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Time Use Data: sources and applications of data on paid and unpaid labour

WOW Helpdesk Query 3

Final Report

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Request for Support

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Key questions:

1) What are the key surveys used to collect data on 'women at work/ Labour Force Participation' (capturing data on paid and unpaid work) and which global institutions collect and manage data *(e.g. WB, ILO, UN, OECD, etc.)*

2) What data exist on women and men's time use? What are the key institutions working on time use measurement and collecting time use data at the global level?

3) What are the key conceptual issues to consider in gathering data on time use? *(E.g. on the life cycle, intensity of time use, simultaneous use of time on different activities, energy depletion etc.);* What are they key constraints in the collection and comparison of time use data?

4) What are some of the main ways in which data on time use are used? *(E.g. in monitoring SDGs, at the national level etc.)*

Executive Summary

This report, commissioned to inform DFID's Research and Evidence Division, gives an overview of the current state of global databases on women's labour force participation, and on paid and unpaid work, addressing issues of data availability and comparability. With a focus on time use data, the key issues in collection and analysis of data are highlighted as well as ways in which these data have been used in relation to addressing gender equality and women's economic empowerment.

Major global sources of labour force participation data are the International Labour Office (ILO), World Bank and Organisation for Economic Cooperation and Development (OECD), with ILO having the most comprehensive, cross sectional, comparative and time series dataset. Major sources of time use data globally are the United Nations (UN) for developing countries, the OECD (for developed countries) and the Oxford University Centre for Time Use Research. Time use data is much less routinely collected: many surveys pre-date 2010 and there are greater challenges of comparability in these datasets, particularly between developed and developing countries.

Only 88 countries worldwide have implemented detailed time use surveys, and relatively few of these surveys are recent. Furthermore, much of the data is not comparable across countries, largely because of different methods used. The self-reported time diaries method is favoured in developed countries but diaries are very onerous to complete such that this method is less feasible and more likely to lead to biases particularly in developing countries, where the interview recall method for time diaries is favoured. Use of the stylized question approach is most widespread in Latin America and a few other developing countries. Other factors affecting data comparability include different classification systems, timing of surveys and the reference periods used.

Including measurement of parallel or simultaneous activities tends to disproportionately increase the estimates of women's time use. This is particularly important to ensure that time use data on childcare is adequately captured as childcare is most often combined with other activities. More broadly, changes in the organization of work are also tending to lead to more parallel activities. In the literature and debate there is considerable focus on this issue but it is not always being picked up at the stage of analysis, where researchers often revert to looking at primary activities. Some other gaps remain, notably the absence of data on children's caring work as they are most often not included in labour or time use surveys, and in some instances, lack of data on older people's time use and care contributions, where some countries do not collect data for those over 65 for example.

Very few countries implement regular time use surveys that would enable monitoring of trends in men's and women's time use, or of how policies or changes to the national and international environment impact the (gendered) use of time, for example through investments in infrastructure that impact on women's care responsibilities.

Where more comprehensive data has been gathered, gender analysis of time use data is being used by some actors, in some countries, to influence policies, planning, and programming in favour of gender equality and/or women's economic empowerment. Examples include: analysis of time use data to feed into understanding of gender and other inequalities in unpaid care and work; informing the design of national gender equality and care policies, supporting the expansion of childcare programmes; and analysis of time use data in macro-economic modelling to understand the impact of trade and other policies.

More recently, time use data have been used for monitoring Sustainable Development Goal (SDG) targets (e.g. 5.4 on reducing unpaid care work; 3.4 on improved health and well-being and 9.1 on improved well-being from infrastructure investments). To be effective, ongoing monitoring of such impacts will require investments in updating time use surveys more regularly and greater harmonization in definitions, and approaches to measurement and analysis.

1. Introduction

The DFID Research and Evidence Division (RED) is designing a new research programme on women's economic empowerment and is seeking support from the WOW Helpdesk to inform the design process.

The remainder of this report is organised into two main sections. Section 2 gives a brief overview of the main global databases on labour force participation and their sources, as well as reviewing the key data sources on paid and unpaid work. Section 3 gives a more detailed background to time use data, focusing on: available datasets and key institutions; key conceptual and technical issues related to collection and comparability; and examples of how analysis of time use data has fed into planning, policies, programming. Annexes A-F give brief snapshots of each database described in chapter 2, and Annex G provides a list of the latest available time use survey for all countries that have collected time use data. This list also details some of the characteristics that influence the scope and comparability of these datasets.

2. Data on labour force participation, paid and unpaid work

2.1 Female labour force participation

Labour force participation rate (LFPR) is defined as the proportion of the population of age 15 and older that is economically active – i.e. all people who supply labour for the production of goods and services during a specified period – including those who are currently unemployed. The main global sources of data on women's LPFR are ILO, World Bank and OECD[1].

The most comprehensive source of data on (female) labour force participation is the ILO database covering 189 countries in 2017 for the populations aged 15 – 64 and 65 and above. This is a complete cross-sectional time series database with no missing values. Average aggregated LFPR for whole or subgroups of populations are typically derived from national labour force surveys, other household surveys or from population censuses (ILO, 2017). Estimates and projections of the total population and its components by sex and age group used to determine LFPR are produced by the UN Population Division.

Given ILO's objective to generate a set of comparable data across countries and time, existing LFPR are scrutinized and selected based on whether they are deemed sufficiently comparable. National LFPR data is harmonized by age bands, and then estimates produced with econometric modelling techniques for those countries and years in which no country-reported, comparable data currently exist. Annex A gives a snapshot of what the ILO database looks like when information is downloaded. The example shows aggregate ages but different presentation formats are possible, e.g. disaggregated by age bands. The latest ILO LPFR estimates disaggregated by sex and age can be found here.

The **World Bank uses ILO data** to derive their (female) labour force participation rates, which are applied to World Bank population estimates,[2] giving participation rates for the age range "15 and older". Annex B gives a screenshot of the latest edition of their database; the latest data can also be found here.[3]
The **OECD** databank houses labour force participation rates for different age groups between the ages of 15 – 80+, dependent on the data gathered in national surveys. The data covers OECD countries comprehensively with some data available on a few non-OECD countries (Colombia, Brazil, Russian Federation, China, India, South Africa). Sources for national data are labour force (sample) surveys, the European Labour Force Survey, micro censuses, or other household surveys with varying coverage in terms of age range and type of population surveyed. OECD (2017) gives a recent overview on sources, coverage and definitions used across the OECD countries, updated in June 2017. Annex C gives a screenshot of the latest edition, and the latest data can also be found here.

The **European labour force survey** (EU LFS) collects data according to ILO definitions agreed by the International Conference of Labour Statisticians, which increases the degree of comparability for all countries using the common classifications.[4] The EU LFS is conducted in the 28 Member States of the European

[1] Eurostat – the official statistical office of the European Union - passes data onto the OECD – and is therefore not listed separately.
[2] http://wdi.worldbank.org/table/2.2
[3] https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS. The database has entries for 264 countries, however, data appears to be missing for at least 30 of these.
[4] http://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey

Union, 2 candidate countries and 3 countries of the European Free Trade Association (EFTA). The effort makes available harmonised data at European level by using the same concepts and definitions; following International Labour Organisation guidelines; using common classifications e.g. NACE (Statistical Classification of Economic Activities[5]), ISCO (International Standard Classification of Occupations), ISCED (International Standard Classification of Education), NUTS (Nomenclature of Territorial Units for Statistics[6]); and recording the same set of characteristics in each country.

International estimates of labour force participation rates can vary because of adjustments made to account for different questionnaire design, coverage, timings of survey, etc. For example, the ILO puts more emphasis on harmonizing, and uses econometric modelling to make data as comparable as possible; whereas the OECD collects the information from the member countries, checks for errors and publishes them, even if some differences across countries exist – see OECD (2017) for an overview on differences in coverage and definition. Bishop (2004) provides an insightful discussion on differences in labor market data sources in the UK context, focused on data published by the Office for National Statistics, Eurostat and OECD.

One way of identifying national surveys with labour force participation rates is to look at the ILO or OECD databases, and identify the sources of national data of interest. Another source of information for national data could be the **Gender Data Navigator by the International Household Survey Network (IHSN)**, an informal network of international agencies working on the basis of voluntary contributions, to "improve the availability, accessibility, and quality of survey data within developing countries, and to encourage the analysis and use of this data by national and international development decision makers, the research community, and other stakeholders."[7] The Gender Data Navigator finds 1,232 surveys which contain labour force participation rates for persons 15+ disaggregated by sex.

2.2 Unpaid and paid work data

The **OECD Statistics Division** compiles and estimates data time spent (minutes per day) on paid and unpaid work for women and men aged 15-64[8] **based on national time use surveys,** for its members and a handful of non-OECD countries (South Africa, China, India). The data refer to the latest available years, some of which go as far back to 1999.[9] The latest version of this database can be found here and a screenshot is presented in Annex D.

The Department of Economic and Social Affairs at the UN Statistics Division (**UNSD**) shares information on time spent on paid and unpaid work from more than **180 time use surveys from more than 85 countries** globally between 1966 and 2015. It is accessible here. Annex E gives a geographical overview on the countries for which such data is available. A screenshot of the downloaded database is shown in Annex F.

[5] For the French term "nomenclature statistique des activités économiques dans la Communauté européenne"
[6] From the French term "nomenclature des Unités territoriales statistiques"
[7] http://ihsn.org/content/about/objectives
[8] Exceptions to the age range are Australia (15+ year olds), China and Hungary (15-74 year olds) and Sweden (25-64 year olds).
[9] Australia: 2006; Austria: 2008-09; Belgium: 2005; Canada: 2010; China: 2008; Denmark: 2001; Estonia: 2009-10; Finland: 2009-10; France: 2009; Germany: 2001-02; Hungary: 1999-2000; India: 1999; Italy: 2008-09; Ireland: 2005; Japan: 2011; Korea: 2009; Mexico: 2009; the Netherlands: 2005-06; New Zealand: 2009-10; Norway: 2010; Poland: 2003-04; Portugal: 1999; Slovenia: 2000-01; South Africa: 2010; Spain: 2009-10; Sweden: 2010; Turkey: 2006; the United Kingdom: 2005; and the United States: 2014.

