement incorporates a "time dimension". This is consistent with the general requirement in frequentist statistics that all population units must have a known (non-zero) probability of selection. In time-use measurement this requirement extends to the days and dates within the survey period. This is necessary to:

i.   Avoid selection bias (convenience-sampled days may differ systematically)
ii.   Achieve a representative sample of days of the week.
iii. Support the calculation of probabilities of selection.

In practice, the incorporation of the time dimension within the sample design is achieved by randomising the pre-assignment of sample units to one or more designated "diary days".

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[95]ILO (2013a: 4,19)
[96]ILO (2013a: 5, 19)
[97]In interviewer-administered approaches, recall-based "yesterday diaries" have long been shown to minimise bias and exaggeration of socially acceptable behaviours (Robinson, 1977)

While it is relatively straightforward to adapt the sample design to obtain a probability sample of days of the week (supported by adjusted sample weights), the designation of a specific diary day or days introduces a number of considerations for survey operations (assuming interview administration). This is because the random assignment of respondents to designated diary day(s) directly conditions the survey participation day (i.e., the day(s) immediately following the diary day(s)).

Upholding this design feature increases the time and effort required to obtain a complete response, since a proportion of sampled individuals will be unavailable, unable, or unwilling to participate in the survey on their assigned day(s). This issue is exacerbated for designs which assign respondents to multiple diary days.

The risk is that response rates for the LFS as well as the OPS add-on module are both impacted, potentially inflating non-response bias. Separate, or semi-separate administration of the OPS add-on module (within respondent modularisation) may be considered in order to insulate the LFS from this heightened risk.

A number of *pending recovery* strategies have been developed to reduce the challenges imposed by the designated diary day feature of time-use measurement[98]. Each of the available strategies seeks to find a balance between retaining a probabilistic mechanism for diary day assignment and minimising the excess burden, duration, and costs of field operations imposed by a strict designated day scheme while maximising the response rate. Each strategy involves trade-offs in exposure to selection bias, measurement error, and the complexity and costs of field operations. Available protocols for the recovery of pending interviews for the OPS module are outlined in Appendix IV of this guide.

Number of diary days

The ILO recommends that the OPS add-on module is administered to each selected respondent for a single, probabilistically selected, diary day. This design is sufficient for most aims, and is the most practical and cost-effective design, taking account of other design features discussed below.

For those familiar with independent time-use survey sample designs, this may represent something of a departure. In the case of independent time-use surveys, it is common to assign respondents multiple diary days. This may involve the random assignment of two consecutive days, or the random assignment of one weekday and one weekend day. The benefit of this approach is that it permits some analysis of day-to-day variation in individual-level time-use (though this may be limited in scope because individual-level time-use for consecutive or closely occurring days tends to exhibit high levels of covariance).

To maximise the analytical benefits of this approach, multiple diary days should be sampled independently, and analysis should be undertaken to assess to what extent

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[98]Appendix IV describes the available strategies and advantages and disadvantages of each.

time-use is correlated for person-days[99]. A less common approach assigns respondents seven consecutive diary days. This design supports analysis of weekly time-use patterns, while maintaining the strengths of the 24-hour reference period. It is, however, a very high-response-burden design, prone to high levels of respondent attrition.

Designs with multiple diary days per respondent are best suited to self-administered survey modes. They will not generally be suitable for face-to-face interviewer administration (though they may be feasible for computer aided telephone interviewing – CATI – mode administration) since interviewers would be required to make multiple visits to the household to obtain data for the multiple diary days (or risk substantial recall bias by extending the lag between the first of the two diary days and the day of the interview).

Because the model OPS add-on module has been developed for face-to-face CAPI interviewer administration in resource constrained settings, the recommendation is to collect data from each respondent for one diary day only. Here, it is important to recall that proxy-response is not recommended for the model OPS module. Increasing the number of diary days therefore increases the risk that the selected respondent is unable or unwilling to participate.

Within household respondent selection

Where the sample size for the parent LFS survey is large enough to support the production of indicators for OPS at the required precision, the recommendation is that the OPS add-on module is administered to one probabilistically selected eligible member per sampled household. This design is sufficient for most aims and avoids unduly complicating field operations.

Traditionally, time-use measurement adopts one of four strategies to select respondents within households [100]:

    i.   All eligible members
    ii.   Two eligible members*
    iii.   One eligible couple-dyad* [not recommended for national implementation]
    iv.   One eligible member*

    Sampled probabilistically in case of multiple eligible respondents or couple dyads

In the most comprehensive within household respondent selection scenario, all eligible members complete the survey / module. This is a favoured strategy for nationally

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[99]In practice, this limits the utility of data for multiple diary days per respondent. For a detailed explanation of this and related issues, see Frazis & Stewart (2012).
[100]In addition to these strategies, a variety of fractional allocation approaches exist to permit within-household sample sizes to vary based on household size to exert greater control over clustering of the sample, they increase the complexity of field-based sampling, and are exempted from consideration here (Clarke and Steel, 2007) provide an overview). NSOs with experience of fractional allocation approaches may wish to consider them.

representative household sample surveys, including LFS[101]. It is often optimal in terms of sampling efficiency[102].

In the two-eligible-member strategy, two members are probabilistically selected from each household. This brings efficiencies in sampling in comparison to one-eligible-member designs, while being somewhat less resource intensive than the all-eligible-member design.

In the one-couple-dyad design, two members of the household forming a married or cohabitating couple are selected (probabilistically in cases where multiple couple-dyads are resident). This strategy permits patterns and trade-offs in spouses' (or cohabitating couples') time use to be subject to analysis. It is particularly suited to analysing the distribution and volume of childcare between cohabitating parents of young children. It must be noted, however, that the target population is restricted by this sample design (i.e., it cannot support the production of OPS indicators for the general population). In the final strategy (one-eligible-member), one respondent is probabilistically selected per household.

The main analytical advantage of the *all-eligible-member* strategy, and to a lesser extent the *two-eligible-member*[103] and *couple-dyad* strategies, is that it supports analysis of intra-household conditional distributions in activity time. In practice, however, analysis of inter-dependencies in intra-household and or dyadic (couple) time-use patterns requires specialised statistical modelling techniques. As a result, such analysis is generally best suited to academic and other advanced research settings. The analytical advantages of a *multiple-respondents-per-household design* are enhanced considerably when multiple diary days are reported. Such multi-respondent, multi-day designs are, however, extremely resource intensive to implement.

While a *one-eligible-member* design cannot support intra-household analysis of time-use, it is adequate for most other aims, including analysis of time allocation by gender, life-stage, education, and other individual characteristics as relevant, at the population and sub-group level. The main advantage of the *one-respondent-per-household* strategy is that it streamlines field operations considerably.

Where multiple respondents per household are selected, all members should be interviewed on the same day. The absence of one member will normally require the substitution of the diary day for all.

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[101]While some countries adopt strategy iv (one person per household) for the LFS (typically when administered telephone-mode), in LMICs, strategy i. dominates, with information on labour force participation and employment collected for all eligible household members (the extent to which proxy-response is permitted varies).

[102]A disadvantage of strategies i - iii is the reduction in statistical efficiency introduced by the clustering of individual observations within the household and, relatedly, the introduction of dependent relationships for the measured data. While multi-level / hierarchical models can accommodate and even make an analytical virtue of cluster effects, the techniques tend to be specialised and are not widely applied in processing national statistics in LMICs.

[103]The *two-eligible-members* design (strategy ii) offers an analytical midway. In settings in which large households are a common feature, the restriction of sampling to two eligible respondents can reduce the response burden at the household level and may reduce the effort required to secure response in comparison with the *all-eligible-member* strategy.

For these reasons, the ILO recommends the LFS add-on module is administered to *one-eligible-member* per household, in most cases. When adopting a *one-eligible-member* strategy, it is essential that the respondent is probabilistically selected from among all eligible household members. Pragmatic / convenience-based substitutions, which skew the resulting sample towards more available and/or cooperative residents, should be avoided. In situations where the global sample size renders the *one-eligible-member* design insufficient to support production of disaggregated OPS indicators at the required precision (and where the additional variable costs can be met), the *two-eligible-member* design may offer a viable alternative.

7.4   Respondent type

The ILO recommends direct response for the OPS add-on module. Proxy response refers to situations in which individual level data is reported indirectly. Usually, this means that one "reference person", chosen for convenience, provides information for all eligible members of the household. The suitability of proxy response *vs* direct response varies by topic. For some topics, including OPS, proxy response is not suitable (exceptions may be made for young children or others who are unable to provide direct reports).

In cases where the national LFS is characterised by extensive proxy-reporting, the addition of the OPS add-on module has potential to inflate variable costs by intensifying and / or extending the data collection period, especially when coupled with probabilistic assignment to days of the week.

This will require careful planning and budgeting to ensure that appropriate accommodations can be made. Usually, the OPS module should be administered on an appointment basis to allow for the pre-assignment of diary days. In some cases, it may be possible to administer the OPS module on the same visit used to collect the LFS data. In other cases, one or more subsequent visits may be required to collect the OPS data for the designated diary day (or a substitute day, when permitted).

7.5   Recommended placement

The OPS add-on module should be sequenced after the LFS core questions (after the questions on employment, job search, previous employment, and own-use production of goods). Where multiple add-on modules are attached to the core LFS, careful consideration of sequencing may be required.

The OPS add-on module has been designed to be as concise as possible. However, the potential for inflated respondent burden, interviewer fatigue, and interview duration remains, and requires careful management. A substantial body of evidence exists, correlating increases in survey length with declining response rates[104,105] and reduced

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[104]Short, Fabic & Choi (2012)
[105]Blumenberg, Menezes, Gonçalves, *et al* (2019)

data quality[106], across all modes. Strategies to minimise these impacts when attaching the OPS module to the LFS include:

- Optimisation of the overall survey length by scheduling different add-on modules on a rotation basis[107].

- Selective administration of the add-on module(s) to a sub-set of the total sample (termed "between respondent modularisation")

- Administration of the core and add-on module(s) at different times (termed "within respondent modularisation")[108].

The between and within respondent modularisation strategies are particularly relevant for modular time-use content, given requirements for incorporating the time dimension in sampling and for direct response.

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[106]Bradley (2016)
[107]Allen, Fleuret, & Ahmed (2020)
[108]Toepoel & Lugtig (2022)

▶ 8. Variable derivation

Time-use data are formatted in a matrix structure, with episodes of time within each individual observation listed vertically and the corresponding activity (or activities) undertaken during each listed episode, together with relevant contextual items, listed horizontally. This results in multiple observations per individual (i.e., long-format).

In the raw data collected in the OPS add-on module, the number of episodes per individual respondent and the duration of activities within each respondent will vary. This is because data for each activity are constrained to the nearest 15-minute timeslot. Where the duration of an activity exceeds 15 minutes, several 15-minute timeslots are collapsed together in the stored raw data file (figure four below).

▶ **Figure 4: Example, OPS module raw-format data file (selected items only)**

Person ID	OPS_TSS	OPS_TSE	OPS_1	OPS_1B	OPS_2
1	04:00	06:00	Sleeping	N/a	Own home
1	06:00	06:15	Personal hygiene	Nothing	Own home
1	06:15	06:45	Cooking	Supervising children	Own home
1	...	...	...	...	...
1	22:45	04:00	Sleeping	N/a	Own home

At an early stage of processing, the raw data file is reconfigured as an episode-format file (figure 5 below). This imposes a uniform structure of 96 x 15-minute episodes for each individual observation by disaggregating the information contained in aggregated episodes. This simplifies further processing considerably.

▶ **Figure 5: Example, OPS module episode-format data file (selected items only)**

Person ID	OPS_TSS	OPS_TSE	OPS_1	OPS_1B	OPS_2
1	04:00	04:15	Sleeping	N/a	Own home
1	04:15	04:30	Sleeping	N/a	Own home
1	04:30	04:45	Sleeping	N/a	Own home
1	04:45	05:00	Sleeping	N/a	Own home
1	05:00	05:15	Sleeping	N/a	Own home
1	05:15	05:30	Sleeping	N/a	Own home
1	05:30	05:45	Sleeping	N/a	Own home
1	05:45	06:00	Sleeping	N/a	Own home
1	...	...	...	...	...

A second round of processing is required to create a summary-format file (i.e., wide format). In the summary format file, the information contained in the episode file is consolidated to create a single row for each individual observation[109]. The long-format episode file structure is transformed to a wide-format summary structure (figure 6 below). Whereas the unit of analysis within the episode file is the episode of time, the unit of analysis for the summary file is the respondent. The time spent on each activity is summarized as the sum total duration for each respondent. This processing step is necessary for calculation of population and sub-group estimates of time-use.

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[109]The terms *episode file* and *summary file* were originally coined in Harvey (1999).

► **Figure 6: Example, OPS module summary-format data file (selected items only)**

Person ID	Activity_mins_C1 (Sleeping)	Activity_mins_C2 (Personal Hygiene)	Activity_mins_C3 (Eating)	…	Activity_mins_C40 (Hobbies)
1	450	120	90	…	30
2	480	60	60	…	15
3	390	30	120	…	0
4	500	45	90	…	60
5	450	90	45	…	30
6	390	15	60	…	0
…	…	…	…	…	…

The derivation of key variables for the OPS module data is undertaken in the derived episode-format file, before being condensed as a separate summary format file for population-level analysis and tabulation. The episode file remains a rich source of data and should be retained for further analysis following the creation of the summary file.

The flowcharts below summarize the variable derivation process in the episode-file. Only the questionnaire items used to generate each variable are included in the flow-charts (i.e., the variable derivation does not represent the entire questionnaire flow).

Key: ☐ Questionnaire item (QI) ◯ QI response code ▭ Derived OPS variable

▭ Interim derived variable ▭ other variable (non-OPS)
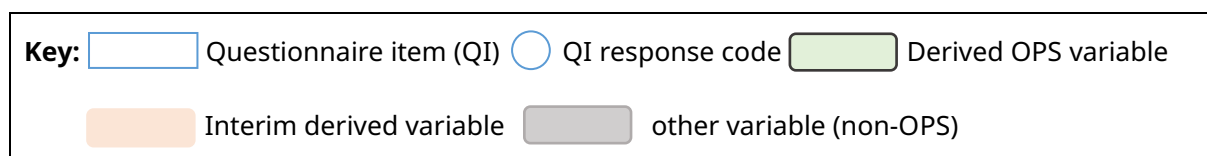
8.1 Own-use provision of services work

Flowchart one sets out the process to derive the variable "own-use provision of services work" for the first activity recorded for each episode (Activity one, $\_A_1$)

► **Flowchart 1: Classification of own-use provision of services work (module OPS_)**
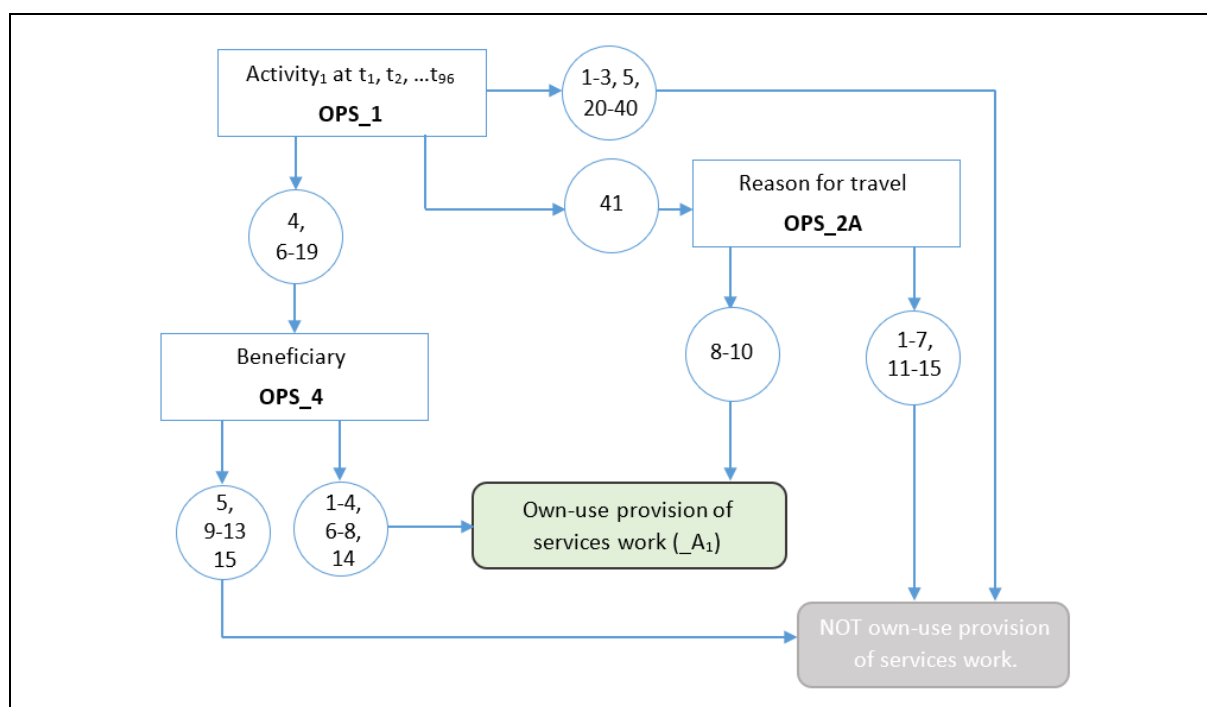
Flowchart one indicates the derivation process for the variable "own-use provision of services work $\_A_1$" (coded 0 for "yes" and 1 for "no"). The suffix $\_A_1$ indicates that the variable refers to the activity reported first for that episode (in contrast to any activity/ies reported as simultaneous). In cases where the optional "global simultaneity" series is omitted, the suffix remains useful to distinguish OPS spontaneously reported in the diary from OPS recovered via the supervisory care sequence (flowchart 3).

Flowchart 2a illustrates the derivation process for activities reported under the optional "global simultaneity" series. The process is repeated for each simultaneous activity reported for each episode. Flowchart two results in the derivation of the variable(s) "own-use provision of services work $\_A_2$, $\_A_3$, $\_A_n$" (coded 0 for "yes" and 1 for "no"). The suffixes $\_A_2$, $\_A_3$, $\_A_n$ indicate that the variable refers to the order in which the simultaneous activity was reported for that episode. In practice, reporting should be limited to a maximum of two simultaneous activities per episode (in addition to activity one).

▶ **Flowchart 2a: Classification of simultaneous own-use provision of services work (module OPS_)**
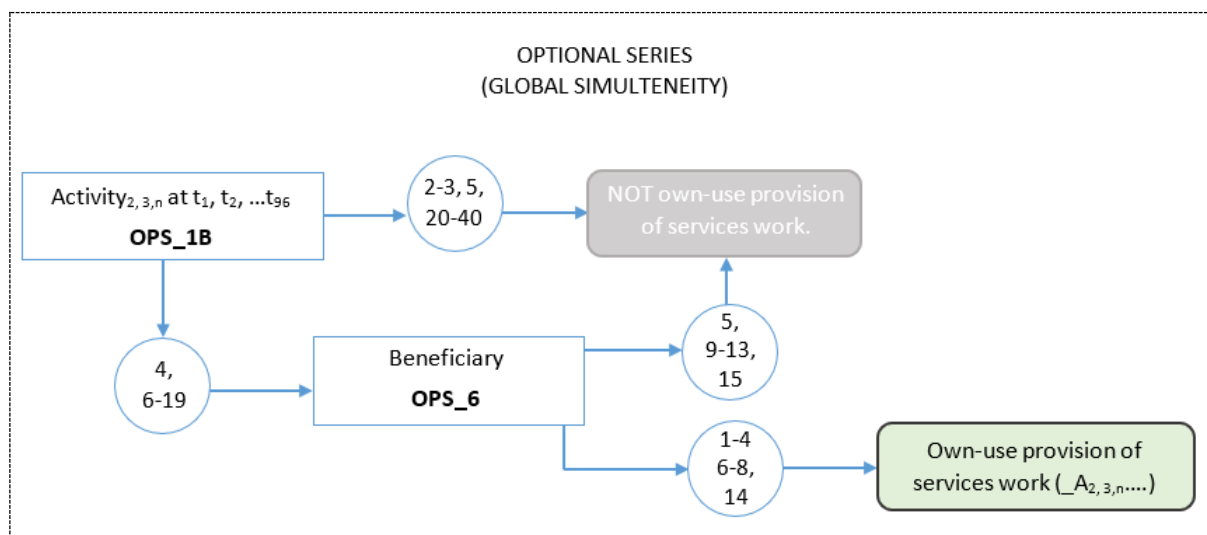
Where there are multiple simultaneous activities reported for a single episode (in addition to activity one ($\_A_1$)), a further variable should be derived to indicate that one or more of the multi-tasking activities refer to OPS. Flowchart 2b illustrates this case. An overarching variable "own-use provision of services work $\_A_2$, $\_A_3$, $\_A_n$" (coded 0 for "yes" and 1 for "no") is derived to indicate the reporting of OPS activities as one or more simultaneous activities.

▶ **Flowchart 2b: Classification of simultaneous own-use provision of services work (module OPS_)**
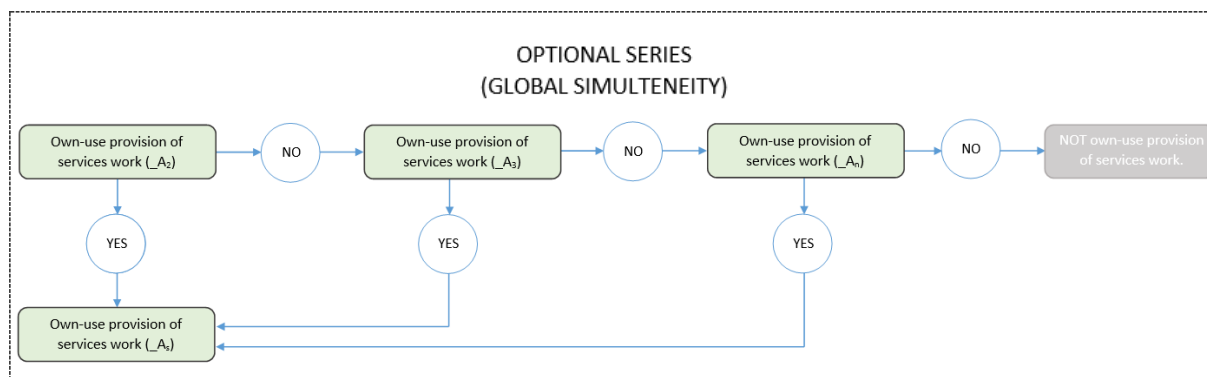
Flowchart 3a illustrates the derivation of the variable "own-use provision of services work _SCC" (coded 0 for "yes" and 1 for "no"). The suffix _SCC indicates that the variable refers to supervisory childcare activities captured by the recovery module (module _RSC) in contrast to activity/ies reported in the main diary roster (module _OPS). Flowchart 3b illustrates the process for deriving the variable "own-use provision of services work _SCA" (coded 0 for "yes" and 1 for "no"). The suffix _SCA indicates that the variable refers to supervisory adult-care activities captured by the recovery module (module _RSC).

▶ **Flowchart 3a: Classification of supervisory childcare own-use provision of services work (module RSC_)**
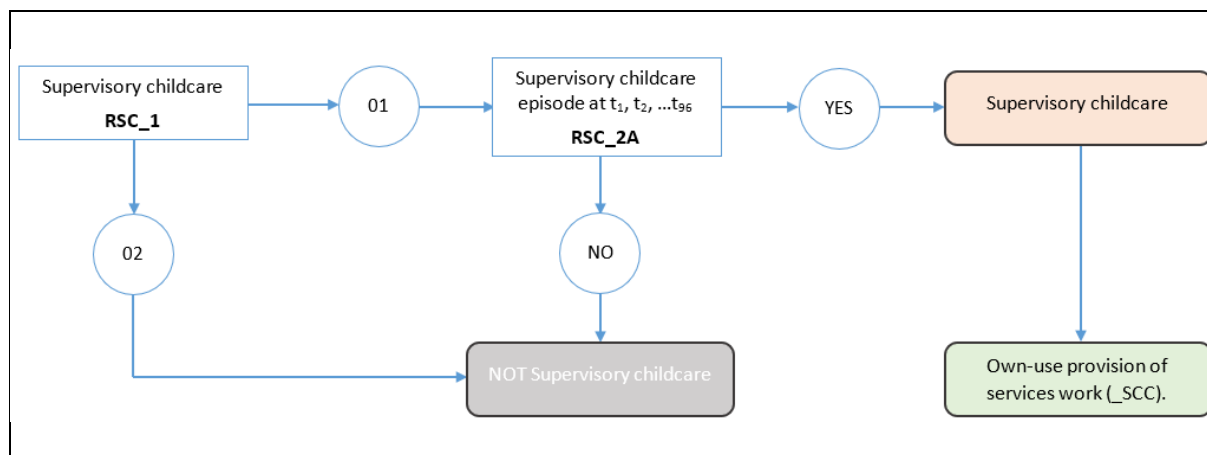
▶ **Flowchart 3b: Classification of supervisory adult-care own-use provision of services work (module RSC_)**
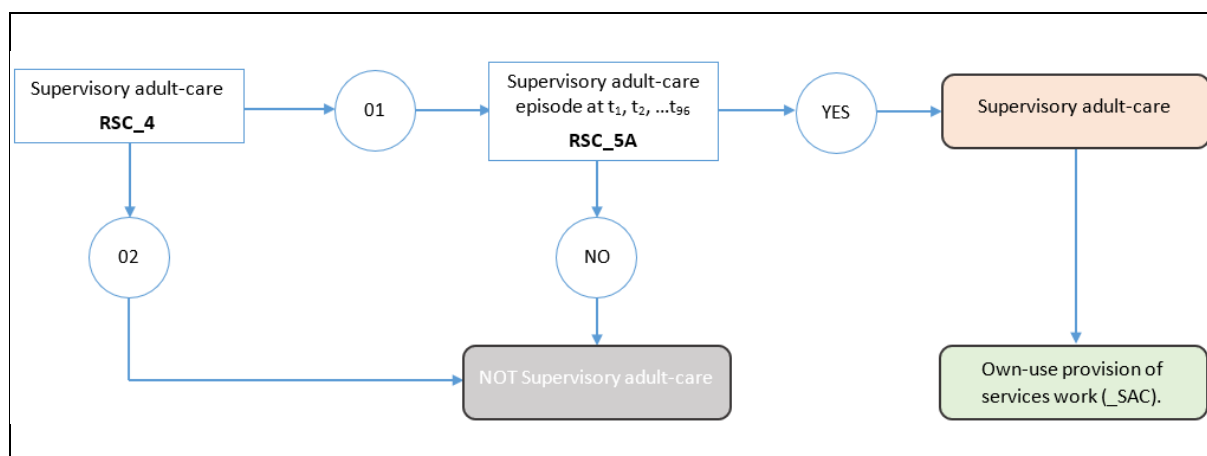
8.2   Activity clusters within own-use provision of services work

The workflow depicted under section 8.1. also applies to the derivation of variables for each of the four OPS activity clusters, and (if desired) by unpaid domestic work and unpaid care work undertaken as OPS. The corresponding flowcharts are provided in Appendix III of this guide.

▶ 9. Key indicators and tabulations

The 19th ICLS standards specify the production of three statistical indicators for own-use provision of services. These are headcounts, participation rates, and volume measures, computed for the category as a whole and by activity cluster[110].

- **Headcounts:** Refers to the estimated number of persons within the population who performed OPS work during the reference period. Expressed in measurement units of thousands or millions of persons.

- **Participation rates:** Refers to the proportion of the population who performed OPS work during the reference period. Expressed as a percentage.

- **Volume measures:** Refers to total time spent performing OPS work during the reference period. Volume estimates may be calculated for the population as a whole or may be restricted to the population who performed OPS work during the reference period. Expressed in units of time (hours or minutes).

These indicators are broadly consistent with the minimum headline indicators for reporting time-use data:

- Headcounts (number of persons undertaking activity) by activity domain

- Participation rates (proportion of population participating) by activity domain.

- Volume measures:

    o Mean time spent (minutes per day or hours per week) on activity/ies of interest, for the population (or sub-groups of interest) as a whole (sometimes termed *'social time'*)

    o Mean participant time spent (minutes per day or hours per week) by activity/ies, of interest for the participating population only, or sub-groups thereof (sometimes termed *'participant time'*)

Volume measures for time-use data are calculated in one of two ways (and often both), with the difference based on the denominator of interest. These are *mean time spent (or social time),* where the denominator includes all observations, and *mean participant time spent,* where the denominator is restricted to participants in the activity of interest*.

This guidance recommends that volume measures are calculated as both *mean time spent (social time)* and *mean participant time spent* to allow for sensitivity to variations over time, to highlight important sub-group differences, and to align with common practice for core labour force indicators. The two volume indicators serve complementary purposes. The *mean time spent* indicator exhibits greater sensitivity to change over time and to differences among countries. This is because changes in the volume of time spent on an activity class may originate in the amount of time allocated to an activity domain by participants, the proportion of the total population (or population sub-group) participating in the activity class, or a combination of the two. This greater sensitivity to change / difference is one reason why the *mean time spent* (*social time*) indicator provides

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[110]ILO (2013a: 15: 74B)

the basis for SDG Indicator 5.4.1 ("the proportion of time spent [in a day[111]] on unpaid domestic and care work by sex, age[112], and location[113]").

The *mean participant time spent* indicator captures only the first source of change over time / difference among countries (the amount of time allocated to an activity domain by participants). This does not dampen its importance as an indicator. Participant time spent (and changes / differences in participant time spent) is highly informative when the interest is in understanding the situation and circumstances of participating populations, such as those in employment or those with unpaid care responsibilities. It forms the basis of many core labour force survey indicators.

Participant time indicators can be vulnerable to misinterpretation when time-use is comprehensively reported. This is because the sum of different (primary) activity domains will exceed 24 hours (or 168 hours for a 7-day week), since the cohort of participants differs across the reported activity classes. This is not, in itself problematic, but points to the need for transparent and cautious reporting. Conversely, since only participant's time allocations are included in the estimation, the average participant time spent for each activity will align more closely with intuitive expectations (e.g., an average of ~8 hours spent in employment), when compared with *social time* indicators.

The 19th ICLS standards specify that indicators for OPS should be computed for the population as a whole, and disaggregated by:

- Sex
- Age group (including separate categories for youth)[114]
- Education level
- Place of residence (geographic region, urban and rural)

The standards also allow for disaggregation by "other relevant characteristics" taking account of the statistical precision of the estimates[115]. In the case of OPS, other relevant characteristics may include:

- Labour force status
- Employment status and characteristics
- Marital status
- Parenthood status

The model add-on OPS module supports the computation of headcounts, participation rates, and volume measures, for OPS overall and by activity cluster, and for the population as a whole and disaggregated by relevant characteristics. Table 3, below, summarises the key indicators and tabulations recommended for OPS.

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[111]The reference period – in square brackets – is specified in the UN metadata for Indicator 5.4.1. (UN, 2023)
[112]Age: 15+, 15-24, 25-44, 45-54, 55-64 and 65+ (UN 2023)
[113]Location: Urban/rural (according to national definitions in absence of standardised international definition) (UN 2023)
[114]The relevant guidance on disaggregation by age-band states: "Five-year age bands should be used for the main aggregates, where the lowest age bracket refers to persons aged 15–19 years and the highest age bracket to persons aged 75 years and above. Where concerns regarding the precision of the estimates impede disaggregation by five-year age bands, broader bands may be used; in all cases these should include 15–24 years, 25–34 years, 35–54 years, 55–64 years, 65–74 years and 75 years and above" (ILO (2013a: 18:93)
[115]ILO (2013a: 14: 71)

Table 3: Recommended indicators and tabulations

	ILO model OPS module: Recommended indicators and tabulations* (*Disaggregated by sex, age group, education level, place of residence, and other relevant characteristics, taking account the statistical precision of the estimates)
1.	Headcounts performing OPS work, expressed as thousands or millions of persons
2.	Participation rates for OPS work, expressed as proportion of population participating
3.	Volume measure 1a: Mean time spent: Total population (minutes/day) in OPS work ("main activities" only)
4.	Volume measure 1b: Mean time spent: Total population (minutes/day) in OPS work (all reported activities (includes "secondary activities" and recovery of "passive / supervisory care time" if data is collected[116]))
5.	Volume measure 2a: Mean participant time spent (minutes/day) in OPS work ("main" activities only)
6.	Volume measure 2b: Mean participant time spent (minutes/day) in OPS work (all reported activities (includes "secondary activities" and recovery of "passive / supervisory care time" if data is collected))
7.	Headcounts performing OPS work separately calculated for activity clusters 1 - 4, expressed as thousands or millions of persons
8.	Participation rates for OPS work separately calculated for activity clusters 1 - 4, expressed as proportion of population participating
9.	Volume measures 3a – 3d: Mean time spent: Total population (minutes/day) in OPS work separately calculated for activity clusters 1 - 4 ("main activities" only)
10.	Volume measures 3e – 3h: Mean time spent: Total population (minutes/day) in OPS work separately calculated for activity clusters 1 - 4 (all reported activities (includes "secondary activities" and recovery of "passive / supervisory care time" if data is collected))
11.	Volume measures 4a – 4d: Mean participant time spent (minutes/day) in OPS work separately calculated for activity clusters 1 - 4 ("main" activities only)
12.	Volume measures 4e – 4h: Mean participant time spent (minutes/day) in OPS work separately calculated for activity clusters 1 - 4 (all reported activities (includes "secondary activities" and recovery of "passive / supervisory care time" if data is collected))
13.	Headcounts performing OPS work summed for activity clusters 1 – 3 (indirect care / unpaid domestic work), expressed as thousands or millions of persons
14.	Participation rates for OPS work summed for activity clusters 1 – 3 (indirect care / unpaid domestic work), expressed as proportion of population participating
15.	Volume measures 5a: Mean time spent: Total population (minutes/day) in OPS work summed for activity clusters 1 – 3 (indirect care / unpaid domestic work) ("main activities" only)
16.	Volume measures 6a: Mean time spent: Total population (minutes/day) in OPS work summed for activity clusters 1 – 3 (indirect care / unpaid domestic work) (all reported activities (includes "secondary activities" and recovery of "passive / supervisory care time" if data is collected))
17.	Volume measures 7a: Mean participant time spent (minutes/day) in OPS work summed for activity clusters 1 – 3 (indirect care / unpaid domestic work) ("main" activities only)
18.	Volume measures 8a: Mean participant time spent (minutes/day) in OPS work summed for activity clusters 1 – 3 (indirect care / unpaid domestic work) (all reported activities (includes "secondary activities" and recovery of "passive / supervisory care time" if data is collected))
19.	SDG Indicator 5.4.1: Proportion of time spent on unpaid domestic and care work (expressed as a percentage (%)), by sex, age, and location. *NB: The specified denominator for the calculation of SDG Indicator 5.4.1 is the total population[117].* *Only "main activity" time (where measured separately) is included in the calculation of SDG Indicator 5.4.1[118].*

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[116]Only *net* secondary and supervisory OPS activities are included. That is, episodes containing multiple OPS activities reported in "main", simultaneous, and/or supervisory fields are constrained to a single episode of OPS for the purpose of the production of the indicator. The same restriction is applied for indicators 2b, 3e – 3h, 4e – 4h, 6a, and 8a. Additional restrictions on joint production may be imposed when producing extended or satellite accounts for own-use provision of services (UNECE 2013).

[117]UN (2023: 6)

[118]UN (2023: 5, para c.)

▶ Bibliography

Ås, D. (1978). Studies of Time Use: Problems and Prospects. *Acta Sociologica*, 15:2, 125-141.

Abraham, K.G., Maitland, A., and Bianchi, S. (2006). "Nonresponse in the American Time Use Survey: Who is Missing from the Data and How Much Does It Matter?" *Public Opinion Quarterly* 70(5):676-703

Abraham, K.G., Helms, S., and Presser, S. (2009). How Social Processes Distort Measurement: The Impact of Survey Nonresponse on Estimates of Volunteer Work in the United States. *American Journal of Sociology* 114(4): 1129-1165

Adam, B. (1988) 'Social versus natural time, a traditional distinction re-examined', in M. Young and T. Schuller (eds) *The Rhythm of Society*, London and New York, NY: Routledge, pp 198-226.

Adam, B. (1989) 'Feminist social theory needs time', *The Sociological Review*, vol 37, pp 458-73.

Allen, C.K., Fleuret, J., Ahmed, J. (2020) "Data quality in demographic and health surveys that used long and short questionnaires" DHS methodological reports (30)

Antonopoulos R., Hirway I. (2009). *Unpaid work and the economy, gender, time-use, and poverty in developing countries*. London, Palgrave-Macmillan.

Baxter, I, and Michael Bittman. (1995). "Measuring Time Spent on Housework: A Comparison of Two Approaches." *Australian Journal of Social Research* 1:21-46

Bell, K., Fahmy, E. & Gordon, D. (2016) "Quantitative conversations: the importance of developing rapport in standardised interviewing". *Qual Quant* 50, 193–212. Doi: 10.1007/s11135-014-0144-2

Benería, L. (1992) *"Accounting for women's work: The progress of two decades"* World Development, 1992, 20:11, 1547-1560, doi.org/10.1016/0305-750X(92)90013-L.

Benería, L. (1999) *"The enduring debate over unpaid labour"* International Labour Review, 1999,

Bianchi, S., Milkie, M., Sayer, L. and Robinson, J. (2000) 'Is anyone doing the housework? Trends in the gender division of household labour', *Social Forces*, vol 79, no 1, pp 191-228.

Bittman, M. and Wajcman, J. (2000) 'The rush hour: the character of leisure time and gender equity', *Social Forces*, 79:1, 165-89.

Blumenberg, C., Menezes, A.M., Gonçalves, H., *et al.*, (2019) "The role of questionnaire length and reminder frequency on response rates to a web-based epidemiologic study: A randomised trial" International Journal of Social Research Methodology, 22: 625-635

Bonke, J. (2005). Paid work and unpaid work: Diary information versus questionnaire information. Social Indicators Research, 70:349–368.

Bradley, S.E. (2016) "When quality matters: Linking the reliability of demographic and health survey data to biases in international mortality, fertility, and family planning estimates" Berkeley, UC Berkeley Press

Brady T. West, Frederick G. Conrad, Frauke Kreuter, Felicitas Mittereder, Can Conversational Interviewing Improve Survey Response Quality Without Increasing Interviewer Effects? *Journal of the Royal Statistical Society Series A: Statistics in Society*, 181:1, 181–203, Doi: 10.1111/rssa.12255

Bryson, V. (2007). *Gender and the politics of time: Feminist theory and contemporary debates*. Bristol, Policy Press.

Budig M, Folbre N. (2004) "Activity, Proximity or Responsibility? Measuring Parental Childcare Time". In Folbre, N and Bittman, M, eds. Family Time: The Social Organization of Care. New York: Routledge; 2004. p. 51–68

Carrasco, C. & Serrano, M., (2011) "Lights and Shadows of Household Satellite Accounts: The case of Catalonia, Spain". Feminist Economics, 17:2, 63-85, DOI: 10.1080/13545701.2011.573483

Charmes, Jacques. 2017. "The Unpaid Care Work and the Labour Market. An Analysis of Time Use Data Based on the Latest World Compilation of Time-Use Surveys," Report prepared for the ILO, Gender, Equality and Diversity Branch (GED). Geneva: ILO.