The data and metadata[10] are compiled by the United Nations Statistics Division (UNSD) based on country-level data from national statistical offices, supplemented by data from Eurostat, OECD, and UN Economic Commission for Europe (UNECE) and Latin America and the Caribbean (UNECLAC). The data on this web portal shows the average time spent on paid and unpaid work in a 24-hour period (average number of hours), by sex, for each country with available data as of May 2016. Similar statistics are also available on the UNSD portal for the UN Minimum Set of Gender Indicators (indicators 1 and 2). However, different countries cover different age groups, source years, and use varying methodologies, resulting in comparability issues (see section 3.2 for further discussion). As of 2015, 65 of these countries had collected nationwide data that allowed a disaggregation of various components of paid work (formal, informal, subsistence), unpaid work (unpaid domestic services, care work, voluntary), various components of leisure and cultural activities (sports, hobbies, culture, mass media), and time spent for satisfying physiological needs (sleeping, eating, self-care, etc.) (Charmes, 2015).[11]

Again, one way of identifying national time use surveys would be to look at the OECD or UNSD databases and identify the sources of national data of interest; or the IHSN database mentioned in section 2.1 above, which identifies 89 surveys since 2000.[12]

3. Women and men's time use

3.1 Data and organisations[13]

The most recent **overview of existing time use surveys** was published by **Data2X** in March 2018 (Buvinic and King, 2018). Their time use survey inventory updates **Charmes' (2015) background paper to the Human Development Report Office** with information from the UNSD data portal and from country case studies. This compilation includes all major standalone surveys - or modules in other surveys - carried out in developing and developed countries, which provide nationwide data, based on diaries[14] and that distinguish between various components of paid work and unpaid work, leisure and cultural activities, as well as time spent satisfying physiological needs (sleeping, eating, self-care, etc.) The inventory in Annex G is a summary version of this compilation, giving information on the latest available survey and its characteristics (if available in Buvinic and King, 2018) with information on the total number of time use surveys for each country in brackets after the country name.

[10] Metadata is defined as data that describes other data, e.g. where it comes from, when it was created and by whom, technical information, etc.

[11] 9 countries in the MENA region, 8 Sub-Saharan countries, 9 Asian countries, 7 countries from Latin America, 15 from Europe, 12 transition countries, 2 countries in North America, Australia, Japan and New Zealand (Charmes, 2015).

[12] The IHSN identified surveys in in Cameroon, Colombia, Costa Rica, Ethiopia, Ghana, Guatemala, Iraq, Cambodia, Kosovo, Lao PDR, Liberia, Lesotho, Mexico, Macedonia, Mongolia, Mozambique, Mauritius, Malawi, Nigeria, Nicaragua, Nepal, Pakistan, Peru, Russian Federation, Rwanda, Sierra Leone, Timor-Leste, Tonga, Tanzania, Uganda, South Africa and Zambia. http://datanavigator.ihsn.org/#1998&2014|GI1=1&GI2=1

[13] The **ILO** has a central role in efforts to harmonize the classification of activities, which is particularly important given that daily activities and definitions of 'work' vary substantially across countries and cultures. It is not directly involved in collecting time use data.

[14] With the exception of Latin American countries who do not use diaries but very detailed stylized questionnaires.

Key institutions working on **time use measurement and data collection** at the global level are the **UN** and the **OECD**[15]. At a recent policy dialogue meeting in Paris,[16] the implications of the lack of comparable time use data was discussed in relation to the monitoring of SDG target 5.4. UN Women has looked at data from 84 countries – only 24 percent of which have more recent data than 2010 (UN Women 2018). Furthermore, much of the data is not systematically disaggregated by sex, age and location as is required by indicator 5.4.1. Other challenges discussed during the meeting were different classification of activities and data collection methods and their implication for comparability – explained in more detail in section 3 - and the fact that microdata is not always publicly available, rendering secondary analysis difficult if not impossible.

The **Centre for Time Use Research** (CTUR)[17] is a world-leading, multidisciplinary research group within the University of Oxford's Department of Sociology. The Centre houses the Multinational Time Use Study (MTUS), which brings together more than a million diary days from over 70 randomly sampled national-scale surveys, into a single standardised format. As of 2013, over 170 publications used the MTUS archive (Fisher and Gershuny, 2013). MTUS allows researchers to analyse time spent by different sorts of people in various sorts of work and leisure activities, over the last 55 years and across 30 countries. The website by also provides an overview on time diary studies[18] conducted across the world since the 1920s (Fisher et al., 2013). Another project – a collaboration between the Maryland Population Research Center, the Centre for Time Use Research (CTUR) at the University of Oxford and the Minnesota Population Center (MPC) - is the **AHTUS-X** , a project dedicated to making it easy for researchers to use data from the American Heritage Time Use Study (AHTUS), a database of national time-diary samples collected over six decades.[19]

3.2 Conceptual issues and key constraints in the collection and comparison of time use data

3.2.1 Key conceptual issues

There are **two major types of time use surveys**, with further distinctions within both categories (Budlender, 2007; Buvinic and King, 2018):[20]

(i) **Stylized question approach**: Respondents are given a pre-set list of activities and asked to recall how much time they usually spend on each activity during a given period, such as the previous day or week (see Box 1 below). The intention is not to necessarily capture all activities during the time period.

Box 1: Examples of stylized questions

- "How often do you engage in [pre-defined activity]?
- "How much time did you spend in [pre-defined activity] in the past 7 days?"
- "Who usually does the [various routine items of domestic work] in your household?"

Source: Buvinic and King (2018)

[15] The OECD and UN Women have recently signed a Memorandum of Understanding (MOU) to strengthen monitoring of 5.4.1, and improve data comparability across countries, among other areas of research and analysis related to gender equality (OECD, 2018).
[16] http://www.oecd.org/dac/gender-development/womens-economic-empowerment-policy-dialogue-event.htm
[17] https://www.timeuse.org
[18] http://timeuse-2009.nsms.ox.ac.uk/information/studies/
[19] https://www.ahtusdata.org/ahtus/about.shtml
[20] A third type – direct observation – requires an observer to record the time and activities of a respondent. However, this type is hardly used as at least one data collector would have to stay in a household and follow the respondent everywhere for at least one day, thus making it very impractical and costly. According to Buvinic and King's (2018) review, this has only ever been done in the Dominican Republic and Morocco in 1995 and 1997, respectively.

The distinction within this group is whether all activities are to be captured or not – with its own difficulties of time checks, i.e. that the responses add up to 24 hours (the conceptual issue is then whether simultaneous work is allowed which would make 24 hour check impossible (Budlender, 2007))

(ii) **Time diary approach: R**espondents are asked to self-record all activities carried out at different times during a given period (usually 24 hours), with the activities later coded (see example in Fig. 1 below). Time intervals given range from 10 minutes to 1 hour. Instead of asking to self-record, this can also be done during an interview where the respondent is asked to recall. Some diary approaches give a pre-defined list of activities (referred to 'light' or 'simplified' diaries), and others ask to self-describe activities which are then coded afterwards ('full time' diaries) (Budlender, 2007, p. 6)

Figure 1: Excerpt of time use diary in the Harmonised European Time Use Surveys

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Time	**What were you doing?** *Record your main activity for each 10-minute period from 10.00 to 13.00!* Only one main activity on each line! Distinguish between travel and the activity that is the reason for travelling.	**What else were you doing?** *Record the most important parallel activity.* *Indicate if you used, in the main or parallel activity, a computer or internet. You do not need to record the use of a computer or internet during working time.*	**Where were you?** *Record the location or the mode of transport* e.g. at home, at friends' home, at school, at workplace, in restaurant, in shop, on foot, on bicycle, in car, on motorbike, on bus, …	**Were you alone or together with somebody you know?** *Mark "yes" by crossing*					
					With other household members				
				Alone	Partner	Parent	Household member up to 9 years	Other household member	Other persons that you know
10.00-10.10				☐	☐	☐	☐	☐	☐
10.10-10.20				☐	☐	☐	☐	☐	☐
10.20-10.30				☐	☐	☐	☐	☐	☐
10.30-10.40				☐	☐	☐	☐	☐	☐
10.40-10.50				☐	☐	☐	☐	☐	☐
10.50-**11.00**				☐	☐	☐	☐	☐	☐
11.00-11.10				☐	☐	☐	☐	☐	☐
11.10-11.20				☐	☐	☐	☐	☐	☐
11.20-11.30				☐	☐	☐	☐	☐	☐

Eurostat ■ Harmonised European Time Use Surveys

Source: http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-RA-08-014-EN.pdf

Both approaches come with different conceptual and technical advantages and challenges, which might result in choosing one method over the other. Overall, **time diaries are preferred by researchers** because they account for the entire time period (usually 24 hours), activities are listed in their sequence, and they provide information about the duration of different activities.

However, one major challenge is that **time diaries are very onerous to complete**. Whether data is collected through self-recording or by recall in an interview, activities of short duration are easily ignored or overstated (Buvinic and King, 2018), particularly when they occur in 'intermittent spurts' (Budlender, 2007). Less desirable/'unimportant' activities such as relaxing are usually under-reported, and desirable/'important' activities such as housework are typically over-reported (*Ibid*.). What is considered desirable and 'important' also depends on the context.

Some biases are thought particularly likely to occur when gathering data in developing countries:

- Unpaid family work and informal employment is very important, and unpaid work hours are therefore more likely to be underestimated, especially by women and children working on a casual or seasonal basis;
- Unpaid and informal work are easier to combine with care and domestic work, which in turn leads to an underestimation of either one of them (unless simultaneous work or secondary activities are measured);

- Respondents might not know exactly how long activities took or when they started and ended because of lack of, or lack of use of, timepieces;
- Larger households with more complex family structures and division of tasks can make it difficult to estimate the amount of time and delineation of activities carried out; and
- More traditional gender roles can lead to different understandings/interpretations of activities as 'work', 'care', 'time spent looking after someone', etc. (Buvinic and King, 2018).

All these challenges make a **self-recorded diary approach that is guided by a long, detailed list of activities more difficult and costly to implement in developing countries**, whereas it is the preferred method in more advanced countries (*Ibid.*). This in turn leads to comparability issues across countries.

The **advantage of the stylised question approach to time use surveys is that a pre-defined list is easier to administer** as it involves fewer questions and requires less time, and they are easier to code and analyse. However, from a respondent's perspective, they not only have to recall their activities (which in itself is burdensome and prone to bias), they also have to calculate the number of hours or minutes spent on an activity over a certain time period, and perhaps even work out averages if asked for data on timings of activities 'typical' day. This is very demanding and likely to lead to substantial measurement error. Another limitation is the lack of information on timing when activities are performed, leading to difficulties analysing interactions between economic and unpaid care work. Furthermore, responses depend on what respondents understand the activities to include; e.g. time spent looking after children — some might include the time spent travelling to take children to school, others might not.

Box 2: Which method is preferred by whom?

The self-recorded time diary method is used by European countries, Australia and New Zealand, South Korea, Japan, and the United States, likely related to generally higher literacy rates. Most developing countries use the interview-recall method for time diaries.

But there are also some countries that use more than one method simultaneously. For example, Nigeria and Oman have used interview-recall for households with low literacy and self-administered time diaries for households with literate members.

The stylized question method is predominantly in Latin America but also used in Cambodia, Egypt, and Tunisia. This method is the most common method used in some socioeconomic and labor force surveys.