Charmes, Jacques. 2020. "Measuring Time Use: An Assessment of Issues and Challenges in Conducting Time-use Surveys with Special Emphasis on Developing Countries: Methodological Inconsistencies, Harmonization Strategies, and Revised Designs." Mexico City: UN Women.

Ciciolla L, Luthar S. Invisible Household Labor, and Ramifications for Adjustment: Mothers as Captains of Households. Sex Roles. 2019 Oct;81(7-8):467-486. doi: 10.1007/s11199-018-1001-x.

Clark, R.G. & Steel, D.G. (2000). The effect of using household as a sampling unit. University of Wollongong

Craig, L. (2002) *The Time Cost of Parenthood: An Analysis of Daily Workload*, Sydney: Social Policy Research Centre, University of New South Wales

Davies, K. (1994) 'The tensions between process time and clock time in care-work', *Time and Society*, 3:3, 277-303.

ECLAC and UNSD (2020), *Policy relevance: Making the case for time-use data collections in support of SDGs monitoring paper submitted to the SC of 2020*, Background document, 51st Session of the Statistical Commission, Item 3(m), New York, Economic Commission for Latin America, and the Caribbean and UNSD Secretariat, 2020. Available here.

Eichler M, & Albanese P (2007). What is household work? A critique of assumptions underlying empirical studies of housework and an alternative approach. The Canadian Journal of Sociology/Cahiers Canadiens de Sociologie, doi: 32(2), 227–258. 10.2307/20460633

Elson, D. (2017), "Recognise, Reduce, Redistribute Unpaid Care Work: How to Close the Gender Gap", *New Labour Forum*, March 2017

Erickson RJ (2005). Why emotion work matters: Sex, gender, and the division of household labor. Journal of Marriage and Family, 67(2), 337–351. doi: 10.1111/j.0022-2445.2005.00120.x

Esquivel, V., D. Budlender, N. Folbre, and I. Hirway. 2008. "Explorations of Time Use Surveys in the South." *Feminist Economics* 14 (3): 107–152. doi: 10.1080/13545700802075135

Esquivel, V., 2011. Sixteen years after Beijing: what are the new policy agendas for time-use data collection? *Feminist Economics*, 17 (4), 215–38.

Eurostat (2010) "Terminology related to the implementation of the vision on the production method of EU Statistics", Radermacher, W., Baigorri, A., Delcambre, D., Kloek, W., Linden, H.

Everingham, C. (2002) 'Engendering time: gender equity and discourses of workplace flexibility', *Time and Society*, 11: 2,3: 335-51

Folbre, Nancy. (2006). "Measuring Care: Gender, Empowerment, and the Care Economy.". *Journal of Human Development*, 7(2): 183–99.

Folbre, N. (2021) "Quantifying Care: Design and Harmonization Issues in Time-Use Surveys", United Nations Entity for Gender Equality and the Empowerment of Women, UN Women, and the Global Centre of Excellence on Gender Statistics (CEGS), Mexico City

Fraser, N. (2016) "Contradictions of capital and care", *New Left Review, 100: July-August, 99-117*

Frazis, H. and 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* , 2012, No. 105/106: 231-245

Fricker, S., and Tourangeau, R. (2010). "Examining the Relationship Between Nonresponse Propensity and Data Quality in Two National Household Surveys." *Public Opinion Quarterly* 74(5): 934-95

Gershuny, J. (2000) *Changing Times: Work and Leisure in Postindustrial Society*, Oxford: Oxford University Press

Gershuny, J. (2012). "Too Many Zeros: A Method for Estimating Long-Term Time-Use from Short Diaries." *Annals of Economics and Statistics* 105/106: 247-270.

Gershuny, J. and Sullivan, O. (2003) 'Time use, gender, and public policy regimes', *Social Politics*, 10:2,205-28.

Gershuny, J., Vega-Rapun, M., and J. Lamote (2020) "Multinational Time Use Study.v7." Centre for Time Use Research, University College London.

Harrison, A., ed., 2005. "The background to the 1993 revision of the System of National Accounts" Available here.

Harvey, A. (1993). Guidelines for Time Use Data Collection. *Social Indicators Research, 30*(2/3), 197-228.

Harvey, A. (1999). Guidelines for Time Use Data Collection and Analysis. In Wendy E. Pentland, Andrew S. Harvey, Powell Lawton, and Mary Ann McColl (Eds.) Time Use Research in the Social Sciences, Kluwer Academic/Plenum Publishers, New York

Hofferth, S. (2000) National Research Council (U.S.). Committee on National Statistics. Family reading to young children: social desirability and biases in reporting. In: Ver Ploeg, M., editor. Time-use measurement and research: report of a workshop. Washington, D.C: National Academy Press

Holloway, S. and Tamplin, S. (2001) *Valuing Informal Childcare in the UK*, London: Household Satellite Account Branch, Office for National Statistics.

ILO (1982) 13th ICLS Resolution concerning statistics of the economically active population, employment, unemployment and underemployment. Available here.

ILO (2013a) 19th ICLS Resolution I: Resolution concerning statistics of work, employment, and labour underutilization, ICLS-Resolution-I-[STATI-131114-1], Geneva, International Labour Organisation, 2013. Available here.

ILO (2013b) *19th ICLS* Report II – Statistics of work, employment, and labour underutilization , [ICLS/19/2013/2], Geneva, International Labour Organisation, 2013. Available here.

ILO (2018) Care work and care jobs for the future of decent work, International Labour Office, Geneva: ILO, 2018. ISBN: 978-92-2-131643-5. Available here.

ILO (2019) *A Quantum Leap for Gender Equality: For a better future of work* for all: Geneva, International Labour Office, Geneva: ILO, 2019. Available here.

ILO (2022) Care at work: Investing in care leave and services for a more gender equal world of work, International Labour Office, Geneva: ILO, 2022. ISBN: 978-92-2-036679-0

ILO (2023a) *21st ICLS: General Report I.* International Labour Office, Geneva: ILO, 2023. Available here.

ILO (2023b) *21st ICLS: Room Document 7: "New modular LFS tools for statistics on own-use provision of services"*, International Labour Office, Geneva: ILO, 2023. Available here.

ILO (2023c) *21st ICLS: Room Document 8: Statistical definitions of care work.* International Labour Office, Geneva: ILO, 2023. Available here.

ILO (2023d) *21st ICLS:* General Report III. International Labour Office, Geneva: ILO, 2023. Available here.

ILO (2023e) *21st ICLS:* Resolution II: Resolution concerning statistics of work, employment, and labour underutilization. ICLS-Resolution-I-[ICLS/21/2023/RES. II], Geneva, International Labour Organisation, Available here.

Ioannidis, Evangelos, *et al*. (2016). "On a Modular Approach to the Design of Integrated Social Surveys. Journal of Official Statistics". 32. Doi: 10.1515/jos-2016-0013.

Ironmonger, D. (2003) "There are only 24 hours in a day! Solving the problematic of simultaneous time", Proceedings of the 25th IATUR Conference on Time Use Research.

Ironmonger, D. (2004) "Bringing up Bobby and Betty: the inputs and outputs of childcare time", in N. Folbre and M. Bittman (eds) *Family Time: The Social Organization of Childcare*, London, Routledge, 93-109.

ISWGNA (2008). *System of national accounts* 2008, Washington, DC: Inter-Secretariat Working Group on National Accounts.

Juster, F.T. (1985). "The Validity and Quality of Time Use Estimates Obtained from Recall Diaries." In *Time, Goods, and Well Being*, ed. F. Juster and F. Stafford. Ann Arbor: University of Michigan, Institute of Social Research, 63-91

Juster, F. T., Hiromi. O., and Stafford, F. P. (2003) "An Assessment of Alternative Measures of Time Use", Sociological Methodology, 2003;33: pp. 19-54, Available here.

Kalton, G. (1985). "Sample Design Issues in Time Diary Studies." In *Time, Goods, and Well Being*, ed. F. Juster and F. Stafford. Ann Arbor: University of Michigan, Institute of Social Research, 333-351

Karlberg, Martin, *et al* (2015). "A toolbox for a modular design and pooled analysis of sample survey programmes". Statistical Journal of the IAOS. 31. 447-462. Doi: 10.3233/SJI-150913.

Kan, Man Yee., Pudney, Stephen (2008) "Measurement Error in Stylized and Diary Data on Time Use" *Sociological Methodology*, 2008;38, pp. 101-132; http://www.jstor.com/stable/20451151 JSTOR

Kan, Man Yee., (2008) "Measuring Housework Participation: The Gap between "Stylized" Questionnaire Estimates and Diary-based Estimates." Social Indicators Research 86:381-400.

Kitttererød, R. H. and Lyngstad, T. H. (2005). Diary versus questionnaire information on time spent on housework - The case of Norway. Electronic International Journal of Time Use Research, 2, 1.

Lyberg, I. (1989). Sampling, Nonresponse, and Measurement Issues in the 1984-85 Swedish Time Budget Survey. In Proceedings of the Fifth Annual Research Conference: Department of Commerce, Bureau of the Census, pp. 210-238

Marini, M.M, Shelton, B. A. (1993) "Measuring Household Work: Recent Experience in the United States." *Social Science Research* 22:361-382

Michelson, W. (1985). FROM sun to sun: Daily obligations and community structure in the lives of employed women and their families. Totowa, NJ: Rowman & Allenheld

Michelson, W.H. (2005) Time Use: "Expanding Explanation in the Social Sciences", New York, NY, Routledge

National Research Council (2000). Time-Use Measurement and Research: Report of a Workshop. Washington, DC: The National Academies Press https://doi.org/10.17226/9866.)

Niemi, Iiris. (1993). "Systematic Error in Behavioural Measurement: Comparing Results from Interview and Time Budget Studies." *Social Indicators Research* 30:229-44.

Otterbach, S., & Sousa-Poza, A. (2010). How accurate are German work-time data? A comparison of time-diary reports and stylized estimates. *Social indicators research*, *97*(3), 325-339.

Pickering K (2004) Decolonizing time regimes: lakota conceptions of work, economy, and society. *American Anthropologist* 106: 85–97.

Pleck, J. H. (1985). Working wives, working husbands. Beverly Hills, CA: Sage

Press, J.E., and Townsley. E. (1998). "Wives' and Husbands' Housework Reporting: Gender, Class, and Social Desirability" Gender and Society 12:188-218

Reid, M. G. (1934). Economics of Household Production. New York: John Wiley and Sons, Inc.

Reis, F. (2013). "Links Between Centralisation of Data Collection and Survey Integration in the Context of the Industrialisation of Statistical Production." Working paper presented at the UNECE Seminar on Statistical Data Collection, 25–27 September 2013, Geneva, Switzerland. Available here.

Robinson, J. P. (1977). *How Americans use time: A social-psychological analysis of everyday behaviour*. New York, NY: Praeger.

Robinson, J. P. (1985). The validity and reliability of diaries versus alternative time use measures. In F. T. Juster & F. P. Stafford (Eds.), *Time, goods, and well-being* (pp. 33–62). Ann Arbor: University of Michigan, Institute of Social Research.

Robinson, J., and Godbey, G., (1997) Time for Life: The Surprising Ways American Use Their Time (State College, Penn.: Penn State Press

Schulz, F., & Grunow, D. (2012). Comparing diary and survey estimates on time-use. European Sociological Review, 28(5), 622. https ://doi.org/10.1093/esr/jcr030

Schwarz, N. (2007): "Retrospective and Concurrent Self-Reports: The Rationale for Real-Time Data Capture". In: Stone, Arthur; Saul Shiffman, Audie Atienza, and Linda Nebeling (Eds.) (2007). The science of real-time data capture: Self-reports in health research. New York: Oxford University Press

Seymour, G., Malapit, H., & Quisumbing, A. (2020) Measuring Time Use in Developing Country Agriculture: Evidence from Bangladesh and Uganda, Feminist Economics, 26:3, 169-199, DOI: 10.1080/13545701.2020.1749867

Shaw SM (2008). Family leisure and changing ideologies of parenthood. Sociology Compass, 2(2), 688–703. Doi: 10.1111/j.1751-9020.2007.00076.x

Short, M., Fabic, Y. Choi, S. Bird (2012) "A systematic review of demographic and health surveys: Data availability and utilization for research" Bulletin of the World Health Organization, 90 (8) (2012), 604-612, Doi:10.2471/BLT.11.095513

Stewart, J. (2002). "Assessing the Bias Associated with Alternative Contact Strategies in Telephone Time-Use Surveys. Washington DC: Bureau of Labour Statistics

Stewart, J. (2006). "Assessing Alternative Dissimilarity Indexes for Comparing Activity Profiles." *International Journal of Time Use Research*. 3(1): 49-59.

Stiglitz, J., Sen, A., and Fitoussi, J., 2009. *Report by the commission on the measurement of economic performance and social progress*. Paris: Commission on the Measurement of Economic Performance and Social Progress. Available here.

Stinson L. (1999) "Day-of-week" differences and implications for time-use research. *Proceedings of the Survey Research Methods Section, American Statistical Association.* Available here.

Toepoel, V., & Lugtig, P. (2022). "Modularization in an Era of Mobile Web: Investigating the Effects of Cutting a Survey Into Smaller Pieces on Data Quality". Social Science Computer Review, 40(1), 150–164. Doi: 10.1177/0894439318784882

UN (2005) Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work, Department of Economic and Social Affairs, Statistics Division, ST/ESA/STAT/SER/93, United Nations, New York. Available here.

UN (2021), *International Classification of Activities for Time-Use Statistics 2016*, New York, United Nations, 2021, eISBN: 978-92-1-045150-5. Available here.

UN (2023), *SDG Indicator Metadata, Indicator 5.4.1*, updated 2023-03-31, New York, United Nations, 2023. Available here.

UNECE (2013) *Guidelines for harmonizing time-use surveys.* Geneva. United Nations Economic Commission for Europe. Available here.

UNICEF (2023) MICS7 Tools, Complementary Questionnaire Topics: Time Use, United Nations International Children's Emergency Fund. Available here

Van Ingen, E., Stoop, I., and Breedveld, K. (2011). "Nonresponse in the Dutch Time Use Survey: Strategies for Response Enhancement and Bias Reduction" *Field Methods* 21(1):69-90.

Walthery, P. and Gershuny, J. (2019). *Improving stylised working time estimates with time diary data: A multi study assessment for the UK*. Social Indicators Research, 144:1303–1321. DOI:10.1007/s11205-019-02074-3

Waring, M. (1988) "If Women Counted: A new feminist economics", New York, NY, Harper & Row

Waring, M., (1999) *Counting for nothing: what men value and what women are worth*. 2nd ed. Toronto: University of Toronto Press.

Waring, M., (2003) 'Counting for something! Recognizing women's contribution to the global economy through alternative accounting systems. *Gender and Development*, 11(1), 35–43.

WHO & ILO (2022) "The gender pay gap in the health and care sector: a global analysis in the time of COVID-19". Geneva, World Health Organisation.

Wood, C., (1997).The first world/third party criterion: a feminist critique of production boundaries in economics. *Feminist Economics*, 3 (3), 47–68.

Yun, D., and O'Kelly, M.E. (1997). Modeling the Day-of-the-week Shopping Activity and Travel Patterns. *Socio-Economic Planning Science* 31(4): 307-319

Zuzanek, J., and Smale, B.J.A. (1999). "Life-Cycle and Across-the-Week Allocation of Time to Daily Activities." In *Time Use Research in the Social Sciences*, ed. W. Pentland, A. Harvey, M.P. Lawton, and M.A. McColl. New York: Kluwer Academic Plenum Publisher

▶ Appendix I: Labour Force Survey add-on OPS questionnaires

Conventions used in the ILO model LFS questionnaires for CAPI:

• Regular text: Indicates text to be read by the interviewer.

• *Italics: Indicates interviewer instructions or aids, not to be read aloud.*

• CAPS: INDICATES RESPONSE CATEGORIES AND FILTERS NOT TO BE READ ALOUD.

• (Parenthesis): Indicates that a choice or a substitution must be made.

• Red text: Indicates overall filter groups to be asked a question/set of questions, related instructions, or other guidance to the developer.

• [Blue text within square brackets]: Indicates text to be adapted as per national circumstances.

• Bold text: Indicates question numbers, section headings, skips, other structural items.

OPS MEASUREMENT, HYBRID LIGHT DIARY MODULE OPS_

OBJECTIVES AND SCOPE
- To record the timing, duration, and sequencing of all activities undertaken by persons over a 24-hour reference period.
- To accurately classify and characterise activities undertaken by persons over a 24-hour reference period.
- The sequence is aligned with the 19th ICLS standards (2013), the UN ICATUS (2016), and the SNA (2008)
- This module marks the start of the personal hybrid light diary covering a period of 24 hours from 04:00 on the day prior to the interview until 04:00 of the day of the interview.

IMPLEMENTATION NOTES
- To be asked of a minimum of one probabilistically sampled eligible household member.
- Proxy reporting is NOT permitted for module OPS_
- The 24-hour reference period is divided into 96 x 15-minute time slots. Start and end times are recorded by selection of the corresponding 15-minute episode. Intervening episodes are filled automatically.
- 41 pre-coded activities are listed on page 5.
- Additional contextual information fields are automatically activated for selected activities.
- Two global variables (OPS_TSS, OPS_TSE) are created as pre-filled variables to direct the interview flow and inform calculation of additional background variables (not shown here for ease of navigation)
- **NB: Items OPS_1B, OPS_6, and OPS_7 record simultaneous activities. Optional for countries.**

OPS_1
INTERVIEWER TO READ:
The purpose of this section of the survey is to create a snapshot of daily life in [COUNTRY]. That is, how people spend their day – the things they do, the places they go, and the responsibilities they have. I'm going to ask you about what you did yesterday. We will start with what you were doing at 4am yesterday morning. We begin at 4am because people are often asleep at that time. This allows us to capture the start of the waking day. Please tell me what you did yesterday in the order that you did it. Try to tell me as much detail as you can about what you were doing, where you were, and who was with you throughout the day.

  Thinking about yesterday, what were you doing at [4am…]?
  [SELECT FROM PRE-CODED ACTIVITIES]
CAPI implementation: Subsequent loops: And what did you do next…?
  Until when?
  [SELECT FROM DROP-DOWN LIST OF 15-MINUTE TIMESLOTS]

OPS_CHK *CAPI implementation: If OPS_1<>01 at 04:00:*
  What time did you wake up yesterday?
  HH:MM
  9977: DID NOT SLEEP THAT NIGHT (E.G., WORKING NIGHTSHIFT)

OPTIONAL ITEM
IF (OPS_1 <> 01, 41, 97)
OPS_1B
  Were you doing anything else at the same time as you were [OPS_1]?
  ALL THAT APPLY
  [SELECT FROM PRE-CODED ACTIVITIES]
IF OPS_1B = 43 (ACTIVATES ONCE ONLY [FIRST INSTANCE OF OPS_1B = 43])
  For instance, were you talking with a family member, friend, or neighbour, or [minding or watching over] a child, or eating a snack, or listening to the radio …

  Until when did you [OPS_1B]? [Select from drop-down list of 15-minute timeslots (OPS_TSE)]

IF OPS_1 <> 41"TRAVEL", 97 "DON'T KNOW"
OPS_2 IS AUTO-FILLED AS 08 "IN TRANSIT" IF OPS_1 = CODE 41 "TRAVEL"
OPS_2
  Where were you when you were [OPS_1]?
  [FOR SECOND LOOP OF OPS_1 ONWARDS: 99. NO CHANGE IN LOCATION SINCE PRIOR ACTIVITY]
  01. OWN HOME (DWELLING OR IMMEDIATE SURROUNDS)
  02. OTHER PERSONS' HOME (DWELLING OR IMMEDIATE SURROUNDS)
  03. WORKPLACE
  04. SCHOOL OR OTHER EDUCATIONAL ESTABLISHMENT
  05. RELIGIOUS SITE / PLACE OF WORSHIP (CHURCH, MOSQUE, TEMPLE, SPIRIT HOUSE…)
  06. OTHER OUTDOOR SITE (STREET, MARKET, PARK, FIELD, FOREST, POND, LAKE…)

07. OTHER INDOOR SITE (SHOP, BANK, RESTAURANT, CAFÉ, BAR, CINEMA, MUSEUM, HOSPITAL…)   08. IN TRANSIT   09. OTHER (SPECIFY)   *CAPI implementation: "Warning: Change in location without intervening travel time. Please enter a valid value"*

IF OPS_1 = 41

OPS_2A

What was the <u>main</u> reason for this travel?
01. COMMUTING FOR WAGED OR SALARIED JOB, OWN/HOUSEHOLD BUSINESS,
02. OTHER TRAVEL FOR WAGED OR SALARIED JOB, OWN/HOUSEHOLD BUSINESS
03. TRAVEL RELATED TO UNPAID TRAINEESHIP, VOLUNTEER WORK
04. TRAVEL RELATED TO STUDIES
05. TRAVEL RELATED TO GROWING CROPS/TENDING LIVESTOCK
06. TRAVEL RELATED TO FETCHING WATER / GATHERING FIREWOOD, FUEL
07. TRAVEL RELATED TO OTHER PRODUCTION OF GOODS ACTIVITIES
08. TRAVEL RELATED TO HOUSEHOLD SERVICES (SHOPPING, DOING LAUNDRY, PAYING BILLS, RUNNING ERRANDS…)
09. DROPPING OFF / COLLECTING / ACCOMPANYING HOUSEHOLD OR FAMILY CHILDREN
10. DROPPING OFF / COLLECTING / ACCOMPANYING ADULT HOUSEHOLD OR FAMILY MEMBERS
11. TRAVEL RELATED TO SELF-CARE (MEAL BREAK, MEDICAL APPOINTMENT, HAIRDRESSER / SALON VISIT…)
12. TRAVEL RELATED TO SOCIALISING
13. TRAVEL RELATED TO COMMUNITY PARTICIPATION
14. TRAVEL RELATED TO CULTURE / LEISURE / SPORTS OR EXERCISE
15. TRAVEL RELATED TO RELIGIOUS PRACTICE
16. OTHER TRAVEL, SPECIFY

OPS_3

IF (OPS_1<>1, 97, 41) <><> & (OPS_2<>08)

    Who was there with you when you were [OPS_1]? That is, close enough that you could see them, or hear them if they called for you?

<><>OPS_1 = 41 OR OPS_2 = 08

    Who was travelling with you?
    [FOR SECOND LOOP OF OPS_1 ONWARDS: 99. NO CHANGE IN PERSONS PRESENT SINCE PRIOR ACTIVITY]
    01. ALONE (INCLUDES WITH STRANGERS IN PUBLIC SETTING)
    ALL THAT APPLY
    [02] a. SPOUSE
    [03] b. OTHER ADULT HOUSEHOLD OR FAMILY MEMBERS
    [04] c. OTHER ADULTS KNOWN TO RESPONDENT (E.G., FRIENDS / NEIGHBOURS / COLLEAGUES)
    [05] d. OWN CHILD(REN) AGED UNDER 18
    [06] e. GRANDCHILD(REN) AGED UNDER 18
    [07] f. OTHER FAMILY CHILDREN AGED UNDER 18
    [08] g. OTHER CHILDREN AGED UNDER 18

SOFT CHECK: IF OPS_1 = 13 – 17 AND OPS_3 DOES NOT INCLUDE ANY OF 05-08. PROMPT ACTIVATES: "CHILDCARE ACTIVITY REPORTED: CONFIRM CHILD(REN) CO-PRESENT".

IF OPS_3 = 05 – 07 [DOES NOT ACTIVATE IF OPS_3 = 99]

OPS_3A

    How old [is/are] [she / he / they]?
    ALL THAT APPLY
    a. 0 TO 5 YEARS OLD
    b. 6 YEARS – 11 YEARS OLD
    c. 12 YEARS OLD TO 17 YEARS OLD

OPS_4

IF OPS_1 = 4–19 OR 26-33

IF OPS_1 = 13 – 17: RESPONSE OPTIONS CONSTRAINED TO 06 - 09

    Who did you <u>mainly</u> do [OPS_1] for?
    CONSTRAIN: SELECT ONE ONLY (MAIN BENEFICIARY)
    [FOR SECOND LOOP OF OPS_1 ONWARDS: 99. NO CHANGE SINCE PRIOR ACTIVITY]
    01. SELF
    02. HOUSEHOLD AS A WHOLE (INCLUDES SELF AND <u>ALL</u> HH MEMBERS)
    03. SPOUSE
    04. OTHER ADULT HOUSEHOLD OR FAMILY MEMBER

05. OTHER ADULTS (E.G., FRIENDS / NEIGHBOURS / COLLEAGUES / STRANGERS)
06. OWN CHILD(REN) AGED UNDER 18
07. GRANDCHILD(REN) AGED UNDER 18
08. OTHER FAMILY CHILDREN AGED UNDER 18
09. OTHER CHILDREN AGED UNDER 18
10. WAGED OR SALARIED JOB
11. OWN-BUSINESS OR HOUSEHOLD / FAMILY BUSINESS OR OTHER INCOME GENERATION
12. FOR A CHARITY, COMMUNITY GROUP, OR ORGANISATION
13. HOUSEHOLD OR FAMILY LIVESTOCK
14. HOUSEHOLD OR FAMILY PET
15. WILD OR STREET ANIMALS / NATURAL ENVIRONMENT
16. OTHER: SPECIFY

IF OPS_1 = 5, 26–33, AND OPS_4<>10 – 16

OPS_5

Are the products from [OPS_1] intended…?
01. …Only for sale
02. …Mainly for sale
03. …Mainly for family use
04. …Only for family use
05 NONE OF THE ABOVE

OPS_6

IF OPS_1B = 4–19 OR 26-33

IF OPS_1B = 13 – 17: RESPONSE OPTIONS CONSTRAINED TO 06 - 09

Who did you <u>mainly</u> do [OPS_1B] for?
CONSTRAIN: SELECT ONE ONLY (MAIN BENEFICIARY)
[FOR SECOND LOOP OF OPS_1 ONWARDS: 99. NO CHANGE SINCE PRIOR ACTIVITY]
01. SELF
02. HOUSEHOLD AS A WHOLE (INCLUDES SELF AND <u>ALL</u> HH MEMBERS)
03. SPOUSE
04. OTHER ADULT HOUSEHOLD OR FAMILY MEMBER
05. OTHER ADULTS (E.G., FRIENDS / NEIGHBOURS / COLLEAGUES / STRANGERS)
06. OWN CHILD(REN) AGED UNDER 18
07. GRANDCHILD(REN) AGED UNDER 18
08. OTHER FAMILY CHILDREN AGED UNDER 18
09. OTHER CHILDREN AGED UNDER 18
10. WAGED OR SALARIED
11. OWN-BUSINESS OR HOUSEHOLD / FAMILY BUSINESS OR OTHER INCOME GENERATION
12. FOR A CHARITY, COMMUNITY GROUP, OR ORGANISATION
13. HOUSEHOLD OR FAMILY LIVESTOCK
14. HOUSEHOLD OR FAMILY PET
15. WILD OR STREET ANIMALS / NATURAL ENVIRONMENT
16. OTHER: SPECIFY

IF OPS_1B = 5, 26 – 33 AND OPS_6<>10 - 16

OPS_7

Are the products from [OPS_1B] intended…?
01. …only for sale
02. …mainly for sale
03. …mainly for family use
04. …only for family use
05. NONE OF THE ABOVE

END OF MODULE OPS_

OPS MEASUREMENT, HYBRID LIGHT DIARY MODULE (OPS_): ACTIVITY CODES

IMPLEMENTATION NOTES

- 41 activity codes (+ "Other, specify" and "Don't Know") have been developed as response codes for items:
  - ➤ OPS_1
  - ➤ OPS_1B
- *Note: For CAPI implementation, include numerical prefix for ease of navigation*

1	Sleeping or napping [DISABLED FOR OPS_1B]
2	Personal hygiene and health
3	Eating or drinking
4	Cooking / baking / preparing / serving food or drinks / cleaning dishes)
5	Manufacturing / processing foods, beverages, herbs, medicines, tobacco
6	Cleaning and tidying indoors
7	Outdoor cleaning and upkeep
8	Pet care (includes feeding, exercising, cleaning, grooming)
9	Decorating or minor repairs, maintenance of buildings, durable goods, vehicles, machinery
10	Laundry / repair or maintenance of clothes, textiles, shoes
11	Shopping for/purchasing goods
12	Paying bills, budgeting, administration, planning, organising
13	Providing physical care or comforting children (feeding, cleaning, bathing, giving medical care, soothing…)
14	Teaching, helping, talking with, or reading to children
15	Playing games and sports with children
16	Attending children's sports or games match, play, dance, talent show, or similar (includes training, practice, rehearsals)
17	[Minding or watching over] children
18	Providing physical care, practical assistance, or emotional support to adults with a disability, illness, or frailty
19	[Minding or watching over] adults with a disability, illness, or frailty who need assistance
20	Waged or salaried employment / self-employment / paid traineeship
21	Helping without pay in a family or household business
22	Looking for paid work or setting up a new business
23	Unpaid traineeship or internship
24	Volunteering / community or social organising / environmental, nature conservation / protection of wild or street animals
25	Studying, learning
26	Growing crops, including kitchen garden, (clearing, planting, fertilising, irrigating, weeding, picking / harvesting)
27	Tending to livestock / Milking / gathering wool / eggs / dung / other animal products
28	Gathering / processing firewood, straw
29	Fetching water from natural and other source
30	Fishing / Aquaculture / Gathering wild products / [Hunting or trapping animals for food, pelts, medicines, etc.,]
31	Forestry / Logging / Mining / Quarrying
32	Construction, major renovations, or major repairs
33	Weaving, knitting, sewing, embroidering, tanning, bead-, textile- / leather- / metal-, wood- / stone- / brick- work
34	Socializing, visiting with, talking to friends / family / neighbours
35	Religious practice (individual or collective)
36	Participating in community festivals, celebrations
37	Attending cultural / entertainment / sports events
38	Playing sports or doing exercise
39	Watching tv shows, movies, online media / Reading for leisure / Listening to music, radio, podcasts, online audio
40	Hobbies, games, pass-times (includes resting / relaxing, "doing nothing")
41	Travelling or commuting / Transporting or accompanying people or goods [DISABLED FOR OPS_1B]
42	Other: Specify
43	NOTHING ELSE [DISABLED FOR OPS_1]
97	DON'T KNOW [DISABLED FOR OPS_1B]

OPS MEASUREMENT, HYBRID LIGHT DIARY RECOVERY SERIES (RSB_)
OBJECTIVES AND SCOPE • To record persons' background supervisory and on-call care responsibilities over a 24-hour reference period
IMPLEMENTATION NOTES • Administered on completion of module OPS_ • **NB: Items RSC_3 and RSC_6 record relationship to care-recipient. Optional for countries.**
RSC_SCT "The next questions ask about times yesterday when you were responsible for [minding or watching over] members of your household or family. During these times you may have been doing other things, but you remained close by and available in case they needed hands-on care, support, help, or attention."

RSC_1
Yesterday, did you spend any time [minding or watching over] a child aged under 18, staying close enough to see or hear them? Please only include children who are family or household members.
      01. YES
      02. NO

IF RSC_1 = 01
RSC_2
      When was that?
      ALL THAT APPLY
  ➤ Drop down menu: Activities reported under LSB_1
      [DISABLED IF OPS_1 = 13 – 17]
SOFT CHECK: IF OPS_3 DOES NOT INCLUDE ANY OF 05 – 07. ACTIVATE PROMPT: "CONFIRM SUPERVISORY CHILDCARE: NO CHILDREN REPORTED AS CO-PRESENT."

RSC_2A
      When during [OPS_1] was that?
      ALL THAT APPLY
      [Select from drop-down list of 15-minute timeslots]
      CONSTRAIN TO ONE RESPONSE ONLY IF CODE 97 "CONTINUOUS"
      97. Continuously

RSC_3
      What is [his / her / their] relationship to you?
      ALL THAT APPLY
      a. OWN CHILD(REN)
      b. GRANDCHILD(REN)
      c. OTHER FAMILY CHILDREN

RSC_4
Yesterday, did you spend any time [minding or watching over] an adult aged 18 or over who needs help with daily life due to an illness, disability, or old age - staying close enough to see or hear them? Please only include adults who are family or household members.
      01. YES
      02. NO

IF RSC_4 = 1
RSC_5
      When was that…?
      [DISABLED IF OPS_1 = 18 – 19]

RSC_5A
      When during [OPS_1] was that?
      ALL THAT APPLY
      [Select from drop-down list of 15-minute timeslots]
      CONSTRAIN TO ONE RESPONSE ONLY IF CODE 97 "CONTINUOUS"
      97. Continuously

RSC_6
      What is [his / her / their] relationship to you?
      ALL THAT APPLY
      a. HOUSEHOLD MEMBER(S)
      b. FAMILY MEMBER(S) LIVING IN A SEPARATE HOUSEHOLD

END OF MODULE RSB

OPS MEASUREMENT, HYBRID LIGHT DIARY TYPICAL DAY (TPL_)
OBJECTIVES AND SCOPE
• Flag potential explanations for atypical time-use (e.g., excessive day time sleep due to illness)
IMPLEMENTATION NOTES
• Administered on completion of modules OPS_ and RSC_
TPL_1A Was yesterday unusual in any way, such as…? ALL THAT APPLY a. You worked more hours than normal in your paid job(s) b. You worked fewer hours than normal in your paid job(s) c. It was a festival day or day of an event (e.g., public holiday, religious festival, wedding, christening, funeral) d. It was a leave day / holiday from paid work (day-off / annual leave / other leave entitlement) e. It was a school holiday for children in your care (EXCLUDE WEEKEND) f. You were sick / unwell / injured. g. A household or family member was sick / unwell / injured. h. You experienced travel disruptions. i. OTHER: SPECIFY j. NO
IF TPL_1a = 7 **TPL_1B** You mentioned that yesterday was unusual because a household or family member was sick or injured. Who was that? ALL THAT APPLY a. SPOUSE b. OTHER ADULT HOUSEHOLD OR FAMILY MEMBERS c. CHILDREN AGED 0 - 5 YEARS OLD d. CHILDREN AGED 6 - 11 YEARS OLD e. CHILDREN AGED 12 - 17 YEARS OLD
END OF MODULE TPL_

OPTIONAL FOR COUNTRIES: TIME AWARENESS (TAW_)
OBJECTIVES AND SCOPE
• To track variations in time awareness and availability / strategies for telling time
• **Optional for countries**
TAW_1 *(For CAPI implementation, programme time stamp for this item)* Just before we finish, do you know what time it is now? __ __ HH:MM 97. DON'T KNOW
IF (TAW_1=97): For CAPI implementation, programme time stamp for this item **TAW_2** Do you know approximately? __ __ HH:MM 97. DON'T KNOW
IF (TAW_1<>97 OR TAW_2<>97) **TAW_3** *DO NOT READ: ENUMERATOR TO OBSERVE & CODE* 01. RESPONDENT CONSULTED WRISTWATCH OR POCKET WATCH 02. RESPONDENT CONSULTED MOBILE PHONE 03. RESPONDENT CONSULTED CLOCK 04. RESPONDENT ASKED SOMEONE 05. RESPONDENT ESTIMATED WITH REFERENCE TO SCHEDULE (WORK / SCHOOL / TEMPLE / TRANSPORT / RADIO / TV , ETC.) 06. RESPONDENT ESTIMATED BY POSITION OF SUN / DAYLIGHT, ETC., 07. OTHER, SPECIFY
END OF MODULE TAW_

▶ Appendix II: Explanatory notes and national adaptation guidance

OPS_ Item Series: Identification of own-use provision of services

Question ID	Notes and guidance
OPS_1 (Introductory script)	**Note:** OPS_1 includes a script to introduce the OPS module to the respondent prior to the commencement of the diary series. A set script is included for this purpose. **Purpose:** • Introduces the topic of the OPS_ module and outlines its aims and content. • Directs the respondent to report their time-use for the preceding day in chronological order, and with sufficient contextual detail to support fluid coding of activities and related items. • Provides an explanation for some novel features of time-use diaries, which may otherwise be perceived as intrusive. **National adaptation and implementation:** • The scripted introduction should be read to all respondents selected for the OPS_ module, prior to the first question. The introduction should be read verbatim to limit scope for interviewer-level variation in respondent understandings of the OPS_ series. • The introductory script includes a placeholder "[COUNTRY]" which should be substituted for the country in which the survey is administered. • Translation to the language(s) of national survey administration should ensure that the script remains true to intent (as set out under "purpose").
OPS_1 (Question item)	**Notes:** OPS_1 records respondent time-use in a roster format. Activities are recorded consecutively from 04:00 am on the diary day to 04:00 on the following day (usually the day of the interview). • The 24-hour reference period is divided into 96 x 15-minute time slots. Start and end times are recorded by selection of the corresponding 15-minute episode from a drop-down menu. Intervening episodes are filled automatically. As the interview advances, the drop-down menu updates to exclude prior episodes for ease of navigation and quality control. • Respondents report their time-use verbatim. Interviewers select the corresponding activity from a pre-coded list of 41 activities contained in a drop-down menu. • The activity listing has been designed to provide comprehensive coverage of all nine ICATUS activity domains at varying levels of detail. Of the 41 pre-coded activities, 15 relate to OPS. Each of the

41 activities includes a numerical prefix to aid interviewer recall and navigation.

- Code 41, "Traveling...", is recorded separately during data collection, as part of a series of strategies to minimise respondent burden. At the data collection stage, travel episodes are assigned to the relevant activity, activity cluster, and activity domain (ICATUS major divisions 1 – 9).

- Code 42, "Other: Specify", is included to permit activities to be recorded when there is uncertainty regarding proper assignment to the pre-coded listing and to allow for very rare activities - e.g., illegal / socially stigmatised activities - to be recorded (it should be borne in mind that population-based time-use diaries are not generally suited to capturing illegal / stigmatised behaviours since respondents tend to self-censor on such matters).

- The pre-coded listing is designed to be comprehensive. Utilisation of the "Other: Specify" code can be minimised by permitting sufficient time for interviewer training and by updating the generic inclusions and exclusions for each of the 41 codes to reflect national (and localised) activities.

- Over-reliance on code 42 defeats the purpose of the light-diary format and introduces scope for error, since it depends upon sufficient information being recorded to permit coding to take place retrospectively.

- A code (97) is provided to record instances of "Don't Know", where the respondent – after interviewer probing to assist recall – persists in asserting they do not recall what they were doing for a block of time during the diary day.

Purpose:

- Creates a record of respondent's time-use for a 24-hour reference period.

- Records the timing, duration, and sequencing of activities undertaken during the reference period to the nearest 15-minute interval.

- Provides a key input for the identification of OPS activities.

National adaptation and implementation:

- Applies to all respondents selected for the OPS_ module.

- It is recommended to retain the 15-minute closed episode as the basis for the time-use roster. Countries may wish to reduce episode length to 10-minutes (reductions to under 10 minutes are not recommended as this will complicate navigation of the drop-down menu). Extending episode length beyond 15 minutes (20 minutes, 30 minutes, 60 minutes) is not advised as this represents a departure from international guidance on time-use

measurement. It will undermine international comparability and impact data quality.

- It is similarly recommended that the list of 41 pre-coded activities is retained for national administration, to support international comparability and retain harmonisation to international statistical standards for time-use measurement.