Source: Buvinic and King (2018)

Several studies have **examined the relative advantages and disadvantages of alternative methods of time use data** collection in the context of developed countries such as the UK and Spain, but few rigorous empirical studies compare the alternative methods in the case of developing countries. Bonke (2002) and Kan (2006) in (Budlender, 2007) both investigated the bias introduced dependent on which type of method was used and conclude that the stylised question approach to time use measurement can be used for *overall* patterns and analysis of division of labour, but that diary methods would yield more reliable results; and that the difference between the two estimates is larger for unpaid than for paid work.

One of the key conceptual issues in terms of designing time use surveys is whether and how to record and analyse **simultaneous (also 'parallel' or 'overlapping') activities**. While some survey respondents include them in their estimates, others will only consider their main activities when trying to add together the different parts of their day (Budlender, 2007). This has two effects: firstly, information is missing for some respondents, and secondly, because of this not all respondents are comparable. Simultaneous activities are

often recorded as 'primary' and 'secondary' (sometimes also 'tertiary') activities (see above example in Fig.1) in surveys in developed countries. However, there is then a tendency to ignore all but the primary activities in the data analysis.

Much of the early discussion around the importance of including secondary activities in time surveys was stimulated by the issue of **unpaid care of children and its invisibility in many surveys and analyses**. About 75 percent of childcare is carried out simultaneously while performing other tasks, and **only 25 percent direct as primary activity** (Ironmonger, 2003) which means that time spent on caregiving tends to be hidden if information on simultaneous activities is not captured.[21] But there are also non care-related activities that can be carried out simultaneously, some of which are related to 'modern' ways of working, such as when self-employed workers work at home and carry out a mix of paid and unpaid activities. The expansion of the service sector and the growth of jobs using mobile technologies have also led to more flexible and atypical work schedules (e.g. shift work, dispersed hours) and workplaces (e.g. home or other outside offices and shops) (Buvinic and King, 2018), which brings additional challenges and can also multiply parallel activities.
Not accounting for simultaneous activities risks underestimating both the contributions of individuals but also misses gendered dimensions of the "intensification of work time" (Hamermesh and Lee, 2007; Floro and Pichetpongsa, 2010). For example, accounting for secondary activities increases women's total work time by nearly 44 percent, and men's work time increases by 20 percent in Australia (Floro and Miles, 2003).

The question is then how to deal with **simultaneous activities and how to interpret analysis of results where these activities have been included**. Researchers have different views on this – some ignore secondary activities, some interpret results as individuals trying to 'cram' X hours of activities into a 24-hour day', and others have assigned weights to the different activities, e.g. dividing one hour by half and assigning 30 minutes to each of two activities (Ironmonger, 2003). However, as Ironmonger (ibid.) argues, the problem only arises if respondents are instructed to only record one activity. He suggests letting respondents report - or code - combinations of activities ("a two-dimensional measure of time use"), e.g. not 'child care' OR/AND 'food preparation' as two different activities, but 'child care *and* food preparation'. Practically, tasks mentioned could be put into the usual categories, e.g. 'care + house work', so we would still end up with an 'observable' number of activities or combinations — in his work with the Australia 1997 TUS, for women and men over all ages from 15 years onwards, on average 1/3 of waking hours are reported as performing simultaneous activities.

Another conceptual issue gaining importance is the question of **leisure time and personal care** as indicators of people's well-being. These issues have gained prominence in light of advances in medical science showing that sufficient sleep is important for good health and that eating patterns are associated with more or less healthy diets. Leisure and time for personal care are often treated as the "residual category of time use, after market and non-market work" (Buvinic and King, 2018). Conceptually, there are three types of leisure time (Kahneman et al. 2004):

- Active leisure, in which leisure is the primary activity but may be accompanied by childcare, paid work, and personal care as a secondary activity;
- Pure leisure, in which the primary and secondary activities are both leisure activities, or there is no secondary activity; and
- Passive leisure, in which the primary activity is an activity not considered to be leisure, but the secondary activity is, such as listening to music while housecleaning

[21] Of course, there are also others who receive direct care, such as sick, elderly, disabled. However, early discussions centred around childcare.

Another question is **whom to interview and potential biases this might introduce**. Buvinic and King's (2018) review of time use surveys and time use research shows that mothers tend to underestimate the contribution of spouses, partners and older children to childcare, especially that of infants and toddlers, thus relations between respondents and the people they are reporting on matter, where only one member per household is interviewed. As mentioned above, 'desirable' and 'important' activities are likely to be overestimated – and of course the context and the respondents sex, age, socio-economic status etc. within that context influence what he/she perceives as 'desirable' or 'important'. **Understanding of local social norms could therefore inform decisions on whom to choose as respondent(s) in households** (Buvinic and King, 2018).

Age is a particularly important variable because of how it affects perceptions of time use, and also because of the role that children and young adolescents play in care of siblings in many developing countries, as well as the changing roles of women and men across their lifecycles more generally. About a quarter of time use surveys restrict the minimum age of respondents to 15+, thus missing the experiences of the younger generations. The lack of coverage in some datasets of populations over 65 also renders the contributions of elderly men and women to unpaid care less visible[22]. With respect to older respondents, there also also difficulties related to low literacy and different understandings and ability to measure time (Buvinic and King, 2018). Finally, **different household structures** – single, nuclear, multi-generational, male- or female-headed, number of household members – have implications for use of time by different household members and need to be taken into account when designing the sampling and analysis frame.

3.2.2 Key constraints in the collection and comparison of time use data

There are a number of considerations that affect the **duration and costs of data collection**:

Type of survey: Time diaries require the respondents to complete the diary in a very detailed fashion. This is not only very onerous in terms of time, but also low literacy rates contribute to the relatively high non-response rates for self-reported diary-based time use surveys in developing countries (Budlender, 2007). The type of survey also affects how comparable surveys are across countries.

Mode of data collection: Standalone surveys (versus time use modules in wider surveys) arguably highlight a commitment to collecting time use data. However, they tend to be expensive, and in the past also did not tend to collect sufficient background data about respondents and their households, although this is now changing. Some countries combine both – i.e. conduct standalone surveys at spaced intervals (4-5 years usually) and include time use modules in household surveys – mostly employment surveys – to monitor yearly (Buvinic and King, 2018). Furthermore, some countries have 'switched' from initially carrying out standalone surveys and then introducing time use modules (e.g. Cambodia, Tunisia, Uruguay); and others have done the opposite (e.g. Ghana, Bolivia, Peru). Which mode of data collection is 'better' very much depends on the resources and capacities available in each country, on the data needs as well as the scope of existing, other surveys. For example, while it might be very interesting and useful to introduce a time use module in Demographic and Health Surveys (DHS) or Living Standards Measurement Surveys (LSMS), this could considerably increase the interview time. This, in turn, would have implications for participation rates and the quality of information gathered (see Choi et al., 2014 on the latter). Furthermore, collecting information via these surveys might affect representativeness, e.g. DHS is usually only collected for women

[22] This issue was raised in the recent OECD Policy Dialogue meeting on unpaid care (OECD, 2018). Age International are currently working with ODI on a review of available data on the role of older people in unpaid care and work, with a particular focus on Ethiopia.

aged 15-49 and men 15-59 – thus missing experiences of older generations; and the use of LSMS data with its emphasis on "exploring the relationships among aspects of living standards, as opposed to measuring with great precision specific indicators or rates" is restricted with respect to sub-national disaggregation due to sample size (Scott et al., 2005).

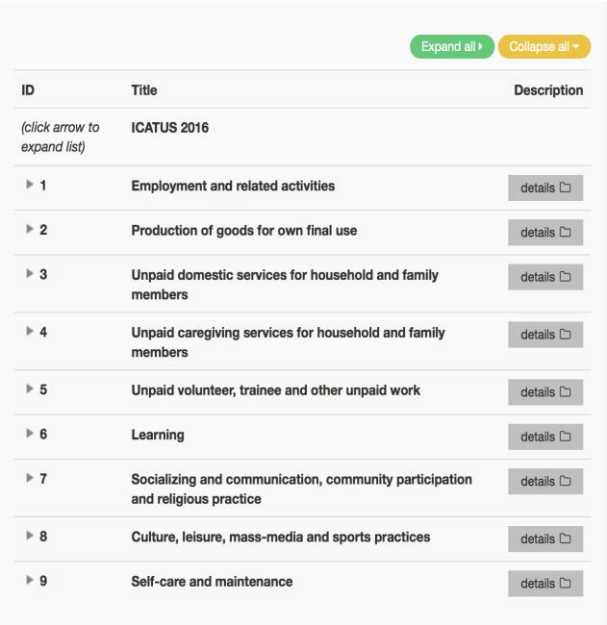
Other technical and logistical considerations with respect to the way data is collected have direct implications for comparability. These are related to:

- The sampling frame (e.g. the minimum and maximum age of respondents; geography);
- The timing of the survey (because of seasonal effects particularly in rural areas);
- The method of data collection (e.g. time diaries or stylized questions);
- The reference period in the survey – are respondents required to record the time use for one day, perhaps the previous day, or a 'typical' days, a weekday and/or a weekend day, or even a whole week? This could affect responses dependent on dominant religions and formalities of the economy; and
- The timeslots offered in diary types.

A major conceptual issue related to comparability is **how to classify activities**. Multiple classification systems exist, and attempts to harmonize these have been going on since the 1960s, when Belgium, Bulgaria, Czechoslovakia, the Federal Republic of Germany, France, the German Democratic Republic, Hungary, Peru, Poland, the Soviet Union, the United States, and Yugoslavia aimed to decide on a common coding for daily activity diaries for the Multinational comparative time-budget research project (Chenu and Lesnard 2006).

In 1997, the United Nations Statistics Division developed a trial International Classification of Activities for Time-Use Statistics (ICATUS), which was finalized at the third expert group meeting in 2012 based on the experiences of several countries that had adapted previous versions. The classification now has 9 major divisions, 56 divisions, and 165 groups. For illustration purposes, a screenshot of the ICATUS website, is included below in Figure 2, showing the 9 major divisions. Figure 3 expands division number 4 "Unpaid caregiving services for household and family members" to show the detailed subdivisions and groups within that division.