- If a code is entirely redundant in the national context, it may be omitted (for example, if piped water is universal for the target population, code 29 "Fetching water from natural and other source" might be omitted). Such omissions will require careful renumbering of the remaining activity and updating of the routing for subsequent questions to ensure proper administration of the module.

- Within certain activity wordings, text coloured blue and bracketed is highlighted for national adaptation:

  o Code 17 ("[Minding or watching over] children"): The term "minding or watching over" may be adapted where another word or phrase is available to express supervisory care responsibilities, and which has greater resonance in the national context.

  o Code 19 ([Minding or watching over] adults with a disability, illness, or frailty who need assistance). As above: The term "minding or watching over" may be adapted where another word or phrase is available to express supervisory care responsibilities, and which has greater resonance in the national context.

  o Code 26 (Growing crops, including kitchen garden, (clearing, planting, fertilising, irrigating, weeding, picking / harvesting). Common terminology for the main stages in growing crops varies nationally (and sometimes sub-nationally). The generic phrasing provided in blue text may be substituted with more common / lay terminology.

  o Code 27 (Tending to livestock / Milking / gathering wool / eggs / dung / other animal products). Common terminology and common "types" of animal products varies nationally (and sub-nationally). The generic phrasing provided in blue text may be substituted with more common / lay terminology.

- Code 30 (Fishing / Aquaculture / Gathering wild products / [Hunting or trapping animals for food, pelts, medicines, etc.,]). The generic phrasing provided in blue text may be omitted (in country contexts where market oriented or own-use production-based hunting and trapping is rare or unknown. Where relevant, the generic phrasing provided in blue text may be substituted with more common / lay terminology.

- Translation to the language(s) of national survey administration should ensure that the distinctiveness of – and boundaries between – the 41 activities remain clear.

	• National adaptation should be undertaken to ensure that the inclusions and exclusions for each listed activity are updated in the interviewer guide and training, to ensure that examples are sufficiently relevant and resonant to reflect national (and sub-group) circumstances and practices.
OPS_CHK	**Note:** OPS_CHK is conditionally activated in cases where the respondent reports an activity other than sleeping at 04:00 am on the diary day. OPS_CHK confirms the time (prior to 04:00) that the respondent awoke. The interviewer records the response in HH:MM format. An option to record no sleep time on the night preceding the diary day (Code 9997) is available. **Purpose:** • Serves a quality control function. • Permits imputation of sleep time for the diary day. **National adaptation and implementation:** • Applies to only to respondents who do not report having been asleep at 4:00 on the diary day. • It is recommended that OPS_CHK is retained for national implementation without further adaptation.
OPS_1B [OPTIONAL]	**Notes:** OPS_1B is optional for countries. It records simultaneous activities reported by respondents in a roster format. For each activity reported under OPS_1, one or more additional activities may be recorded under OPS_1B. • Activities for OPS_1B are recorded within a roster format covering the 24 hours of the day, divided into 96 x 15-minute episodes. A drop-down menu lists the 15-minute episodes forming the "activity block" for the relevant OPS_1 entry. The interviewer selects the corresponding episode(s) for the simultaneous activity/ies reported. An option (97: "Continuous") is available to specify the activity/ies reported under OPS_1B are coterminous with the entire activity block" for the relevant OPS_1 entry. • When activated, OPS_1B is asked on a loop-basis in real time, as each activity is recorded under OPS_1 (that is, the activation of OPS_1B is **not** deferred until the completion of the 24-hour roster for OPS_1). • OPS_1B activates conditionally, depending on the activity recorded under OPS_1. OPS_1B does not activate for the following OPS_1 response codes: ○ Code 1 "Sleeping…" ○ Code 41 "Travel…" ○ Code 97 "Don't Know" • As with OPS_1, respondents report their time-use verbatim. Interviewers select the corresponding activity from a pre-coded list of 41 activities contained in a drop-down menu.

- The activity lists for OPS_1 and OPS_1B are largely identical, with the following exceptions.

  o Code 1 "Sleeping…"
  o Code 41 "Travel…"
  o Code 97 "Don't Know"

- The above codes (1, 41, 97) are disabled rather than omitted to permit the numbered prefix for the activated activities to remain identical for OPS_1 and OPS_1B, for ease of interviewer navigation.

- Additionally, the activity listing for OPS_1B is designed to dynamically update to disable (not omit) the activity reported under OPS_1.

- OPS_1B includes one additional code (43: "NOTHING ELSE") which is absent from the activity listing for OPS_1. This code is used when no simultaneous activities are reported.

- A conditional prompt script is included for OPS_1B. It is activated when code 43: "NOTHING ELSE" is selected. The script includes some examples of activities commonly undertaken simultaneously. The prompt is activated once, i.e., it does not activate for any subsequent reports of "NOTHING ELSE".

Purpose:

- Creates a record of respondent's time-use for a 24-hour reference period.

- Records the timing, duration, and sequencing of simultaneous activities undertaken during the reference period to the nearest 15-minute interval.

- Provides a key input for the identification of OPS activities.

National adaptation and implementation:

- Optional for countries

- Applies to all respondents selected for the OPS_ module

- All "national adaptation and implementations" specified for OPS_1 (above) apply to OPS_1B.

- Any national adaptations made to OPS_1 should be replicated for OPS_1B.

- The prompt script included for OPS_1B encourages reporting of simultaneous activities, as follows:

  "*For instance, were you talking with a family member, friend, or neighbour, or [minding or watching over] a child, or eating a snack, or listening to the radio…*"

  The generic phrasing provided in blue text, "minding or watching over" may be adapted where another word or phrase is available to express supervisory care responsibilities, and which has greater resonance in the national context.

OPS_2	**Notes:** OPS_2 is the first of four conditional context items activated for OPS_1. OPS_2 records respondent's reported location for each activity block reported under OPS_1.
	• OPS_2 activates conditionally, depending on the activity recorded under OPS_1. OPS_2 does not activate for the following OPS_1 response codes:
	• Code 41 "Travel…"
	• The CAPI tool automatically assigns OPS_2 code 8 ("in transit") when code 41 "Travel" is selected for OPS_1.
	• Eight response codes are included for OPS_2. They are designed to provide comprehensive coverage of common indoor and outdoor locations.
	• A ninth code 9: "Other, specify" is included, to permit uncommon or ambiguous locations to be recorded.
	• Subsequent to the first iteration of OPS_2, an additional response code is available: Code 99. NO CHANGE IN LOCATION SINCE PRIOR ACTIVITY. This code is included to streamline data collection, in the event that location remains stable across multiple activity blocks.
	• OPS_2 is identical for both OPS_1 and OPS_2, as a condition for simultaneity.
	• A quality control feature is included for OPS_2. This activates a soft check in the event that a change in location is recorded between iterations of OPS_1, without an intervening "Travel" [OPS_1 = CODE 41] or "in transit" [OPS_2 = CODE 08] report.
	• Restrictions are in place to prevent multiple locations from being selected for a single activity block (as reported under OPS_1).
	Purpose:
	• Creates a record of respondent's time-use for a 24-hour reference period.
	• Records respondents location and movements during the reference period to the nearest 15-minute interval.
	• Serves several quality control functions:
	o Reporting location (and location changes) assists respondent recall of other features of the diary day by anchoring activities in place as well as time.
	o Lessens risk that travel episodes are un- or under-reported (via the activation of prompt in case of omitted travel time).
	• Can provide a key input for the identification of OPS activities where ambiguities exist.
	• Can enrich analysis of gender-based differences in time-use and spatial mobility.
OPS_2	**National adaptation and implementation:**

	• Applies to all respondents selected for the OPS_ module.
	• It is recommended that the content and sequencing of the eight response codes for OPS_2 (and the additional code 9: "Other, Specify") is retained for national administration, to support international comparability, to retain the boundaries between location codes, and to maintain ease of analysis.
	• If a code is entirely redundant in the national context, it may be omitted. Code 5 ("RELIGIOUS SITE / PLACE OF WORSHIP (CHURCH, MOSQUE, TEMPLE, SPIRIT HOUSE…") is highlighted for attention during national adaptation in this regard. In countries with high religiosity and where daily religious practice is standard, code 05 serves an important function. However, it's utility will be lessened in countries with low religiosity and where religious observation is practiced less frequently. Where omitted, instances in which a religious site is reported for OPS_2 should be coded under code 06 ("Other outdoor site") or code 07 ("Other indoor site"), as relevant.
	• Where a strong case exists, additional response codes – of high relevance to the national context – may be added.
	• Any such omissions or additions to the response code listing will require careful renumbering of the code list, as well as updating of conditional routing to ensure proper administration of the module.

	• Within certain response code wordings, text coloured blue and bracketed is highlighted for national adaptation:
	
	   ○ Code 05 (RELIGIOUS SITE / PLACE OF WORSHIP [CHURCH, MOSQUE, TEMPLE, SPIRIT HOUSE…]). Relevant examples of religious sites will vary according to the religions practiced or adhered to in the national setting. The examples provided in blue text should be restricted and/or extended to include religious sites relevant to the national setting.
	
	   ○ Code 06 (OTHER OUTDOOR SITE (STREET, MARKET, PARK, FIELD, FOREST, POND, LAKE…). Relevant examples of outdoor sites will vary according to the national setting. The examples provided in blue text should be restricted and/or extended as relevant.
	
	   ○ Code 07 (OTHER INDOOR SITE [SHOP, BANK, RESTAURANT, CAFÉ, BAR, CINEMA, MUSEUM, HOSPITAL…]). Relevant examples of indoor sites will vary according to the national setting. The examples provided in blue text should be restricted and/or extended as relevant.

OPS_2A	**Notes:** OPS_2A substitutes for OPS_2 when code 41: "Travel" is selected for OPS_1. OPS_2A records respondent's reported reason for travel episodes reported under OPS_1. • 16 response codes (including "Other, specify") are included for OPS_2A. They are designed to assign a main reason for travel to .

	• Code 16: "Other, specify" is included to permit uncommon or ambiguous reasons for travel to be recorded. • Only one "reason for travel" may be selected for each iteration of OPS_2A. The item wording requests respondents to assign the "main reason" for travel. This design feature is intentional. Permitting multiple reasons for travel for a single travel episode increases the complexity of the raw data files considerably. It also complicates later variable derivation, analysis, and tabulation. **Purpose:** • Permits travel episodes to be correctly assigned to the relevant activity domain. • Provides a key input for the identification of OPS activities. • The inclusion of OPS_2A results in major efficiency gains at the data cleaning, processing, and analysis stages. In the absence of an item to record reason for travel directly, travel episodes must be assigned to the corresponding activity based on preceding or subsequent non-travel activities. This can result in mis-assignment. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module. • It is recommended that OPS_2A is retained for national implementation without further adaptation.

OPS_3	**Notes:** OPS_3 is the second of four conditional context items activated for OPS_1. OPS_3 records co-presence as reported for each activity block reported under OPS_1.
	
	• For the avoidance of ambiguity, the item wording for OPS_3 explicitly specifies what is meant by co-presence ("Who was there with you when you were [OPS_1]? That is, close enough that you could see them, or hear them if they called for you?").
	
	• OPS_3 activates conditionally, depending on the activity recorded under OPS_1. OPS_3 does not activate for the following OPS_1 response codes:
	
	   o Code 01 "Sleeping…"
	   o Code 97 "Don't Know"
	
	• OPS_3 includes an alternate wording, automatically activated when code 41 ("travel…") is selected for OPS_1 ("Who was travelling with you").
	
	• Eight response codes are included for OPS_3. They are designed to provide comprehensive coverage of all possible co-presence combinations.
	
	• Selection of multiple response codes is permitted for OPS_3 (restrictions are in place to prevent multiple selection when code 01 "Alone" is selected).

	• Subsequent to the first iteration of OPS_3, an additional response code is available: Code 99. NO CHANGE IN PERSONS PRESENT SINCE PRIOR ACTIVITY. This code is included to streamline data collection, in the event that co-presence remains stable across multiple activity blocks.
	
	• A quality control feature is included for OPS_3. This activates a soft check in the event that codes for the co-presence of children (codes 5 - 8) are not selected when a childcare activity (codes 13 – 17) is selected for the corresponding OPS_1 entry.
	
	• OPS_3 is identical for both OPS_1 and OPS_2, as a condition for simultaneity.
	
	Purpose:
	
	• Creates a record of respondent's time-use for a 24-hour reference period.
	
	• Records respondents company and solitude during the reference period to the nearest 15-minute interval.
	
	• Serves several quality control functions:
	
	   o Reporting co-presence (and changes in co-presence) assists respondent recall of other features of the diary day by anchoring activities.
	
	   o Lessens risk that supervisory care responsibilities are un- or under-reported.
	
	• Can provide a key input for the identification of OPS activities where ambiguities exist.
	
	• Can enrich analysis of gender-based differences in different social configurations (including time spent alone with young children and / or adults requiring support with daily activities), versus time spent in solitude and adult company.
	
	National adaptation and implementation:
	
	• Applies to all respondents selected for the OPS_ module (subject to conditional routing).
	
	• It is recommended that OPS_3 is retained for national implementation without further adaptation.

OPS_3A	**Notes:** OPS_3A extends the information recorded for OPS_3. OPS_3A records the age band of co-present child(ren) reported under item OPS_3.
	
	• OPS_3A is conditionally activated for selected OPS_3 code(s). These are:
	
	   o Code a (OWN CHILD(REN) AGED UNDER 18)
	   o Code b GRANDCHILD(REN) AGED UNDER 18)
	   o Code c (OTHER FAMILY CHILDREN AGED UNDER 18)
	
	• Selection of multiple response codes is permitted for OPS_3A to record the presence of children in different age bands.

	Purpose:
	• Supplements the information collected for item OPS_3A.
	• Records the age band of children in the respondent's company during the reference period to the nearest 15-minute interval.
	• Assists in the identification of supervisory childcare responsibilities.
	• Can provide a key input for the identification of OPS activities where ambiguities exist.
	• Can enrich analysis of gender-based differences in different social configurations (including time spent alone with young children and / or adults requiring support with daily activities), versus time spent in solitude and adult company.
	National adaptation and implementation:
	• Applies to all respondents selected for the OPS_ module (subject to conditional routing).
	• It is recommended that OPS_3A is retained for national implementation without further adaptation.
OPS_4	**Notes:** OPS_4 is the third of four conditional context items activated for OPS_1. OPS_4 records the "main beneficiary" for selected activities reported under OPS_1.
	• OPS_4 is conditionally activated, based on the activity recorded under OPS_1 (Codes 4–19 and 26-33). The conditional activation restricts reporting of beneficiary for activities related to the production of goods or provision of services.
	• 15 response codes are included for OPS_4. They provide comprehensive coverage of beneficiary categories.
	• Only one response code may be selected for each iteration of OPS_4 (a composite code, 02: "household as a whole" is included to avoid creating false limitations on main beneficiary at the intra-household level). The item wording requests respondents to assign a main beneficiary. This design feature is intentionally restrictive. Permitting multiple beneficiaries for the same activity increases the complexity of the raw data files considerably. It also complicates later variable derivation, analysis, and tabulation.
	• Subsequent to the first iteration of OPS_4, an additional response code is available: Code 99. NO CHANGE SINCE PRIOR ACTIVITY. This code is included to streamline data collection, in the event that the beneficiary remains stable across multiple activity blocks.
	• For activities related to childcare (OPS_1 Codes 13 – 17), a restricted selection of OPS_4 response codes are made available (Codes 6 – 9 which specify children as the beneficiary). The remaining codes are disabled (rather than omitted) to permit ease of navigation.

	• OPS_4 is activated for activities reported under OPS_1. A separate item (OPS_6) records the main beneficiary for activities reported under OPS_1B. **Purpose:** • Key input for the identification of OPS activities. • Can enrich analysis of gender-based differences in household roles and responsibilities. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to conditional routing). • It is recommended that OPS_4 is retained for national implementation without further adaptation.
OPS_5	**Notes:** OPS_5 is the fourth of four conditional context items activated for OPS_1. OPS_5 records market orientation for selected activities related to the production of goods (Codes 5, 26 – 33), as reported under OPS_1. Activation of OPS_5 is conditioned by prior response to OPS_4 (codes 1-9). **Purpose:** • OPS_5 provides additional information to support the assignment of activities related to the production of goods to higher activity domains, where necessary. • Can enrich analysis of gender-based differences in household roles and responsibilities. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to conditional routing). • It is recommended that OPS_5 is retained for national implementation without further adaptation.
OPS_6 [OPTIONAL]	**Notes:** OPS_6 is part of an optional item series for countries (composed of: OPS_1B, OPS_6, OPS_7). OPS_6 is the first of two conditional context items activated for OPS_1B. It records the "main beneficiary" for selected activities reported under OPS_1B (simultaneous activity). **Purpose:** • OPS_6 is conditionally activated, based on the activity recorded under OPS_1B (Codes 4–19 and 26-33). The conditional activation restricts reporting of beneficiary for activities related to the production of goods or provision of services. • 15 response codes are included for OPS_6. They provide comprehensive coverage of beneficiary categories. • Only one response code may be selected for each iteration of OPS_6 (a composite code, 02: "household as a whole" is included to avoid creating false limitations on main beneficiary at the intra-household level). The item wording requests respondents to

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assign a main beneficiary. This design feature is intentionally restrictive. Permitting multiple beneficiaries for the same activity increases the complexity of the raw data files considerably. It also complicates later variable derivation, analysis, and tabulation.

- Subsequent to the first iteration of OPS_6, an additional response code is available: Code 99. NO CHANGE SINCE PRIOR ACTIVITY. This code is included to streamline data collection, in the event that the beneficiary remains stable across multiple activity blocks.

- For activities related to childcare (OPS_1B Codes 13 – 17), a restricted selection of OPS_6 response codes are made available (Codes 6 – 9 which specify children as the beneficiary). The remaining codes are disabled (rather than omitted) to permit ease of navigation.

- OPS_6 is activated for activities reported under OPS_1. A separate item (OPS_4) records the main beneficiary for activities reported under OPS_1.

Purpose:

- Key input for the identification of OPS activities.

- Can enrich analysis of gender-based differences in household roles and responsibilities.

National adaptation and implementation:

- Applies to all respondents selected for the OPS_ module (subject to the inclusion of optional item OPS_1B and subsequent conditional routing).

- It is recommended that OPS_6 is retained for national implementation without further adaptation.

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OPS_7
[OPTIONAL]

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Notes: OPS_7 is the second of two conditional context items activated for OPS_1B. OPS_7 records market orientation for selected activities related to the production of goods (Codes 5, 26 – 33), as reported under OPS_1B. Activation of OPS_7 is conditioned by prior response to OPS_6 (codes 1-9).

Purpose:

- OPS_7 provides additional information to support the assignment of activities related to the production of goods to higher activity domains, where necessary.

- Can enrich analysis of gender-based differences in household roles and responsibilities.

National adaptation and implementation:

- Applies to all respondents selected for the OPS_ module (subject to the inclusion of optional item OPS_1B and subsequent conditional routing).

- It is recommended that OPS_7 is retained for national implementation without further adaptation.