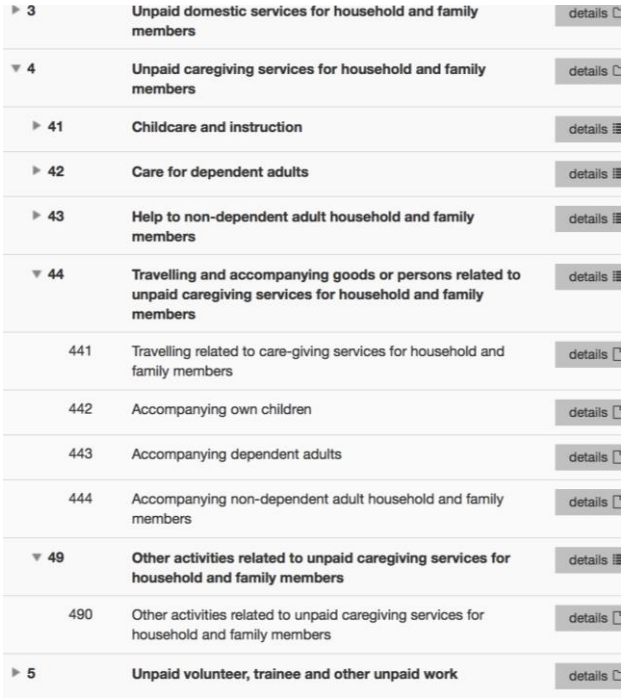
Figure 2: The 9 major divisions of ICATUS



Expand all | Collapse all

ID	Title	Description
(click arrow to expand list)	**ICATUS 2016**	
▸ 1	Employment and related activities	details
▸ 2	Production of goods for own final use	details
▸ 3	Unpaid domestic services for household and family members	details
▸ 4	Unpaid caregiving services for household and family members	details
▸ 5	Unpaid volunteer, trainee and other unpaid work	details
▸ 6	Learning	details
▸ 7	Socializing and communication, community participation and religious practice	details
▸ 8	Culture, leisure, mass-media and sports practices	details
▸ 9	Self-care and maintenance	details

Figure 2: Expansion of major division 3



▸ 3	Unpaid domestic services for household and family members	details
▾ 4	Unpaid caregiving services for household and family members	details
▸ 41	Childcare and instruction	details
▸ 42	Care for dependent adults	details
▸ 43	Help to non-dependent adult household and family members	details
▾ 44	Travelling and accompanying goods or persons related to unpaid caregiving services for household and family members	details
441	Travelling related to care-giving services for household and family members	details
442	Accompanying own children	details
443	Accompanying dependent adults	details
444	Accompanying non-dependent adult household and family members	details
▾ 49	Other activities related to unpaid caregiving services for household and family members	details
490	Other activities related to unpaid caregiving services for household and family members	details
▸ 5	Unpaid volunteer, trainee and other unpaid work	details

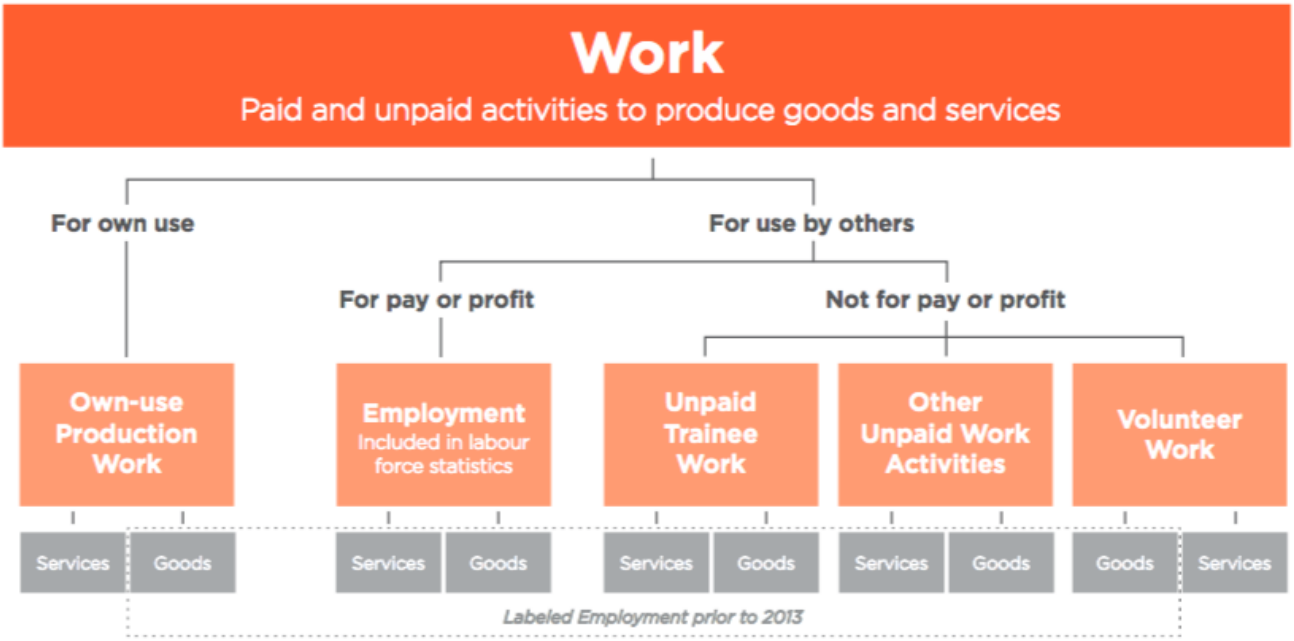
Source: https://unstats.un.org/unsd/demographic-social/time-use/icatus-2016/

Other harmonization efforts exist, such as the Classification of Time-Use Activities for Latin America and the Caribbean (CAUTAL) and the Harmonized European Time Use Survey (HETUS) in 15 European countries.

The above examples have focused on harmonization efforts that affect how and what information is collected and coded. But harmonization attempts can also be carried out after data has been collected – the MTUS at the Centre for Time Use Research (see section 3.1 above) is an example of that. Given the absence of wider harmonization efforts except CAUTAL and HETUS, ex-post harmonization could and can be done for other regions (Charmes, 2015).

A specific challenge in the harmonization and comparability of time use data is the **definition of work activities**. The **19th International Conference of Labour Statisticians (ICLS 19)** has defined new statistical concepts for work and employment, capturing all types of productive activities including unpaid care and domestic work, and narrowing the definition of employment as work that is only done for pay or profit. This is particularly important as the *"predominance of unpaid family workers and casual, temporary, or seasonal (wage) labour in agriculture and small informal enterprises in lower-income countries tends to lead to underestimated work hours, especially for women and children. This underestimation arises because surveys such as censuses typically classify workers according to their reported "main occupation," often resulting in women self-reporting as housewives and not in the labour force."* Basing estimates on time use data which account for unpaid family labour in agriculture, participation in subsistence production as well as home-based production, can more than double the female workforce participation rate, compared to estimates using conventional labour force and household surveys (Hirway and Jose, 2011).

Figure 3: ICLS 19 framework for work and employment



Source: Buvinic and King (2018)

Figure 4 above gives a snapshot of the new ICLS 19 framework which recognizes production of services for own use (including unpaid housework and unpaid care work) as work, although this work remains outside the boundary of System of National Accounts (SNA) - the international standard on how to compile measures of economic activities[23] - but falls inside the general production boundary. Before the new framework was agreed on, employment activities and SNA were matching 1:1 to ensure that labour input would equal SNA production. However, this came with a number of problems, e.g. the employment concept covered too many diverse work activities, not all productive activities were captured (such as unpaid household services), and economic structures and work patterns across countries, groups and regions were not captured (ILO, 2014).[24]

3.3 Main applications of time use data

Time use surveys were first implemented in social research on the living conditions of working class families in the early 1900s and for planning purposes in the 1920s in Great Britain, the US and centrally planned economies. They were used for government and community planning or estimating the effect of new agricultural technology on time use, for example (UNSD, 2005).

[23] https://unstats.un.org/unsd/nationalaccount/sna.asp
[24] For a detailed discussion on SNA and production boundaries, see UNSTATS (2007).

In the 1970s, developing countries also started implementing time use surveys for development planning purposes, stimulated by the recognition of the productive elements of unpaid household activities (*Ibid.*). The dominant applications of time use data were then *"centered on the informal economy (especially in Eastern Europe), the domestic economy and the prospects for gender equity (especially in the West). The 1990s saw a vestigial interest in the measurement of economic transition in East Europe, whereas elsewhere in the world emphasis had shifted to employing time to value non-market production (especially by women), to monitor trends in domestic organisation, the spectre of overwork, the decline of leisure, elderly care and the technological changes brought about by ICTs and the Internet"* (Bittman and Ironmonger, 2011).

Box 3: Main thematic usages of time use data

Many of the analytical objectives for collecting data on time use have revolved around **four major themes** (UNSD, 2005):

- Measurement and analysis of quality of life or general well-being.

- Measurement and valuation of unpaid work (domestic and volunteer work) and development of household production accounts.

- Improving estimates of paid and unpaid work.

- Analysis of policy implications of development planning issues.

Source: UNSD (2005)

More recently, time use data has been used to better understand issues related to:

- The use of time across different social groups and in relation to technological progress;
- How time use changes over the lifecycle (particularly important with respect to social justice and inclusive growth agendas);
- Investigating time spent in childcare by sex, employment status, number of children, age of children, daily rhythm of interaction, adult leisure;
- Understanding problems arising from commuting between residence and workplace, such as interrelations between time to travel to work, time spent in housework, free time, meeting physiological needs; amongst others (Joyce and Stewart, 1999; UNSD 2005).

Time use data has also been used to support the integration of gender analysis into macroeconomic modelling. Macroeconomic policies and shocks reverberate throughout both market and non-market sectors, with feedback effects through numerous channels. Computable General Equilibrium (CGE) models are an ideal tool to analyse the complexity of linkages between different markets and sectors. Ideally, these models should include some information on unpaid household economies given that *"gender relations interact with economic processes, with consequences both for the distribution of costs and benefits of policies between women and men and for the achievement of macroeconomic objectives"* (Fontana and van der Meulen Rodgers, 2005). The first two attempts at incorporating gender in CGE modelling appeared in 2000. One investigated the gender effects of technological innovation in agriculture in Mozambique and the other simulated the uneven effects of changes in various trade policies on women and men in Bangladesh and Zambia (*Ibid.*).

Most recently, interests in non-market production, domestic organization, and the time demands of paid employment have been focused on more specific policy-oriented topics (Bittman and Ironmonger, 2011). **One of the main research and policy areas where time use data has been and is being used in recent years is the measuring and valuation of unpaid care and productive work**. A better understanding of paid and unpaid work and related issues such as concerns about care and domestic work has implications for the formulation of national policies; for advocacy on and approaches to integrating gender in economic planning (e.g. through gender budgeting) and for the implementation of equality and non-discrimination legislation. Looking at the use of time use data on unpaid work to influence national policies across 18 countries, Buvinic and King (2018) find that labour market policies, social policies - on children, youth and women, as well as social safety nets and national care policies - have been particularly amenable to direct or indirect influence. A brief overview is given below in Table 1 below.