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RSC_ Item Series: Recovery of unreported supervisory care time

Question ID	Notes and guidance
RSC_SCT	**Notes:** RSC_SCT introduces the RSC_ item series to the respondent, prior to its commencement. A set script is included for this purpose. **Purpose:** • Introduces the topic of the RSC_ item series and the concept of "supervisory care". **National adaptation and implementation:** • The scripted introduction for the RSC_ item series should be read to all respondents selected for the OPS_ module. The introduction should be read verbatim to limit scope for interviewer-level variation in respondent understandings of the RSC_ series. • Translation to the language(s) of national survey administration should ensure that the script remains true to intent (as set out under "purpose").
RSC_1	**Notes:** RSC_1 is a "gateway item". It asks respondents if they undertook supervisory childcare for household or family children during the reference period. Response codes are binary -01 (YES) / 02 (NO). **Purpose:** • Lessens risk that supervisory childcare responsibilities are un- or under-reported. • Provides a key input for the identification of OPS activities. • Can enrich analysis of gender-based differences in childcare roles and responsibilities, and constraints on agency over time-use, economic, social, and political participation, and spatial mobility. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • The generic wording for item RSC_1 highlights the term "[minding or watching over] children" for national adaption: The term "minding or watching over" may be adapted where another word or phrase is available to express supervisory care responsibilities, and which has greater resonance in the national context.
RSC_2	**Notes:** RSC_2 is activated conditionally based on the selected response to RSC_1 (RSC_1 = 01 ("YES"). RSC_2 activates a drop-down menu listing activity blocks reported in item OPS_1. Interviewers select activity blocks for which supervisory childcare is reported. **Purpose:** • Lessens risk that supervisory childcare responsibilities are un- or under-reported. • Provides a key input for the identification of OPS activities.

	• Can enrich analysis of gender-based differences in childcare roles and responsibilities, and constraints on agency over time-use, economic, social, and political participation, and spatial mobility.
	National adaptation and implementation:
	• Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing).
	• It is recommended that RSC_2 is retained for national implementation without further adaptation.
RSC_2A	**Notes:** RSC_2A is activated conditionally based on the selected response to RSC_2.
	• RSC_2A activates a roster format covering the 24 hours of the day, divided into 96 x 15-minute episodes. A drop-down menu lists the 15-minute episodes forming the "activity block" for the relevant RSC_2 entry. The interviewer selects the corresponding episode(s) for the supervisory childcare activities reported. An option (97: "Continuous") is available to specify the activities reported under RSC_2 is coterminous with the entire activity block" for the relevant OPS_1 entry.
	Purpose:
	• Lessens risk that supervisory childcare responsibilities are un- or under-reported.
	• Provides a key input for the identification of OPS activities.
	• Can enrich analysis of gender-based differences in childcare roles and responsibilities, and constraints on agency over time-use, economic, social, and political participation, and spatial mobility.
	National adaptation and implementation:
	• Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing).
	• It is recommended that RSC_2A is retained for national implementation without further adaptation.
RSC_3 [OPTIONAL]	**Notes:** RSC_3 is activated conditionally based on the selected response to RSC_2A. RSC_3 records the relationship of the care recipient to the caregiver.
	Purpose:
	• Lessens risk that supervisory childcare responsibilities are un- or under-reported.
	• Provides an input for the identification of OPS activities.
	• Can enrich analysis of gender-based differences in childcare roles and responsibilities, and constraints on agency over time-use, economic, social, and political participation, and spatial mobility.
	National adaptation and implementation:
	• Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing).

	• It is recommended that RSC_3 is retained for national implementation without further adaptation.
RSC_4	**Notes:** RSC_4 is a "gateway item". It asks respondents if they undertook supervisory care for adult household or family members who need help with daily life during the reference period. Response codes are binary -01 (YES) / 02 (NO). **Purpose:** • Lessens risk that supervisory care responsibilities for adults with disabilities, illnesses, or age-related frailties are un- or under-reported. • Provides a key input for the identification of OPS activities. • Can enrich analysis of gender-based differences in intra-household and intra-familial care roles and responsibilities, as well as constraints on agency over time-use, economic, social, and political participation, and spatial mobility. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • The generic wording for item RSC_4 highlights the term "[minding or watching over] adults…" for national adaption: The term "minding or watching over" may be adapted where another word or phrase is available to express supervisory care responsibilities, and which has greater resonance in the national context.
RSC_5	**Notes:** RSC_5 is activated conditionally based on the selected response to RSC_4 (RSC_4 = 01 ("YES"). RSC_5 activates a drop-down menu listing activity blocks reported in item OPS_1. Interviewers select activity blocks for which supervisory childcare is reported. **Purpose:** • Lessens risk that supervisory care responsibilities are un- or under-reported. • Provides a key input for the identification of OPS activities. • Can enrich analysis of gender-based differences in care roles and responsibilities, and constraints on agency over time-use, economic, social, and political participation, and spatial mobility. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • It is recommended that RSC_5 is retained for national implementation without further adaptation.
RSC_5A	**Notes:** RSC_5A is activated conditionally based on the selected response to RSC_5. • RSC_5A activates a roster format covering the 24 hours of the day, divided into 96 x 15-minute episodes. A drop-down menu lists the 15-

	minute episodes forming the "activity block" for the relevant RSC_5 entry. The interviewer selects the corresponding episode(s) for the supervisory care activities reported. An option (97: "Continuous") is available to specify the activities reported under RSC_2 is coterminous with the entire activity block" for the relevant OPS_1 entry. **Purpose:** • Lessens risk that supervisory care responsibilities are un- or under-reported. • Provides a key input for the identification of OPS activities. • Can enrich analysis of gender-based differences in care roles and responsibilities, and constraints on agency over time-use, economic, social, and political participation, and spatial mobility. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • It is recommended that RSC_5A is retained for national implementation without further adaptation.
RSC_6 [OPTIONAL]	**Notes:** RSC_6 is activated conditionally based on the selected response to RSC_5A. RSC_6 records the relationship of the care recipient to the caregiver. **Purpose:** • Lessens risk that supervisory care responsibilities are un- or under-reported. • Provides an input for the identification of OPS activities. • Can enrich analysis of gender-based differences in care roles and responsibilities, and constraints on agency over time-use, economic, social, and political participation, and spatial mobility. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • It is recommended that RSC_6 is retained for national implementation without further adaptation.

TPL_ Item Series: Representativeness of individual diary day

Question ID	Notes and guidance
TPL_1A	**Notes:** TPL_1A records deviations from usual of typical time-use in respondents reports of the designated diary day. TPL_1A asks respondent if the diary day was unusual in any way. Interviewers read aloud examples. • 10 response codes are available (including Code i: "Other, specify" and Code j: NO [deviation from usual time-use]) for TPL_1A. • Multiple response codes may be selected for TPL_1A **Purpose:** • Provides an input to explain apparent outliers in the data representing unusual or atypical time-use (e.g., excessive day time sleep due to illness) **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • The read-aloud list of responses may be adapted to include additional reasons for non-typical time-use on the diary day, in line with national circumstances. Alternatively, or additionally, the listed codes may be adapted or supplemented to increase their relevance in the national context. The list should not be extended beyond practical limits, bearing in mind that the code list is designed to be read aloud to respondents.
TPL_1B	**Notes:** TPL_1B supplements the information retrieved by TPL_1. TPL_1B is conditionally activated for TLP_1 Code g "A household or family member was sick / unwell / injured.". TPL_1B records – in broad terms – the relationship between the respondent and the caregiver. Five response codes are available. **Purpose:** • Provides an input to explain apparent outliers in the data representing unusual or atypical time-use. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • It is recommended that TPL_1B is retained for national implementation without further adaptation.

TAW_ Item Series: Time-awareness [OPTIONAL FOR COUNTRIES]

Question ID	Notes and guidance
TAW_1	**Notes:** The TAW_item series is optional for countries. If included, the three TAW_items are administered as a block. The TAW_series is relevant only for countries in which "clock time" is not (perceived) to be the dominant temporal framework for part or all of the target population. TAW_1 asks respondent the current time. Interviewers record the time in HH:MM format as specified by respondents. The CAPI tool includes a feature to add a timestamp for this item, to permit the accuracy of the specified time to be assessed. For respondents unable to tell the time, a response code (Code: 9997 "DON'T KNOW" is available). **Purpose:** • TAW_1 performs a data-quality assessment function. Time-use measurement relies upon respondent familiarity with clock time (notwithstanding strategies to assist in translation between alternative temporal frameworks). TAW_1 is correlated with data quality indicators (number of episodes, mean episode length, etc.) in relevant settings. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • It is recommended that TAW_1 is retained for national implementation without further adaptation.
TAW_2	**Notes:** TAW_2 is a supplement to TAW_1. Respondents coded 9997 ("DON'T KNOW") under TAW_1 are routed to TAW_2. TAW_2 asks respondent if they can *estimate* the current time. Interviewers record the time specified by respondents in HH:MM format. The CAPI tool includes a feature to add a timestamp for this item. For respondents unable to tell the time, a response code (Code: 9997 "DON'T KNOW" is available). **Purpose:** • TAW_2 performs a data-quality assessment function, similar to TAW_2. **National adaptation and implementation:** • Applies to all respondents selected for the OPS_ module (subject to subsequent conditional routing). • It is recommended that TAW_2 is retained for national implementation without further adaptation.
TAW_3	**Notes:** TAW_3 provides an item for the interviewer to record the means by which the respondent told (TAW_1) or estimated (TAW_2) the time. Seven response codes (including Code 7: Other, Specify) are provided for this purpose. **Purpose:** • TAW_3 performs a data-quality assessment function, in combination with TAW_1 and TAW_2. **National adaptation and implementation:** • Interviewer observes and records (may enquire with respondent if ambiguity exists) • Where a case exists in the national context, codes may be supplemented to include additional or alternative means of telling time.

▶ Appendix III: Variable derivation for activity clusters within own-use provision of services work

The below flowcharts set out the variable derivation procedures underlying indicators for OPS at the activity cluster level. Four separate activity clusters are derived for OPS.

Table A1: Classification of own-use provision of services work, by activity cluster

| **Activity cluster i:** |
| Household accounting and management, purchasing and or transporting goods |

Activity codes (OPS_1, OPS 1B):

11	Shopping for/purchasing goods
12	Paying bills, budgeting, administration, planning, organising
41	Travelling or commuting / Transporting or accompanying people or goods [Assigned to corresponding activities at data processing stage]

Beneficiary codes (OPS_4, OPS_6)

01	SELF
02	HOUSEHOLD AS A WHOLE (INCLUDES SELF AND <u>ALL</u> HH MEMBERS)
03	SPOUSE
04	OTHER ADULT HOUSEHOLD OR FAMILY MEMBER
06	OWN CHILD(REN) AGED UNDER 18
07	GRANDCHILD(REN) AGED UNDER 18
08	OTHER FAMILY CHILDREN AGED UNDER 18

| **Activity cluster ii:** |
| Preparing and/or serving meals |

Activity codes (OPS_1, OPS 1B):

| 04 | Cooking / baking / preparing / serving food or drinks / cleaning dishes) |
| 41 | Travelling or commuting / Transporting or accompanying people or goods
[Assigned to corresponding activities at data processing stage] |

Beneficiary codes (OPS_4, OPS_6)

01	SELF
02	HOUSEHOLD AS A WHOLE (INCLUDES SELF AND <u>ALL</u> HH MEMBERS)
03	SPOUSE
04	OTHER ADULT HOUSEHOLD OR FAMILY MEMBER
06	OWN CHILD(REN) AGED UNDER 18
07	GRANDCHILD(REN) AGED UNDER 18
08	OTHER FAMILY CHILDREN AGED UNDER 18

| **Activity cluster iii:** |
| Cleaning, decoration, and maintaining one's own dwelling or premises, durables, and other goods, household waste disposal, and recycling, gardening, caring for domestic animals or pets. |

Activity codes (OPS_1, OPS 1B):

06	Cleaning and tidying indoors
07	Outdoor cleaning and upkeep
08	Pet care (includes feeding, exercising, cleaning, grooming)
09	Decorating or minor repairs, maintenance of buildings, durable goods, vehicles, machinery
10	Laundry / repair or maintenance of clothes, textiles, shoes
41	Travelling or commuting / Transporting or accompanying people or goods [Assigned to corresponding activities at data processing stage]

Beneficiary codes (OPS_4, OPS_6)

01	SELF
02	HOUSEHOLD AS A WHOLE (INCLUDES SELF AND <u>ALL</u> HH MEMBERS)
03	SPOUSE
04	OTHER ADULT HOUSEHOLD OR FAMILY MEMBER
06	OWN CHILD(REN) AGED UNDER 18
07	GRANDCHILD(REN) AGED UNDER 18
08	OTHER FAMILY CHILDREN AGED UNDER 18
14	HOUSEHOLD OR FAMILY PET

Activity cluster iv:

Childcare and instruction, transporting and caring for elderly, dependent, or other household members, etc.

Activity codes (OPS_1, OPS 1B):

13	Providing physical care or comforting children (feeding, cleaning, bathing, giving medical care, soothing...)
14	Teaching, helping, talking with, or reading to children
15	Playing games and sports with children
16	Attending children's sports or games match, play, dance, talent show, or similar (includes training, practice, rehearsals)
17	[Minding or watching over] children
18	Providing physical care, practical assistance, or emotional support to adults with a disability, illness, or frailty
19	[Minding or watching over] adults with a disability, illness, or frailty who need assistance
41	Travelling or commuting / Transporting or accompanying people or goods
	[Assigned to corresponding activities at data processing stage]

Beneficiary codes (OPS_4, OPS_6)

01	SELF
02	HOUSEHOLD AS A WHOLE (INCLUDES SELF AND <u>ALL</u> HH MEMBERS)
03	SPOUSE
04	OTHER ADULT HOUSEHOLD OR FAMILY MEMBER
06	OWN CHILD(REN) AGED UNDER 18
07	GRANDCHILD(REN) AGED UNDER 18
08	OTHER FAMILY CHILDREN AGED UNDER 18

Flowchart A1 sets out the process to derive the variable "own-use provision of services work: Activity cluster i" for the first activity recorded for each episode (Activity cluster i, $\_A_1$)

▶ **Flowchart A1: Classification of own-use provision of services work, by activity cluster (module OPS_)**
**Activity cluster i: Household accounting and management, purchasing and or transporting goods.**
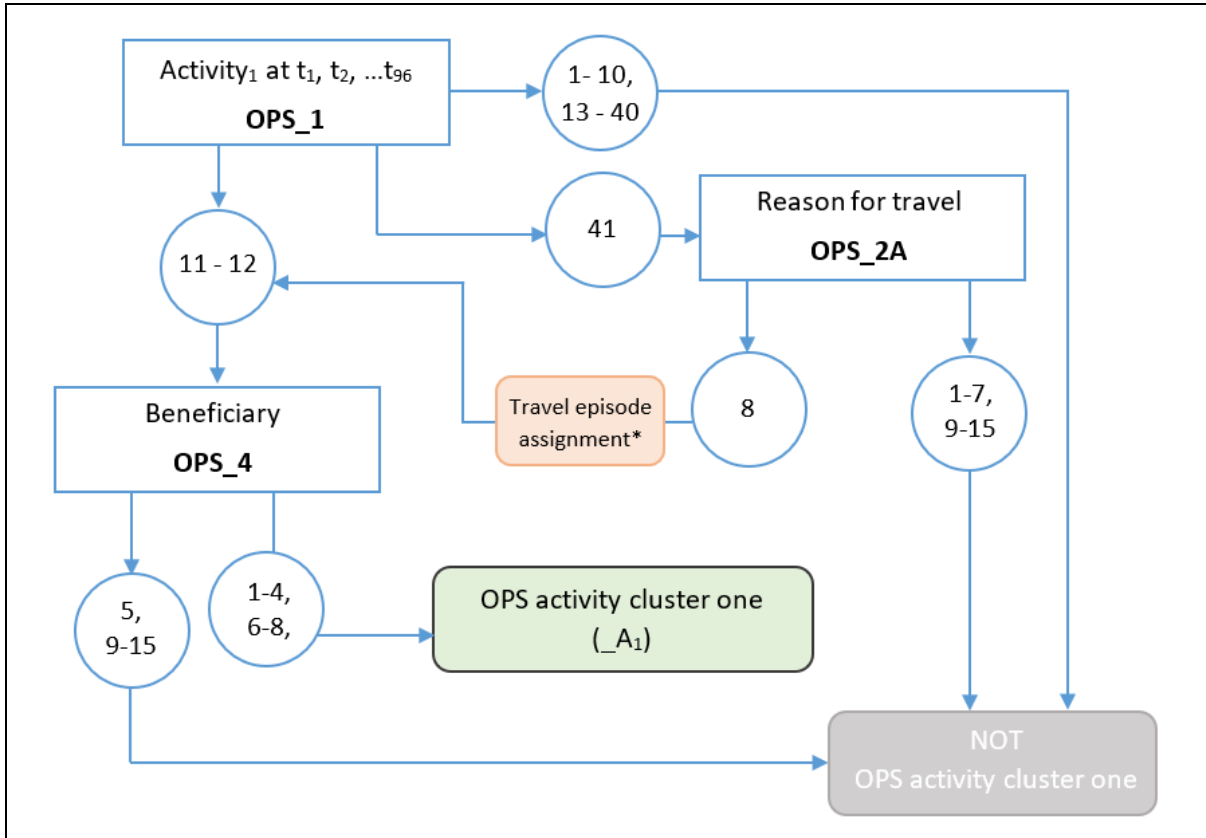
*Travel episodes are assigned to the corresponding activity at the data processing stage.

Flowchart A1 indicates the derivation process for the variable "Activity cluster i, $\_A_1$" (coded 0 for "yes" and 1 for "no"). The suffix $\_A_1$ indicates that the variable refers to the activity reported first for that episode (in contrast to any activity/ies reported as simultaneous).

Flowchart A2.a illustrates the derivation process for activities reported under the optional "global simultaneity" series. The process is repeated for each simultaneous activity reported for each episode.

Flowchart A2.a results in the derivation of the variable(s) "Activity cluster i $\_A_2, \_A_3, \_A_n$" (coded 0 for "yes" and 1 for "no"). The suffixes $\_A_2, \_A_3, \_A_n$ indicate that the variable refers to the order in which the simultaneous activity was reported for that episode. In practice, reporting should be limited to a maximum of two simultaneous activities per episode (in addition to activity one).

▶ **Flowchart A2.a: Classification of simultaneous own-use provision of services work (module OPS_)**
   Activity cluster i: Household accounting and management, purchasing and or transporting goods.
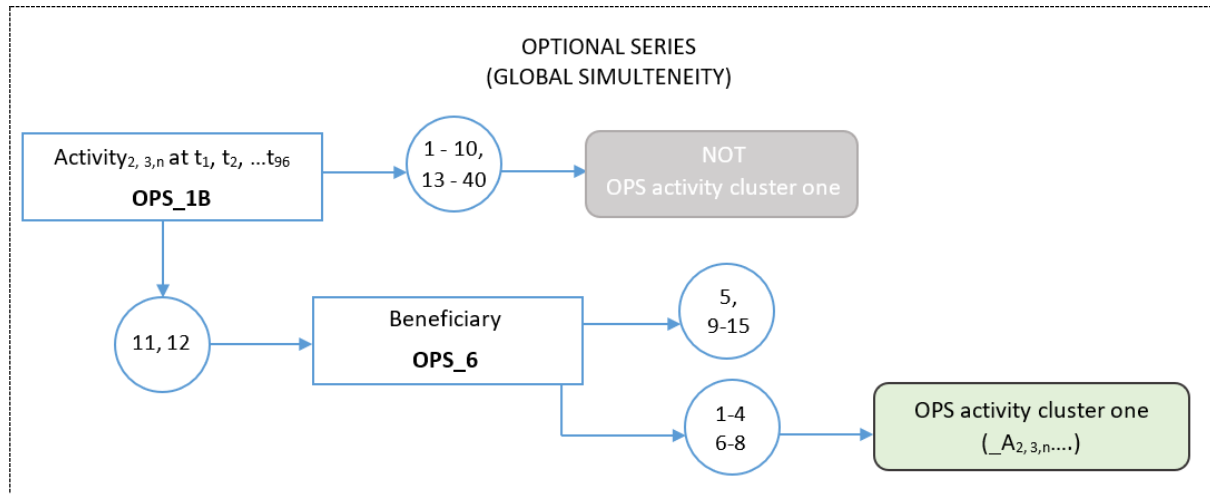

Where there are multiple simultaneous activities reported for a single episode (in addition to activity one ($\_A_1$)), a further variable should be derived to indicate that one or more of the multi-tasking activities refer to OPS Activity cluster i. Flowchart A2.b illustrates this case. An overarching variable "OPS Activity cluster i $\_A_2$, $\_A_3$, $\_A_n$" (coded 0 for "yes" and 1 for "no") is derived to indicate the reporting of OPS activities for Activity cluster i, as one or more simultaneous activities.

▶ **Flowchart A2.b: Classification of simultaneous own-use provision of services work (module OPS_)**
   Activity cluster i: Household accounting and management, purchasing and or transporting goods.
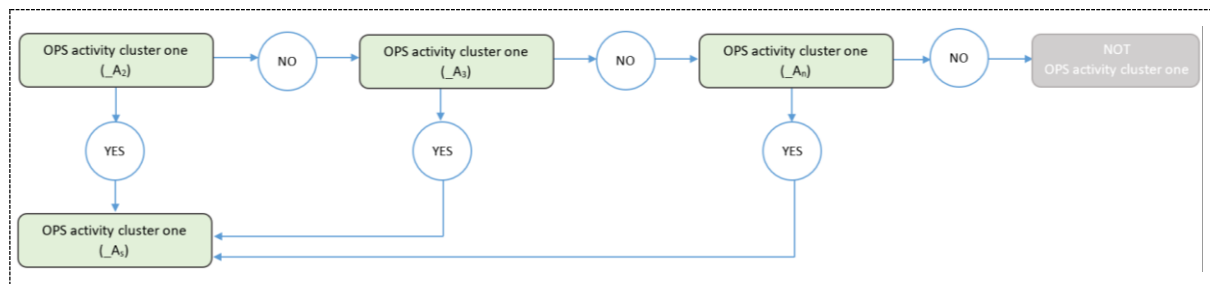

The workflow depicted in flowcharts A1, A2.a, and A2.b is replicated for the derivation of variables for each of the remaining three (of four) OPS activity clusters. The corresponding flowcharts are depicted below.

▶ **Flowchart A3: Classification of own-use provision of services work, by activity cluster (module OPS_)**
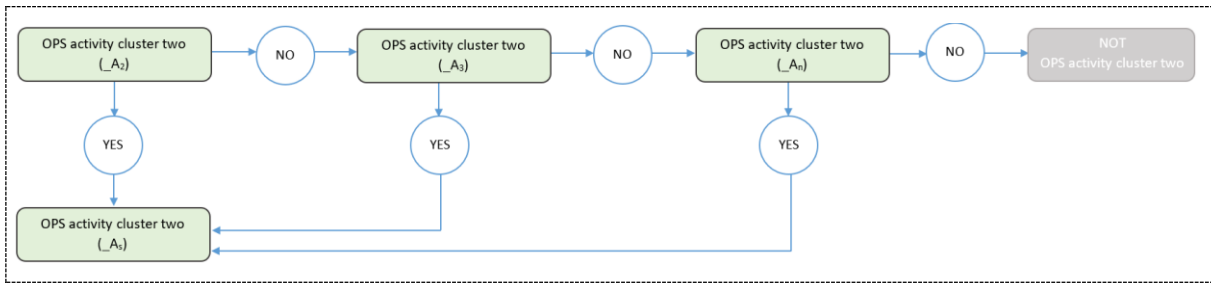**Activity cluster ii: Preparing and/or serving meals.**
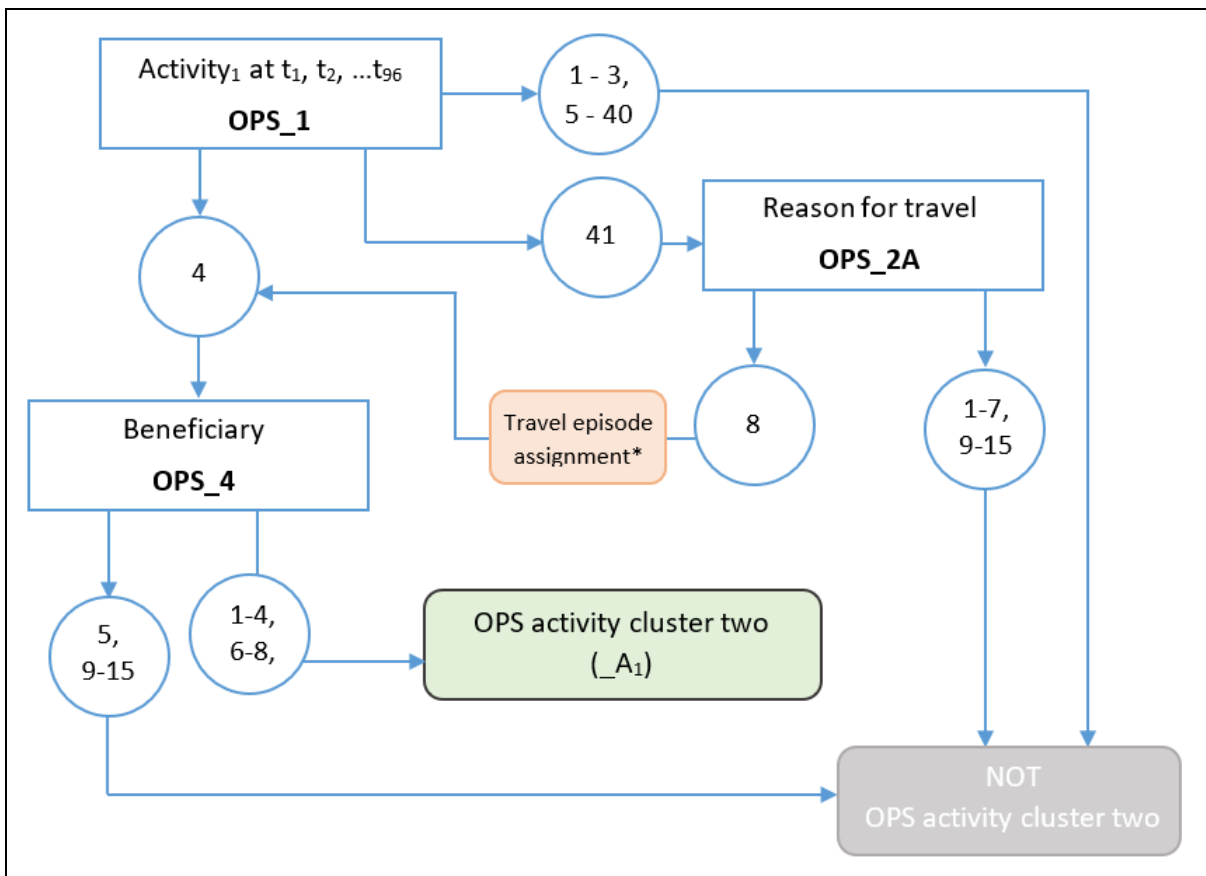
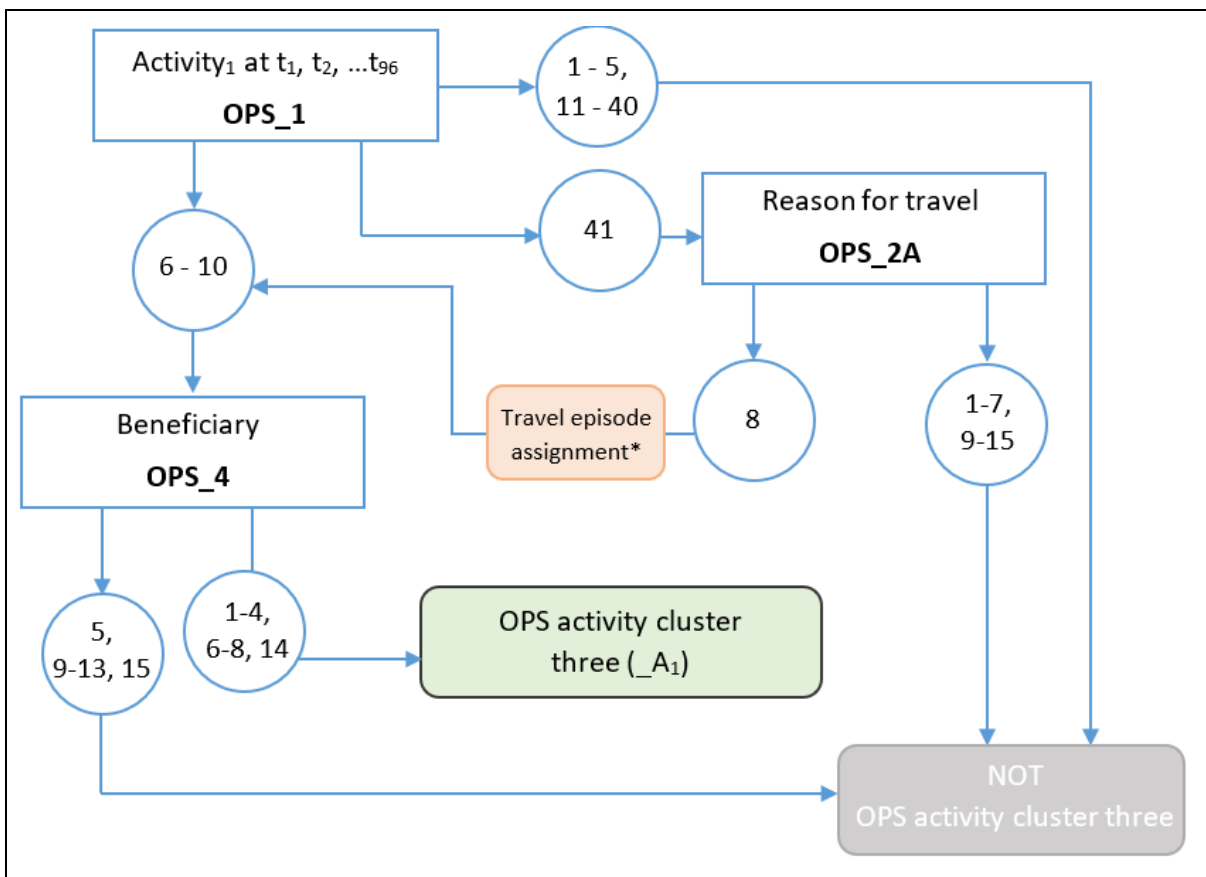*Travel episodes are assigned to the corresponding activity at the data processing stage.

▶ **Flowchart A4.a: Classification of simultaneous own-use provision of services work (module OPS_)**
Activity cluster ii: Preparing and/or serving meals.
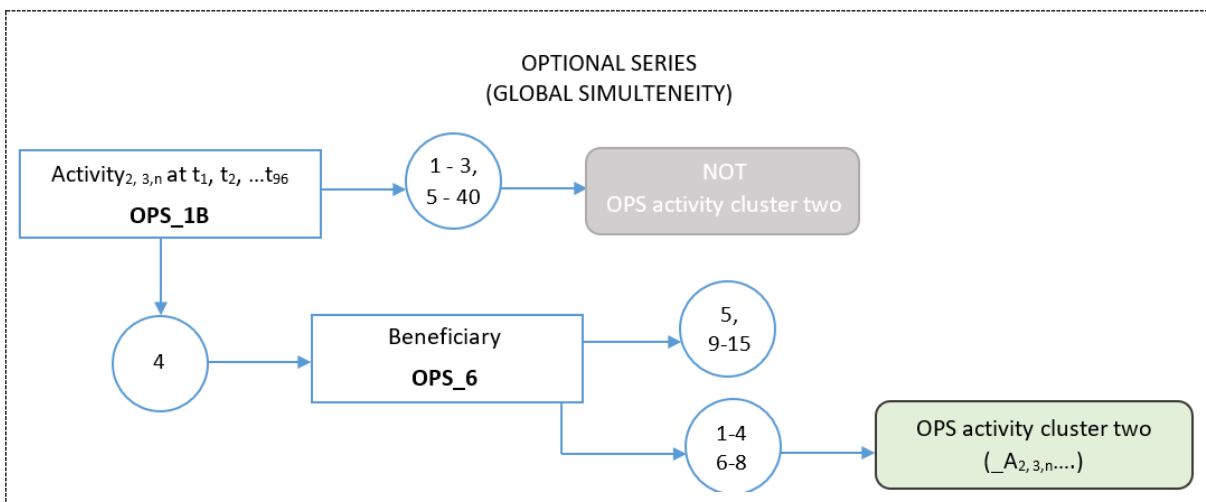
▶ **Flowchart A4.b: Classification of simultaneous own-use provision of services work (module OPS_)**
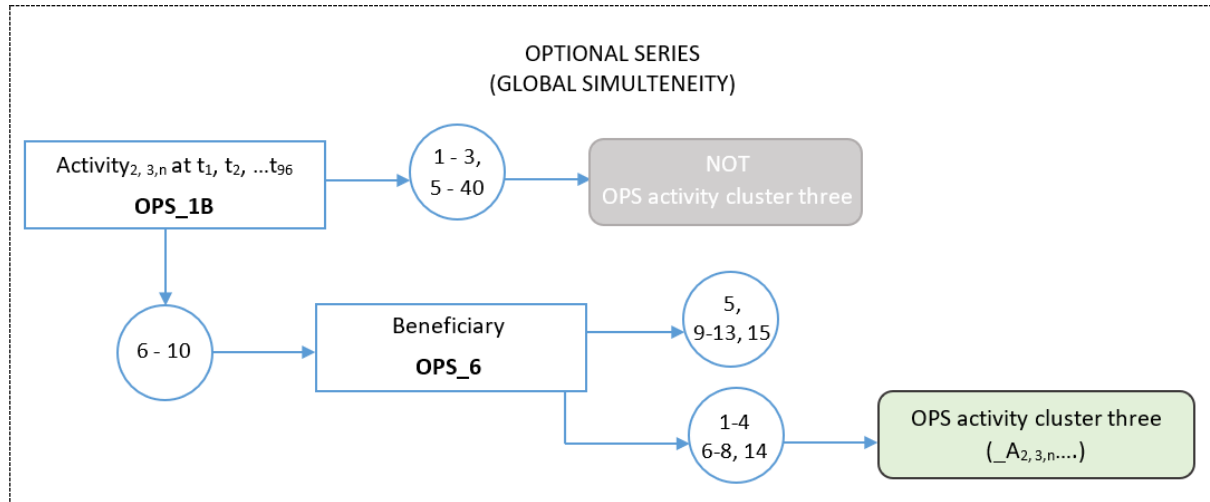**Activity cluster ii: Preparing and/or serving meals.**

▶ **Flowchart A5: Classification of own-use provision of services work, by activity cluster (module OPS_)**
Activity cluster iii: Cleaning, decoration, and maintaining one's own dwelling or premises, durables, and
other goods, household waste disposal and recycling, gardening, caring for domestic animals or pets.
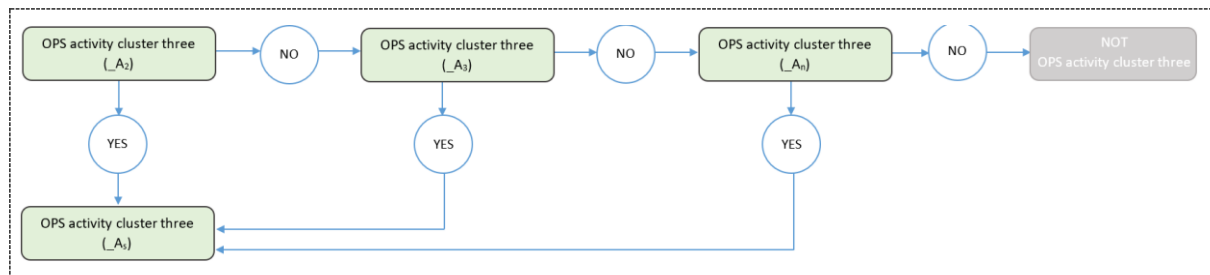

*Travel episodes are assigned to the corresponding activity at the data processing stage.
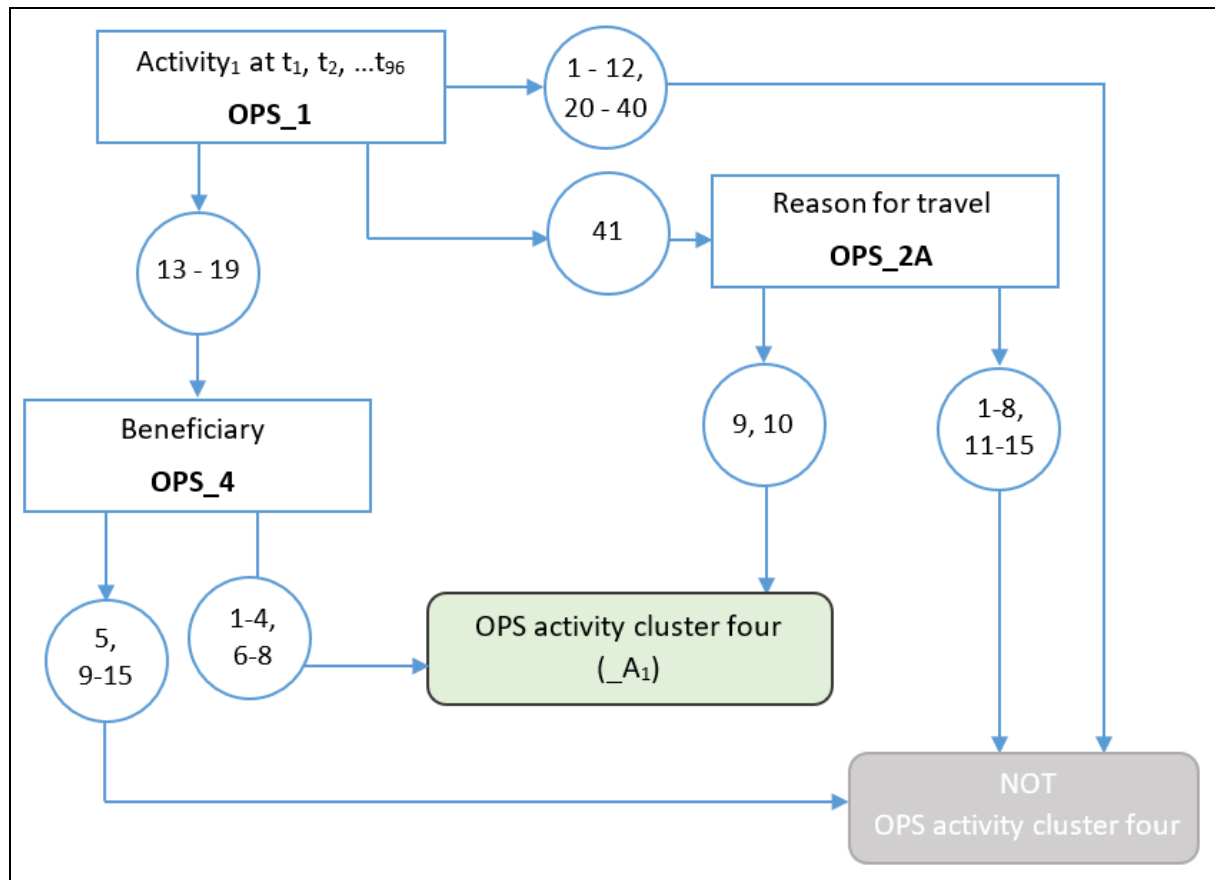
▶ **Flowchart A6.a: Classification of simultaneous own-use provision of services work (module OPS_)**
   Activity cluster iii: Cleaning, decoration, and maintaining one's own dwelling or premises, durables, and other goods, household waste disposal and recycling, gardening, caring for domestic animals, pets.