Table 1: Examples of direct and indirect use of Time Use (TU) data for national policies

Country	Example
Albania	TU data used to inform the National Strategy and Action Plan for Gender Equality (2016–2020) with data on the percentage of time women and men spend on unpaid work
Mexico	TU data on the overall burden and unequal gender distribution of unpaid care work was used to develop the national Program for Gender Equality 2013– 2018 (PROIGUALDAD)
Cambodia	Data on time spent caring for children and the elderly influenced Policy on Alternative Care for Children
Colombia	Government expanded an early childhood development program because of evidence from time use data
Moldova	TU survey results influenced gender equality and the national employment strategies and justify innovative and flexible forms of employment
Uruguay	TU data provided the basic rationale for a comprehensive National Care Policy that codifies childcare and care of the elderly
Finland	TU surveys used to inform a range of different policies, e.g. employment projects for rural women, early retirement policies, child and family policies, evaluation of cultural policies, and planning of TV programming schedules
Tanzania	Indirect policy influence as evidenced by the national debate on restrictions on card games and the sale of alcohol after TU data suggested large amounts of time spent in non-work activities and idle time (particularly men). No specific policies or regulations were enacted as a result, but discussions broadened the policy horizons (Data2X, 2018).
South Korea	Indirect policy influence through many academics, research institutions, and international organizations using TU data to examine policy issues regarding care services and to explain the determinants of female labor force participation, human capital accumulation, and economic growth.

Source: Buvinic and King (2018)

Time use data can also be used to monitor some of the SDGs, most notably target 5.4, indicated by the 'Average number of hours spent on paid and unpaid work combined (total work burden), by sex'. Time use data could also inform the monitoring of other SDGs :

- Goal 15, the impact of climate change and deforestation on time use in fuel collection, foraging and forest management, forest- related employment trends and forest conservation activities (UN Women 2018);[25]
- Goal 3 which aims to "ensure healthy lives and promote well-being at all ages, including specifically target 3.4[26] where better understanding factors of depletion and sleep patterns in relation to health outcomes would be useful; and
- Target 9.1 on infrastructure to support economic development and well-being.[27] Indeed, the well-being agenda, which has been very much linked with information on income and earnings so far, could benefit from taking into account measures of leisure and home production (Joyce and Stewart, 1999).

However, only 24 per cent of the countries with time use data have data from 2010 onwards (UN Women 2018). And, as mentioned above, usable comparable data on time use is not yet the norm – for many countries, no time use data exists or is publicly available, and where it is, it is either dated and/or not comparable (for a number of possible reasons explained in 3.2 above). Furthermore, very few countries implement repeated time use surveys to monitor how policies or external changes to the national and international context could impact the (gendered) use of time.

Time use data in the UK

The UK Time Use Surveys were conducted in 2000-2001 by the Office for National Statistics and 2014-2015 by NatCen.

The latest survey was designed to be as compatible as possible with both with the 2000-2001 survey and with other European time use studies carried out since 2008, following the HETUS classification. However, it was tailored to the needs and requirements of the UK population, by adding specific fields for mobile device use and enjoyment to the time diary. The survey was designed by the Centre for Time Use Research at the University of Oxford (Gershuny and Sullivan, 2017), and deposited at the UK Data Archive.

The study provides information about the time use of individuals aged 8 years and over in England, Scotland, Wales, and Northern Ireland. Data was collected to cover one weekday and one weekend day using time-diary instruments; providing information about activities, location, co-presence, the use of computers and mobile devices, and level of enjoyment of time throughout the day.

Background information was also collected on individual and household characteristics, including employment, education, care, leisure activities and demographic information such as age, gender, marital status, citizenship status and housing. A total of 9,388 individuals in 4,238 households provided 16,553 diary days.

[25] Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

[26] By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.

[27] Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

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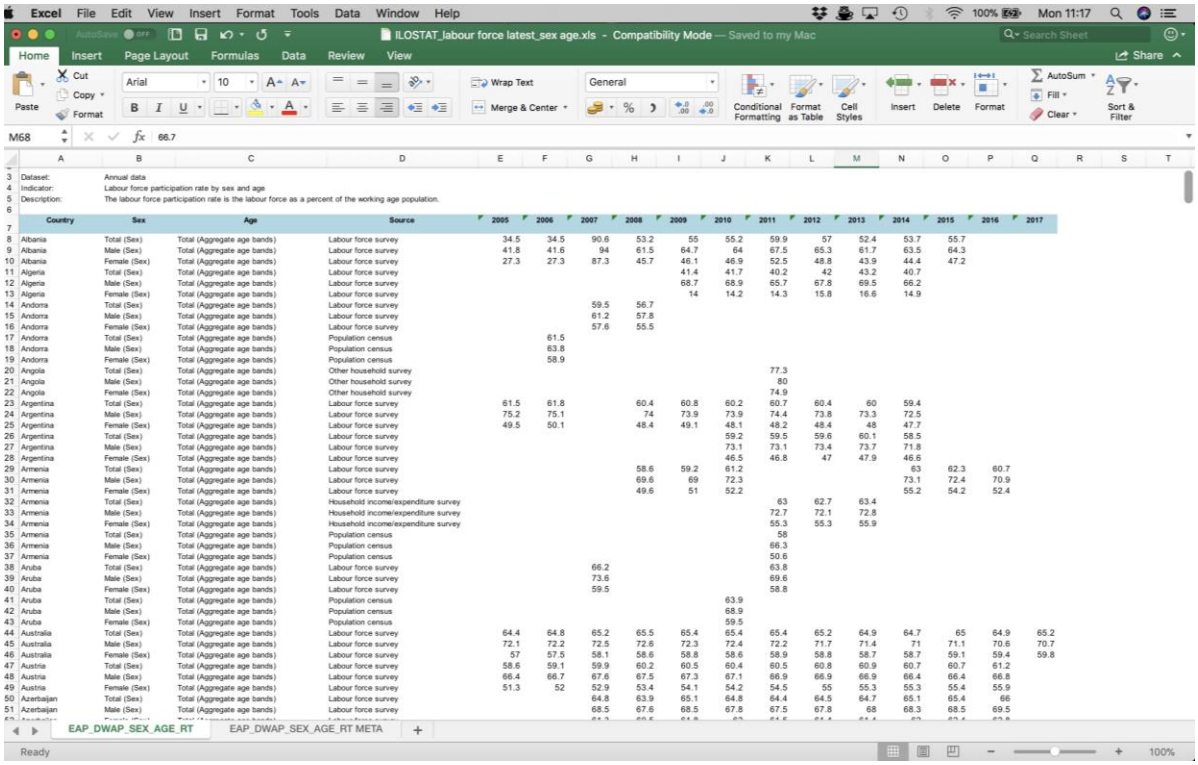
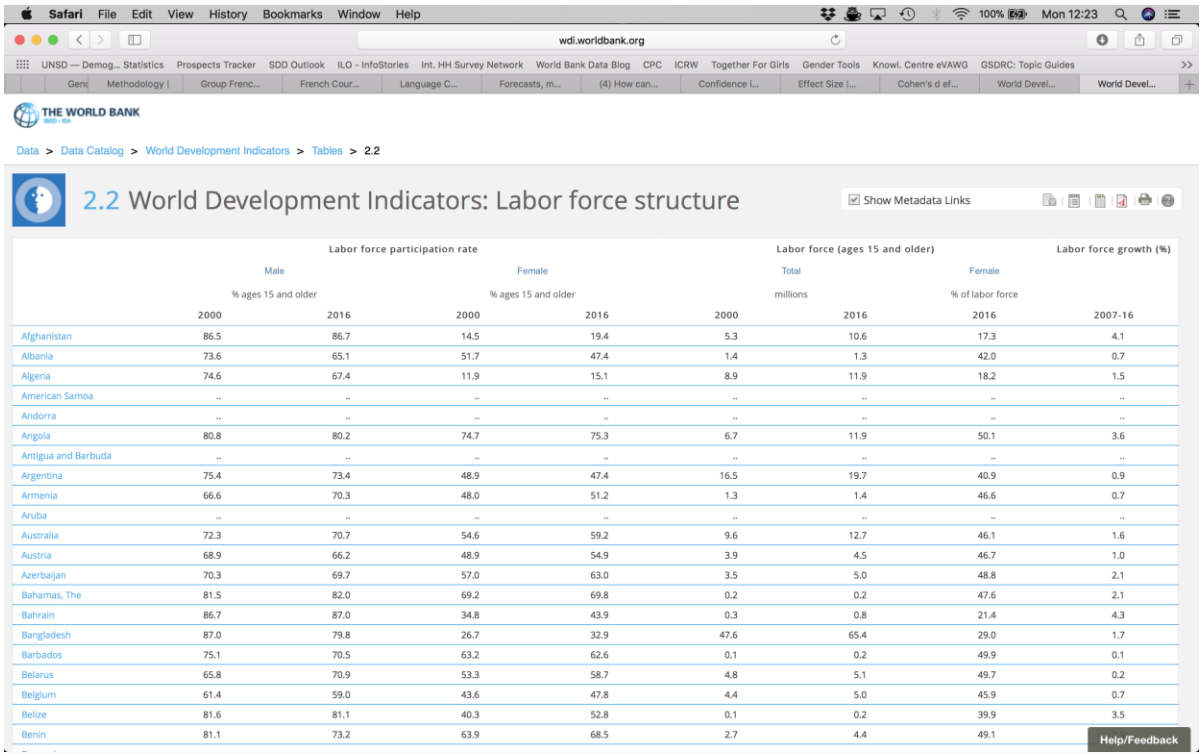
Annex A – ILO database on labour force participation by sex