▶ **Flowchart A6.b: Classification of simultaneous own-use provision of services work (module OPS_)**
   Activity cluster iii: Cleaning, decoration, and maintaining one's own dwelling or premises, durables, and other goods, household waste disposal and recycling, gardening, caring for domestic animals, pets.
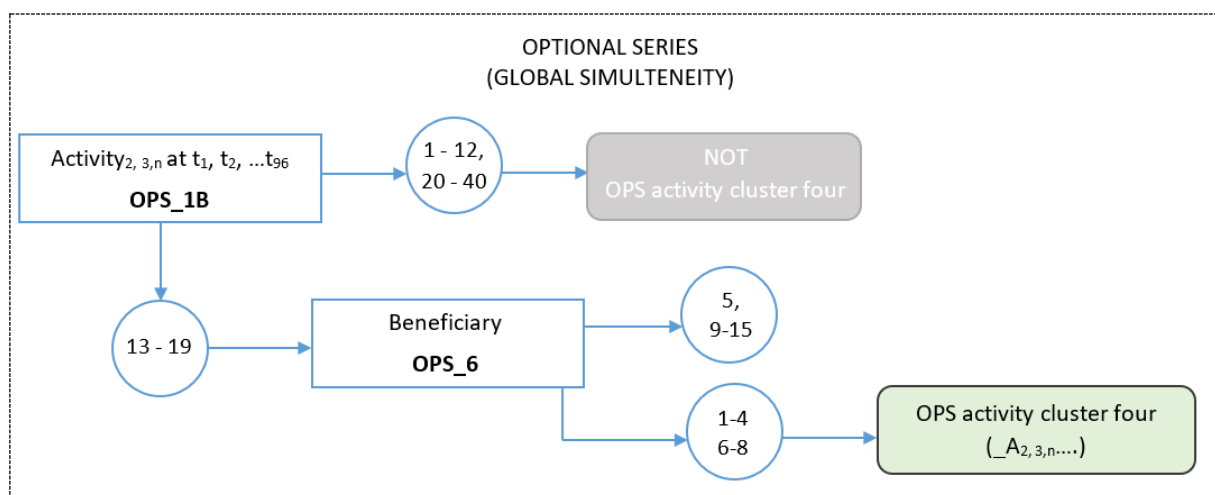
▶ **Flowchart A7: Classification of own-use provision of services work, by activity cluster (module OPS_)**
Activity cluster iv: Childcare and instruction, transporting and caring for elderly, dependent, or other household members, etc.


*Travel episodes are assigned to the corresponding activity at the data processing stage.

▶ **Flowchart A8.a: Classification of simultaneous own-use provision of services work (module OPS_)**
Activity cluster iv: Childcare and instruction, transporting and caring for elderly, dependent, or other household members, etc.
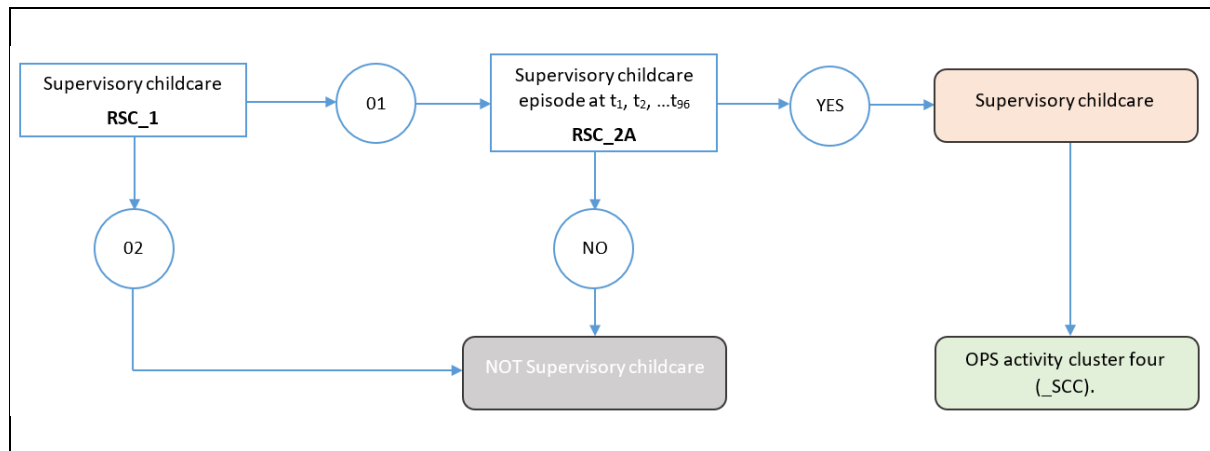
▶ **Flowchart A8.b: Classification of simultaneous own-use provision of services work (module OPS_)**
Activity cluster iv: Childcare and instruction, transporting and caring for elderly, dependent, or other household members, etc.
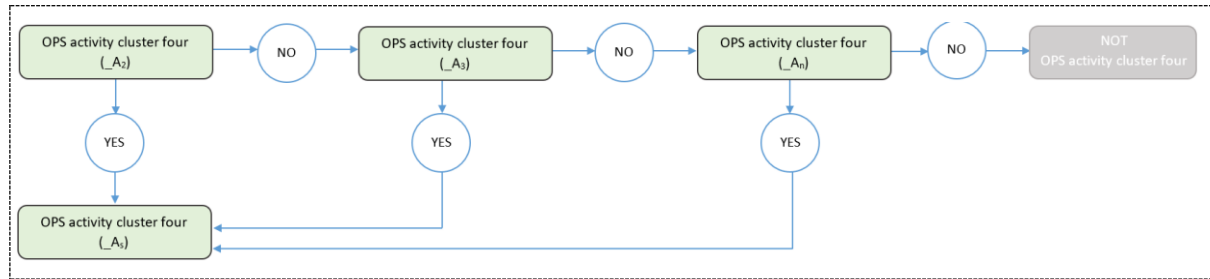

Flowchart A9.a illustrates the derivation of the variable "OPS Activity cluster i _SCC" (coded 0 for "yes" and 1 for "no"). The suffix _SCC indicates that the variable refers to supervisory childcare activities captured by the recovery module (module _RSC) in contrast to activity/ies reported in the main diary roster (module _OPS). Flowchart A9.b illustrates the process for deriving the variable "OPS Activity cluster i _SCA" (coded 0 for "yes" and 1 for "no"). The suffix _SCA indicates that the variable refers to supervisory adult-care activities captured by the recovery module (module _RSC).

▶ **Flowchart A9.a: Classification of supervisory childcare own-use provision of services work (module RSC_)**
Activity cluster iv: Childcare and instruction, transporting and caring for elderly, dependent, or other household members, etc.

▶ **Flowchart A9.b: Classification of supervisory adult-care own-use provision of services work (module RSC_)**
Activity cluster iv: Childcare and instruction, transporting and caring for elderly, dependent, or other household members, etc.
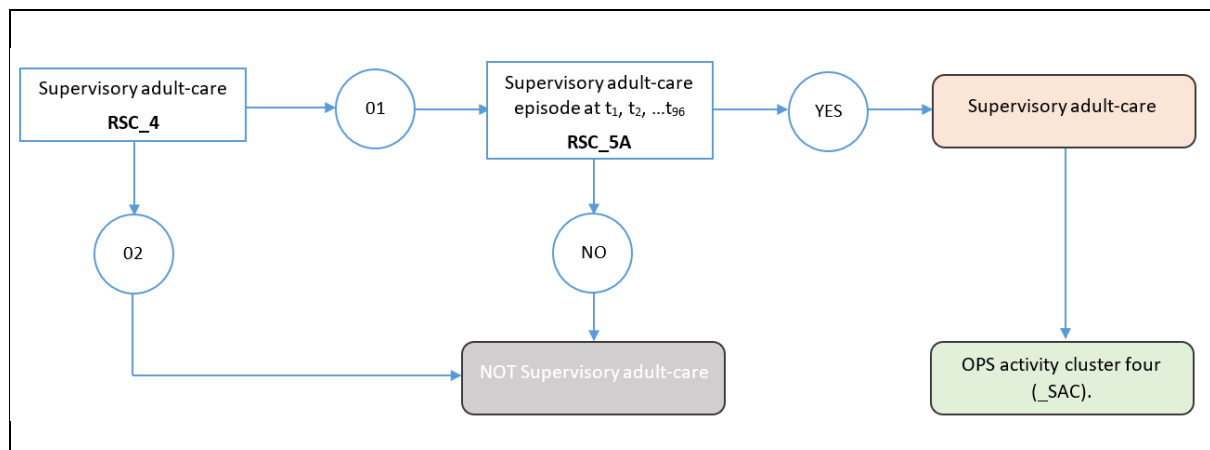
▶ Appendix IV: Pre-designation of diary days and pending recovery protocols

Pre-designation of diary days

Field operations for face-to-face mode household sample surveys are organised in such a way as to minimise the time required for data collection, given the desired geographical coverage, transport infrastructure, and terrain considerations. Time use surveys often impose additional requirements for the timing and distribution of field operations. This is because, in addition to generating a probabilistic sample of persons, the sample design will often also be required to generate a probability sample of days. Failure to do so may bias estimates of population-level time-use.

In practice, a probability sample of days of the week is achieved by the randomised pre-assignment of each sample unit to one or more designated "diary days". In the case of retrospective "yesterday" diaries, the random assignment of respondents to designated diary days directly conditions the survey participation day (*i.e., the day immediately following the diary day*). Sample units assigned to report on Monday's time-use must be surveyed on Tuesday, those assigned to report on Tuesday's time-use must be surveyed on Wednesday, and so on.

While it is relatively straightforward to extend the sample design to obtain a probability sample of days of the week (often supported by adjusted sample weights), the designation of a specific diary day presents challenges for survey operations. Upholding the design increases the time and effort required to obtain a complete response, since a proportion of sampled individuals will be unavailable, unable, or unwilling to participate in the survey on their assigned day.

In many household sample surveys[119] proxy-reporting (whereby a household member provides information for other eligible household members by proxy) is permitted to reduce the number of contact attempts required to obtain a response. The use of proxy-reporting is discouraged in existing international guidelines on time-use measurement, as the risks of information loss and inaccurate reporting for time-use are likely substantial[120].

Taken together, the twin requirements for direct reporting and pre-assignment of reporting day can present serious challenges when it comes to obtaining sufficiently high response rates, presenting its own risks for data quality, via nonresponse bias[121]. In a modular design, this may risk undermining response rates for the parent survey in addition to the time-use module.

Designation of diary days, available schemes

Various *pending recovery* strategies have been proposed to reduce the challenges imposed by the designated diary day feature of time-use measurement. Some strategies retain the feature in modified form, while others relax or even dispense with it completely[122].

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[119]In practice, data collection for core LFS modules may make use of proxy response. Country practices vary considerably.
[120]For example, UN 2005: 90
[121]Earlier research has found that response probability for time-use surveys varies systematically with individual demographics and characteristics, impacting time-use estimates (e.g., Abraham, Maitland, and Bianchi, 2006; Fricker and Tourangeau, 2010, Abraham, Helms, and Presser 2009, Van Ingen, E., Stoop, I., and Breedveld, K. (2011).
[122]This review assumes the pre-designation of a single diary day. Schemes with multiple designated diary days per respondent (e.g., one weekday and one weekend day) may be preferred when self-administered survey modes (e.g., mail-

Postponement: The simplest strategy, from a sampling perspective, is to postpone the time-use interview by a full week from the pre-assigned day, so that it takes place on the designated day one week later than originally scheduled. Under this design, a respondent who is unavailable to be interviewed on the first Tuesday of the month is instead interviewed on the second (or third, or fourth) Tuesday of the month. The survey day has been postponed, but the respondent nevertheless reports their time-use (for the preceding day) on a Tuesday as originally intended. This approach has the advantage of maintaining the representativeness of the sample of days, while multiplying opportunities to obtain a complete interview[123]. Its chief drawback is the potential to prolong – and to create uncertainty for – field operations, since interviewers are obliged to wait a full week between re-visit(s). There is some evidence, too, that the postponement strategy may directly or indirectly incentivise interviewers to pressure or persuade resistant/reluctant respondents to participate on the originally designated day to avoid a lengthy delay between revisits[124]. This in turn may compromise data quality, by resulting in a shorter, more cursory record of time-use, as resistant / reluctant respondents seek to hasten the interview[125]. Additionally, if the respondent is systematically unavailable on the designated day of the week, the postponement strategy's scope to effect non-contact/non-response conversion is limited.

Extension of reporting period: A second strategy involves extending the reporting window, relaxing the condition for the 'yesterday' reference period when a sampled person is unavailable on the assigned survey day. Relaxation of the 'yesterday' reference period (for instance, permitting reporting on Monday's activities to be deferred by a day, from Tuesday to Wednesday, or even by two days – from Tuesday to Thursday), has the advantage of maintaining the original designated diary day (and so the representativeness of the sampled days), while increasing opportunities to secure a response within a relatively compressed period. While appealing on logistical and resource grounds, there is some evidence that this strategy may undermine data quality, owing to the scope for respondent recall to degrade over time and for 'blurring' of activities undertaken on intervening day(s) to occur[126].

Substitution (pre-assigned day): A third strategy is to permit the substitution of the originally designated diary day, within certain specified limits. This may involve the pre-assignment of an initial diary day, together with a "reserve" diary day for each sampled unit. Alternatively, field protocols may be developed to standardise procedures for substitution in the field. Research on the 'substitutability' of different days indicates that not all days are equally substitutable, with Saturdays and Sundays exhibiting differences both to weekdays and to one another. There is evidence too, that Fridays[127] (and perhaps also Mondays – though evidence is more mixed[128]) differ

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out, leave behind, online or app-based diaries) or mixed-mode (e.g., interviewer administered for the first diary day and self-administered for the second allocated diary day) permit prospective reporting. In the event multiple diary days are allocated within a retrospective, interviewer administered diary, two options are available. The first entails repeat interviews to record information separately for the two allocated diaries. In such an instance, the substitution schemes described below may be used in modified form for the recovery of pendings (keeping in mind the requirement to balance the sample of weekdays and weekend days). Where available resources limit field operations to a single interview, evidence that recall deteriorates more quickly for weekdays than for weekends supports a strategy to minimise the reporting distance for the allocated weekday. A similar strategy is outlined in (National Research Council (2000).

[123]Lyberg 1989, Laaksonen and Pääkkönen 1992

[124]Fricker and Tourangeau (2010)

[125]Analysis by Fricker and Tourangeau (2010) exploited an item to record refusal conversion in order to permit comparison of hesitant vs non-hesitant responses.

[126]Harvey (1999) cites work by Klevmarken comparing 24- and 48-hour diaries.

[127]Juster (1985), Kalton (1985), Stinson (1999), Stewart (2006, based on synthesised data)

[128]Zuzanek and Smale (1999)

from other weekdays and weekend days[129]. The implication is that (perhaps Mondays), Tuesdays, Wednesdays, and Thursdays may be substituted for one another, but that substitution is not appropriate in the case of Fridays, Saturdays, and Sundays. Evidence also suggests that the substitute day should not be consecutively scheduled, to avoid artificial inflation of time spent away from home and underestimation of time spent at home[130].

One important caveat to these findings is that the evidence on substitutability is limited to high income settings, in which a five-day working week is relatively commonplace and structures the social organisation of time more broadly. Differences in the composition of, and limits to, a standard "work week" will very likely impact on the substitutability of days, with potential too, for greater sensitivity to seasonality to destabilise substitutability.

Postponement with Substitution (pre-assigned day): A fourth strategy combines the postponement and substitution schemes to increase the potential number of available days for recovery of pendings. Where the respondent is unavailable on intervening substitution days, s/he may be interviewed seven (or 14 or 21) days later.

Convenience sampling: An alternative approach to the above designated day schemes is to adopt a "convenient day" schedule. In the past, many time-use surveys adopted a convenient-day schedule by default, omitting to assign an initial designated diary day[131]. Under this strategy, the selected diary day is at the respondents' and/or interviewers' discretion.

Convenient day substitution: The "convenient-day" scheme may be amended to combine a designated day schedule in the first instance, with a convenient-day schedule for revisits. Under this strategy, all respondents are assigned a designated diary day as part of routine sample design. Failure to secure response for the initial designated diary day permits recourse to a convenient day schedule for any subsequent re-visit(s). The resulting convenient day sample consists of only those respondents unavailable/unwilling to participate on their originally allocated date. This proportion of the sample are then interviewed when they next happen to be available. Whereas the 'postponement' strategy requires that a deferred interview be rescheduled for seven days later, and the substitution strategy places limits on which days are substitutable, the convenient-day schedule imposes no such requirements. Any sampled (non-response) individual may be interviewed about the preceding day's activities on any subsequent day of the week. This approach allows interviewers flexibility in scheduling pending interviews.

With the imposition of quotas and adjustments to sample weights, this design may result in a balanced distribution of interviews across the days of the week. Additional modifications, whereby restrictions are imposed upon the substitutability of certain days, may further bolster the approach. However, in the absence of a probability approach to sample days, biased estimates may still result. Convenient-day scheduling risks introducing selection bias when i. the probability of securing an interview with a sampled person is correlated with the activities performed by that person on that day, and ii. differences in the probability of securing an interview with sampled persons is correlated with differences in activities across persons. In practical terms, a convenient-day schedule has been shown to inflate estimates of time spent away from home (since the person is unavailable for interview) and to underestimate time spent at home[132]. This has important

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[129]Yun and O'Kelly (1997), Zuzanek and Smale (1999)
[130]Stewart 2002
[131]Kalton (1985), Harvey (1993)
[132]Stewart (2002)

implications for the estimation of unpaid care and domestic work, much of which takes place in and around the home.

Each of the first four strategies, and the fifth in its modified form seeks to find a balance between retaining a probabilistic mechanism for diary day assignment (at least initially), and minimising the excess burden, duration, and costs of field operations imposed by a strict designated day scheme while maximising the response rate. Each strategy involves trade-offs in exposure to selection bias, measurement error, and the complexity and costs of field operations. Strategy one, (postponement), best upholds the probability sampling mechanism necessary for a representative sample of days, however it risks being cumbersome and costly to operate, owing the seven-day lag imposed on the re-visit schedule for non-contact conversion. Strategy five, convenience-based follow up, presents few additional considerations for standard field operations, but is also the least statistically robust option. Strategies two (extended reporting period) three (randomised substitution of the designated diary day), and four (postponement with substitution) offer mid-way points in terms of statistical rigour and operational complexity. Table A2 summarises these trade-offs for the alternative strategies.

Table A2: Designated diary day and pending recovery strategies

	Strategy	Diary day selection	Diary day substitution	Selection bias	Measurement error	Field operations
1	Postponement	Designated (Probabilistic sampling)	7-day deferral (Diary day maintained)	Scope for bias (non-response) if non-contact is correlated to the designated day	No direct impact	May require extended timeline to accommodate weekly revisit(s) schedule
2	Extension of reporting period	Designated (Probabilistic sampling)	Reporting day deferral (Diary day maintained)	No direct impact	Heightened risk of recall error as reference period extends	Minimal impact to standard field operations
3	Substitution: Pre-assigned day	Designated (Probabilistic sampling)	Alternate day, pre-designated	Random assignment of alternate diary day minimises scope for selection bias	No direct impact	Minimal impact to standard field operations
4	Postponement with Substitution: Pre-assigned day	Designated (Probabilistic sampling) Combines strategies 1 & 3	7-day deferral / alternate day, pre-designated	Scope for bias (non-response) if non-contact is correlated to designated day	No direct impact	May require extended timeline to accommodate weekly revisit(s) schedule
5a	Substitution: Convenient day	Designated (Probabilistic sampling)	Alternate day, convenience sampled	Introduces selection bias for non-contact conversion units (systematic differences in time-use for convenience sampled days vs non- contact designated day)	No direct impact	Minimal impact to standard field operations
5b	Convenience sample of days	Convenient (non-probabilistic sampling)	Alternate day, convenience sampled	High likelihood of selection bias across sample (systematic differences for convenience sampled vs other days)	No direct impact	Consistent with standard field operations