Country	Sex	Age	Source	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Albania	Total (Sex)	Total (Aggregate age bands)	Labour force survey	34.5	34.5	90.6	53.2	55	55.2	59.9	57	52.4	53.7	55.7		
Albania	Male (Sex)	Total (Aggregate age bands)	Labour force survey	41.8	41.6	94	61.5	64.7	64	67.5	65.3	61.7	63.5	64.3		
Albania	Female (Sex)	Total (Aggregate age bands)	Labour force survey	27.3	27.3	87.3	45.7	46.1	46.9	52.5	48.8	43.9	44.4	47.2		
Algeria	Total (Sex)	Total (Aggregate age bands)	Labour force survey					41.4	41.7	40.2	42	43.2	40.7			
Algeria	Male (Sex)	Total (Aggregate age bands)	Labour force survey					68.7	68.9	65.7	67.8	69.5	66.2			
Algeria	Female (Sex)	Total (Aggregate age bands)	Labour force survey					14	14.2	14.3	15.8	16.6	14.9			
Andorra	Total (Sex)	Total (Aggregate age bands)	Labour force survey			59.5	56.7									
Andorra	Male (Sex)	Total (Aggregate age bands)	Labour force survey			61.2	57.8									
Andorra	Female (Sex)	Total (Aggregate age bands)	Labour force survey			57.6	55.5									
Andorra	Total (Sex)	Total (Aggregate age bands)	Population census		61.5											
Andorra	Male (Sex)	Total (Aggregate age bands)	Population census		63.8											
Andorra	Female (Sex)	Total (Aggregate age bands)	Population census		58.9											
Angola	Total (Sex)	Total (Aggregate age bands)	Other household survey							77.3						
Angola	Male (Sex)	Total (Aggregate age bands)	Other household survey							80						
Angola	Female (Sex)	Total (Aggregate age bands)	Other household survey							74.9						
Argentina	Total (Sex)	Total (Aggregate age bands)	Labour force survey	61.5	61.8		60.4	60.8	60.2	60.7	60.4	60	59.4			
Argentina	Male (Sex)	Total (Aggregate age bands)	Labour force survey	75.2	75.1		74	73.9	73.9	74.4	73.8	73.3	72.5			
Argentina	Female (Sex)	Total (Aggregate age bands)	Labour force survey	49.5	50.1		48.4	49.1	48.1	48.2	48.4	48	47.7			
Argentina	Total (Sex)	Total (Aggregate age bands)	Labour force survey						59.2	59.5	59.6	60.1	58.5			
Argentina	Male (Sex)	Total (Aggregate age bands)	Labour force survey						73.1	73.1	73.4	73.7	71.8			
Argentina	Female (Sex)	Total (Aggregate age bands)	Labour force survey						46.5	46.8	47	47.9	46.6			
Armenia	Total (Sex)	Total (Aggregate age bands)	Labour force survey				58.6	59.2	61.2				63	62.3	60.7	
Armenia	Male (Sex)	Total (Aggregate age bands)	Labour force survey				69.6	69	72.3				73.1	72.4	70.9	
Armenia	Female (Sex)	Total (Aggregate age bands)	Labour force survey				49.6	51	52.2				55.2	54.2	52.4	
Armenia	Total (Sex)	Total (Aggregate age bands)	Household income/expenditure survey							63	62.7	63.4				
Armenia	Male (Sex)	Total (Aggregate age bands)	Household income/expenditure survey							72.7	72.1	72.8				
Armenia	Female (Sex)	Total (Aggregate age bands)	Household income/expenditure survey							55.3	55.3	55.9				
Armenia	Total (Sex)	Total (Aggregate age bands)	Population census							58						
Armenia	Male (Sex)	Total (Aggregate age bands)	Population census							66.3						
Armenia	Female (Sex)	Total (Aggregate age bands)	Population census							50.6						
Aruba	Total (Sex)	Total (Aggregate age bands)	Labour force survey			66.2				63.8						
Aruba	Male (Sex)	Total (Aggregate age bands)	Labour force survey			73.6				69.6						
Aruba	Female (Sex)	Total (Aggregate age bands)	Labour force survey			59.5				58.8						
Aruba	Total (Sex)	Total (Aggregate age bands)	Population census						63.9							
Aruba	Male (Sex)	Total (Aggregate age bands)	Population census						68.9							
Aruba	Female (Sex)	Total (Aggregate age bands)	Population census						59.5							
Australia	Total (Sex)	Total (Aggregate age bands)	Labour force survey	64.4	64.8	65.2	65.5	65.4	65.4	65.4	65.2	64.9	64.7	65	64.9	65.2
Australia	Male (Sex)	Total (Aggregate age bands)	Labour force survey	72.1	72.2	72.5	72.6	72.3	72.4	72.2	71.7	71.4	71	71.1	70.6	70.7
Australia	Female (Sex)	Total (Aggregate age bands)	Labour force survey	57	57.5	58.1	58.6	58.8	58.6	58.9	58.8	58.7	58.7	59.1	59.4	59.8
Austria	Total (Sex)	Total (Aggregate age bands)	Labour force survey	58.6	59.1	59.9	60.2	60.5	60.4	60.5	60.8	60.9	60.7	60.7	61.2	
Austria	Male (Sex)	Total (Aggregate age bands)	Labour force survey	66.4	66.7	67.6	67.5	67.3	67.1	66.9	66.9	66.9	66.4	66.4	66.8	
Austria	Female (Sex)	Total (Aggregate age bands)	Labour force survey	51.3	52	52.9	53.4	54.1	54.2	54.5	55	55.3	55.3	55.4	55.9	
Azerbaijan	Total (Sex)	Total (Aggregate age bands)	Labour force survey			64.8	63.9	65.1	64.8	64.4	64.5	64.7	65.1	65.4	66	
Azerbaijan	Male (Sex)	Total (Aggregate age bands)	Labour force survey			68.5	67.6	68.5	67.8	67.5	67.8	68	68.3	68.5	69.5	

Annex B – World Development Indicator data on labour force structure

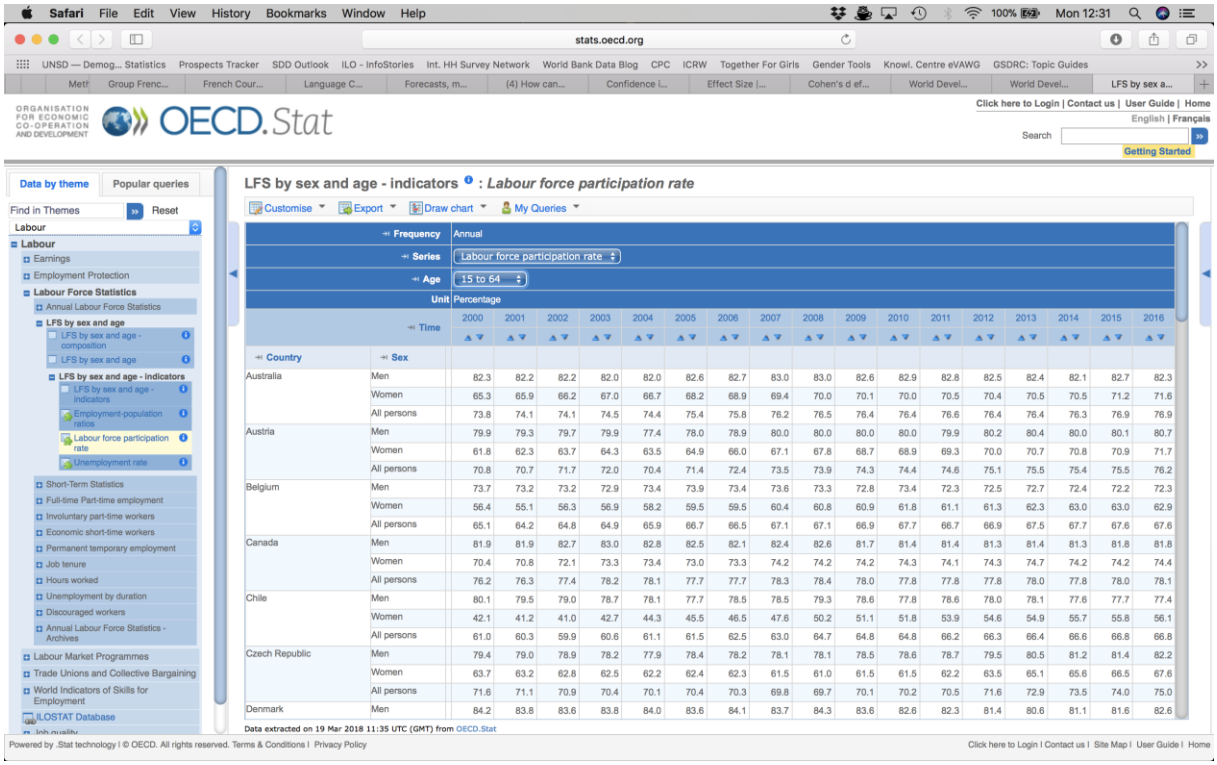


Data > Data Catalog > World Development Indicators > Tables > 2.2

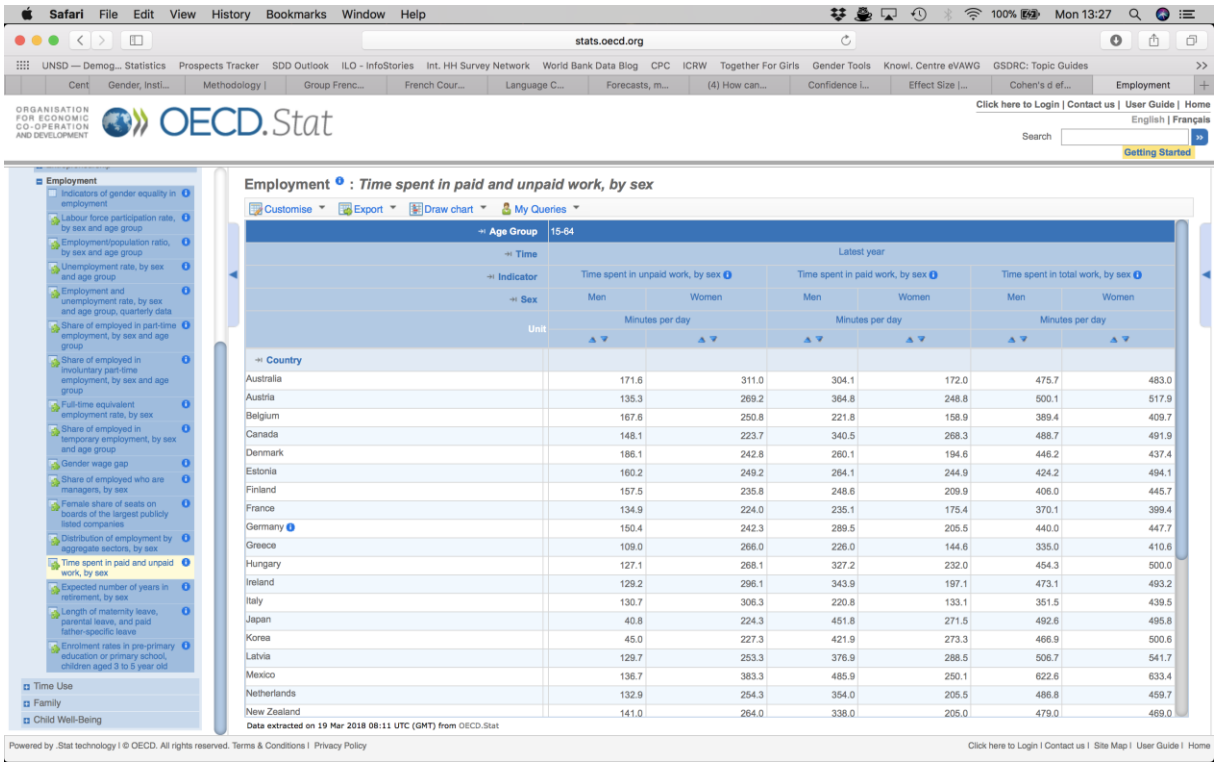
2.2 World Development Indicators: Labor force structure

	Labor force participation rate				Labor force (ages 15 and older)			Labor force growth (%)
	Male		Female		Total	Female		
	% ages 15 and older		% ages 15 and older		millions	% of labor force		
	2000	2016	2000	2016	2000	2016	2016	2007-16
Afghanistan	86.5	86.7	14.5	19.4	5.3	10.6	17.3	4.1
Albania	73.6	65.1	51.7	47.4	1.4	1.3	42.0	0.7
Algeria	74.6	67.4	11.9	15.1	8.9	11.9	18.2	1.5
American Samoa	..	..	..	..	..	..	..	..
Andorra	..	..	..	..	..	..	..	..
Angola	80.8	80.2	74.7	75.3	6.7	11.9	50.1	3.6
Antigua and Barbuda	..	..	..	..	..	..	..	..
Argentina	75.4	73.4	48.9	47.4	16.5	19.7	40.9	0.9
Armenia	66.6	70.3	48.0	51.2	1.3	1.4	46.6	0.7
Aruba	..	..	..	..	..	..	..	..
Australia	72.3	70.7	54.6	59.2	9.6	12.7	46.1	1.6
Austria	68.9	66.2	48.9	54.9	3.9	4.5	46.7	1.0
Azerbaijan	70.3	69.7	57.0	63.0	3.5	5.0	48.8	2.1
Bahamas, The	81.5	82.0	69.2	69.8	0.2	0.2	47.6	2.1
Bahrain	86.7	87.0	34.8	43.9	0.3	0.8	21.4	4.3
Bangladesh	87.0	79.8	26.7	32.9	47.6	65.4	29.0	1.7
Barbados	75.1	70.5	63.2	62.6	0.1	0.2	49.9	0.1
Belarus	65.8	70.9	53.3	58.7	4.8	5.1	49.7	0.2
Belgium	61.4	59.0	43.6	47.8	4.4	5.0	45.9	0.7
Belize	81.6	81.1	40.3	52.8	0.1	0.2	39.9	3.5
Benin	81.1	73.2	63.9	68.5	2.7	4.4	49.1	

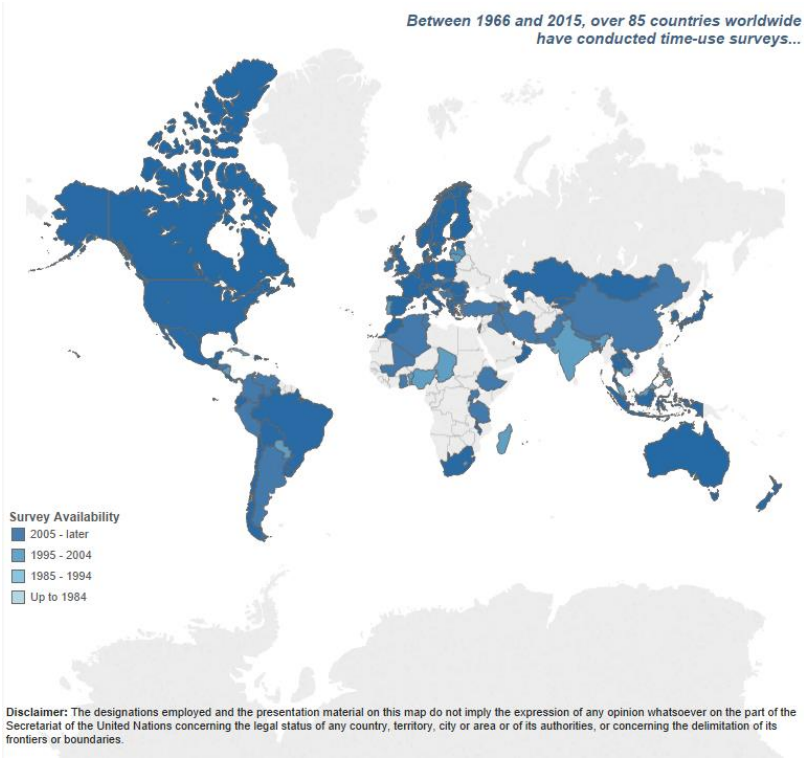
Annex C – OECD labour force participation database



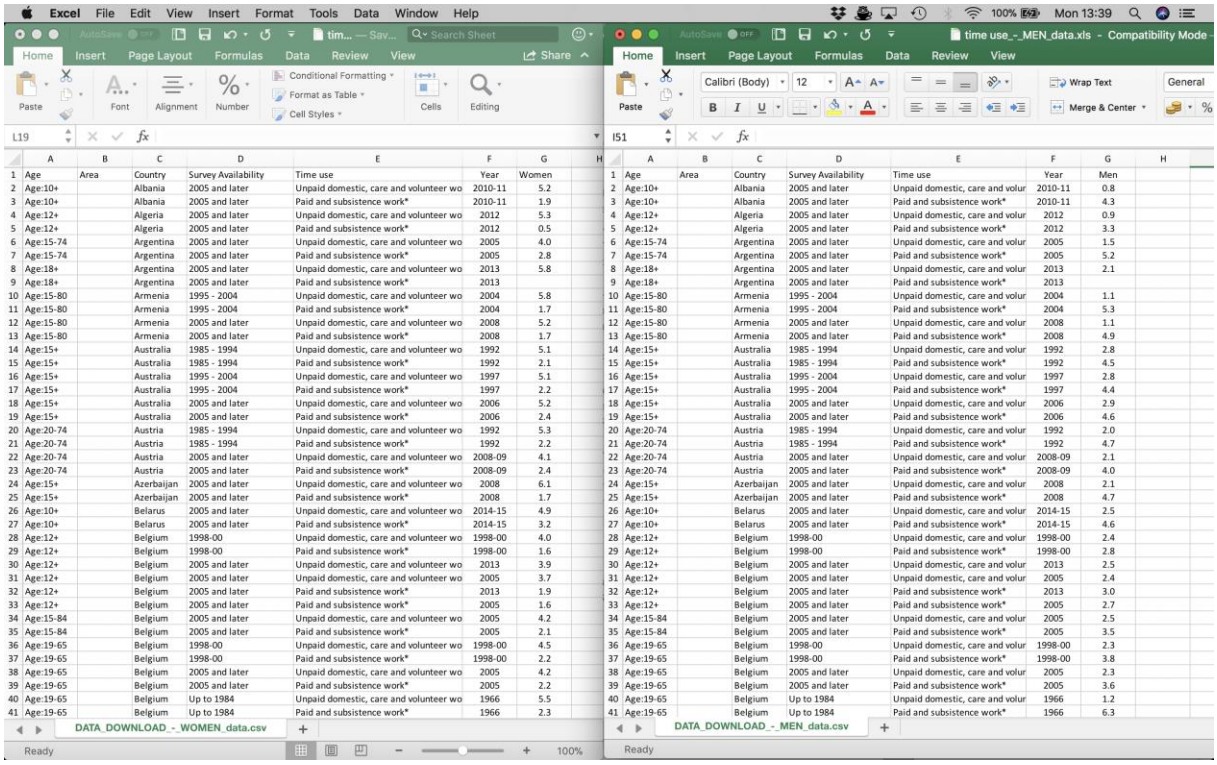
Annex D – OECD data on time spent in paid and unpaid work



Annex E – Availability of surveys that inform on time spent in paid and unpaid work at UNSD



Annex F – UNSD data on women and men's time spent on unpaid and paid work



DATA_DOWNLOAD_-_WOMEN_data.csv

	A	B	C	D	E	F	G
1	Age	Area	Country	Survey Availability	Time use	Year	Women
2	Age:10+		Albania	2005 and later	Unpaid domestic, care and volunteer wo	2010-11	5.2
3	Age:10+		Albania	2005 and later	Paid and subsistence work*	2010-11	1.9
4	Age:12+		Algeria	2005 and later	Unpaid domestic, care and volunteer wo	2012	5.3
5	Age:12+		Algeria	2005 and later	Paid and subsistence work*	2012	0.5
6	Age:15-74		Argentina	2005 and later	Unpaid domestic, care and volunteer wo	2005	4.0
7	Age:15-74		Argentina	2005 and later	Paid and subsistence work*	2005	2.8
8	Age:18+		Argentina	2005 and later	Unpaid domestic, care and volunteer wo	2013	5.8
9	Age:18+		Argentina	2005 and later	Paid and subsistence work*	2013	
10	Age:15-80		Armenia	1995 - 2004	Unpaid domestic, care and volunteer wo	2004	5.8
11	Age:15-80		Armenia	1995 - 2004	Paid and subsistence work*	2004	1.7
12	Age:15-80		Armenia	2005 and later	Unpaid domestic, care and volunteer wo	2008	5.2
13	Age:15-80		Armenia	2005 and later	Paid and subsistence work*	2008	1.7
14	Age:15+		Australia	1985 - 1994	Unpaid domestic, care and volunteer wo	1992	5.1
15	Age:15+		Australia	1985 - 1994	Paid and subsistence work*	1992	2.1
16	Age:15+		Australia	1995 - 2004	Unpaid domestic, care and volunteer wo	1997	5.1
17	Age:15+		Australia	1995 - 2004	Paid and subsistence work*	1997	2.2
18	Age:15+		Australia	2005 and later	Unpaid domestic, care and volunteer wo	2006	5.2
19	Age:15+		Australia	2005 and later	Paid and subsistence work*	2006	2.4
20	Age:20-74		Austria	1985 - 1994	Unpaid domestic, care and volunteer wo	1992	5.3
21	Age:20-74		Austria	1985 - 1994	Paid and subsistence work*	1992	2.2
22	Age:20-74		Austria	2005 and later	Unpaid domestic, care and volunteer wo	2008-09	4.1
23	Age:20-74		Austria	2005 and later	Paid and subsistence work*	2008-09	2.4
24	Age:15+		Azerbaijan	2005 and later	Unpaid domestic, care and volunteer wo	2008	6.1
25	Age:15+		Azerbaijan	2005 and later	Paid and subsistence work*	2008	1.7
26	Age:10+		Belarus	2005 and later	Unpaid domestic, care and volunteer wo	2014-15	4.9
27	Age:10+		Belarus	2005 and later	Paid and subsistence work*	2014-15	3.2
28	Age:12+		Belgium	1998-00	Unpaid domestic, care and volunteer wo	1998-00	4.0
29	Age:12+		Belgium	1998-00	Paid and subsistence work*	1998-00	1.6
30	Age:12+		Belgium	2005 and later	Unpaid domestic, care and volunteer wo	2013	3.9
31	Age:12+		Belgium	2005 and later	Unpaid domestic, care and volunteer wo	2005	3.7
32	Age:12+		Belgium	2005 and later	Paid and subsistence work*	2013	1.9
33	Age:12+		Belgium	2005 and later	Paid and subsistence work*	2005	1.6
34	Age:15-84		Belgium	2005 and later	Unpaid domestic, care and volunteer wo	2005	4.2
35	Age:15-84		Belgium	2005 and later	Paid and subsistence work*	2005	2.1
36	Age:19-65		Belgium	1998-00	Unpaid domestic, care and volunteer wo	1998-00	4.5
37	Age:19-65		Belgium	1998-00	Paid and subsistence work*	1998-00	2.2
38	Age:19-65		Belgium	2005 and later	Unpaid domestic, care and volunteer wo	2005	4.2
39	Age:19-65		Belgium	2005 and later	Paid and subsistence work*	2005	2.2
40	Age:19-65		Belgium	Up to 1984	Unpaid domestic, care and volunteer wo	1966	5.5
41	Age:19-65		Belgium	Up to 1984	Paid and subsistence work*	1966	2.3

DATA_DOWNLOAD_-_MEN_data.csv

	A	B	C	D	E	F	G	H
1	Age	Area	Country	Survey Availability	Time use	Year	Men	
2	Age:10+		Albania	2005 and later	Unpaid domestic, care and volur	2010-11	0.8	
3	Age:10+		Albania	2005 and later	Paid and subsistence work*	2010-11	4.3	
4	Age:12+		Algeria	2005 and later	Unpaid domestic, care and volur	2012	0.9	
5	Age:12+		Algeria	2005 and later	Paid and subsistence work*	2012	3.3	
6	Age:15-74		Argentina	2005 and later	Unpaid domestic, care and volur	2005	1.5	
7	Age:15-74		Argentina	2005 and later	Paid and subsistence work*	2005	5.2	
8	Age:18+		Argentina	2005 and later	Unpaid domestic, care and volur	2013	2.1	
9	Age:18+		Argentina	2005 and later	Paid and subsistence work*	2013		
10	Age:15-80		Armenia	1995 - 2004	Unpaid domestic, care and volur	2004	1.1	
11	Age:15-80		Armenia	1995 - 2004	Paid and subsistence work*	2004	5.3	
12	Age:15-80		Armenia	2005 and later	Unpaid domestic, care and volur	2008	1.1	
13	Age:15-80		Armenia	2005 and later	Paid and subsistence work*	2008	4.9	
14	Age:15+		Australia	1985 - 1994	Unpaid domestic, care and volur	1992	2.8	
15	Age:15+		Australia	1985 - 1994	Paid and subsistence work*	1992	4.5	
16	Age:15+		Australia	1995 - 2004	Unpaid domestic, care and volur	1997	2.8	
17	Age:15+		Australia	1995 - 2004	Paid and subsistence work*	1997	4.4	
18	Age:15+		Australia	2005 and later	Unpaid domestic, care and volur	2006	2.9	
19	Age:15+		Australia	2005 and later	Paid and subsistence work*	2006	4.6	
20	Age:20-74		Austria	1985 - 1994	Unpaid domestic, care and volur	1992	2.0	
21	Age:20-74		Austria	1985 - 1994	Paid and subsistence work*	1992	4.7	
22	Age:20-74		Austria	2005 and later	Unpaid domestic, care and volur	2008-09	2.1	
23	Age:20-74		Austria	2005 and later	Paid and subsistence work*	2008-09	4.0	
24	Age:15+		Azerbaijan	2005 and later	Unpaid domestic, care and volur	2008	2.1	
25	Age:15+		Azerbaijan	2005 and later	Paid and subsistence work*	2008	4.7	
26	Age:10+		Belarus	2005 and later	Unpaid domestic, care and volur	2014-15	2.5	
27	Age:10+		Belarus	2005 and later	Paid and subsistence work*	2014-15	4.6	
28	Age:12+		Belgium	1998-00	Unpaid domestic, care and volur	1998-00	2.4	
29	Age:12+		Belgium	1998-00	Paid and subsistence work*	1998-00	2.8	
30	Age:12+		Belgium	2005 and later	Unpaid domestic, care and volur	2013	2.5	
31	Age:12+		Belgium	2005 and later	Unpaid domestic, care and volur	2005	2.4	
32	Age:12+		Belgium	2005 and later	Paid and subsistence work*	2013	3.0	
33	Age:12+		Belgium	2005 and later	Paid and subsistence work*	2005	2.7	
34	Age:15-84		Belgium	2005 and later	Unpaid domestic, care and volur	2005	2.5	
35	Age:15-84		Belgium	2005 and later	Paid and subsistence work*	2005	3.5	
36	Age:19-65		Belgium	1998-00	Unpaid domestic, care and volur	1998-00	2.3	
37	Age:19-65		Belgium	1998-00	Paid and subsistence work*	1998-00	3.8	
38	Age:19-65		Belgium	2005 and later	Unpaid domestic, care and volur	2005	2.3	
39	Age:19-65		Belgium	2005 and later	Paid and subsistence work*	2005	3.6	
40	Age:19-65		Belgium	Up to 1984	Unpaid domestic, care and volur	1966	1.2	
41	Age:19-65		Belgium	Up to 1984	Paid and subsistence work*	1966	6.3	

Annex G – Time Use Survey Inventory 2016

Country (total number of TU surveys available)	Year	Reference Period/Period	Type of Survey	Age range	Sample Size	Type of sample**	Survey instrument	Mode	Is data on simultaneous activities collected?	Classification
Europe										
Albania (2)	2010–2011	1 weekday & 1 weekend	Independent	10+	2,250 households	Eligible household members	24-hour diary (10-minute intervals)	Self-reporting	Yes	HETUS
Austria (3)	2008–2010	Same day	Independent	10+	8,200 individuals	National	24-hour diary	—	Yes	HETUS
Belgium (4)	2013–2014	1 weekday & 1 weekend day	Module of National Labour Force Survey	15+	5,559 individuals; 2,744 households	National, all eligible	14-hour diary for working/ school day & one diary for a weekend day	—	Yes	—
Bulgaria (3)	2009–2010	—	Independent	10+	5,503 individuals in 3,132 households	—	—	—	—	HETUS
Denmark (6)	2008–2009	Same day	Module of Expenditure Survey	18–74	6,091 individuals	National	24-hour diary	—	—	HETUS
Estonia (3)	2009–2010	—	Independent	10+	7,000 individuals	National, all eligible	24-hour diary	—	Yes	HETUS
Finland (4)	2009–	—	Independent	10+	3,795 individuals;	National, all	24-hour diary	—	Yes	HETUS

	2010				4,499 households	eligible				
France (5)	2009–2010	—	Independent	11+	15,300 individuals; 16,600 households	1 sampled per household+ 1 partner where applicable	One questionnaire on long-term or rare activities; one diary (09:00 pm to 12:00 am); one module on decisionmaking within couples	—	Yes	HETUS
Germany (3)	2012–2013	—	Independent	10+	12,000 individuals in 5,000 households	National	Three 24-hour full diaries	—	—	HETUS
Greece (2)	2013–2014	—	Independent	10+	3,368 households	National	Diary	—	Yes	HETUS
Hungary (5)	2009–2010	Pre-designated day/1 weekday & 1 weekend	Independent	10–84	7,589 diaries (for those 15–74)	—	Diary	—	—	—
Ireland	2005	1 weekday & 1 weekend	Pilot	18+	1,000 individuals; 1,128 households	National	24-hour diaries	Self-complete	Yes	Ad hoc detailed
Italy (4)	2008–2009	—	—	3+	55,000 individuals in 25,000 households	National, all eligible	One 24-hour diary	Parents help younger children complete	—	HETUS

								their diaries		
Latvia (4)	2003	1 weekday & 1 weekend	—	10+	3,804 individuals in 1,469 households	National	2 diaries	—	—	HETUS
Lithuania (2)	2003	1 week day & 1 weekend day	Independent	10+	3,713 households sampled: 2,164 participated in survey	—	24-hour diary in 10 minute intervals	—	—	HETUS
Moldova (1)	2011–2012	2 randomly designated days: 1 weekday & 1 weekend day	Independent	10+	15,600 households sampled: 10,642 participated in survey	Population of the country living in private households (Covers the territory of the country, except for the territoriy from the left side of the River Nistru and Bender municipality)	24-hour diary: 1 day 10-minute intervals	—	Yes	HETUS
Netherlands (13)	2011–2012	1 weekday & 1 weekend	Independent	10+	2,000 diaries approx.	National, all eligible	24-hour diaries	—	Yes	HETUS

Norway (5)	2010–2011	—	Independent	9–79	3,975 diaries	National, all eligible	24-hour full diary	—	—	HETUS
Poland (5)	2013	1 weekday & 1 weekend	Independent	10+	28,209 households	National, all eligible	24-hour diary (10 minute intervals)	—	Yes	HETUS
Portugal (1)	1999	—	Independent	15+	8,133 individuals	National, all eligible	—	—	—	HETUS
Romania (2)	2011–2012	1 weekday & 1 weekend	Independent	10+	—	National, HH members randomly selected	Diary and Interview questionnaire (24 hours over 2 days)	Self-complete diary and interview	Yes	HETUS
Serbia (2)	2010–2011	—	Independent	15+	2,340 households	National	24-hour diary	—	Yes	HETUS
Slovenia (1)	2000–2001	1 weekday & 1 weekend	Independent	10+	4,500 households	National, all eligible	Questionnaire and 24-hour diary	—	—	—
Spain (2)	2009–2010	—	Independent	10+	19,295 individuals; 11,538 dwellings	National, all eligible	Diary	—	Yes	HETUS
Sweden (4)	2010–2011	1 weekday & 1 weekend	Independent	15–84	6,477 diaries	National, all eligible	2 diaries	—	Yes	HETUS
United Kingdom (3)	2005	—	—	—	4,941 diaries	—	—	—	—	HETUS
Former Yugoslav Republic of Macedonia	2014–2015	—	Independent	10+	2,080 households	All eligible	—	—	—	HETUS

(3)										
Latin America										
Argentina (3)	2013	—	Module	18+	65,352 individuals	Towns of 2,000+ people	Stylized diary	—	No	—
Bolivia (2)	2010–2011	—	Module	10+	5,744 dwellings	—	Diary (10 min intervals)	—	—	Bolivian Classification of Time-Use Activities (CATBOL) and Classification of Time-Use Activities for Latin America and the Caribbean
Brazil (3)	2012		—	10+	—	National	Questions	—	—	—
Chile (3)	2015	1 weekday and 1 weekend day, over 1⁄2 hour intervals	Independent	12+	11,623 urban households	National	Stylized diary analogue using activity list (activity questionnaire)	Interview recall method	Yes	Adapted from CAUTAL (2015)
Colombia (7)	2013 (and every 3 years after)	Day before	Independent	—	151,099 individuals; 44,236 households	All eligible	Structured survey with 9 sections and 91 activities	—	—	ICATUS (modified to Colombia context)
Costa Rica (2)	2011	—	Independent	12+	2,636 dwellings	Greater metropolitan areas-	Stylized questionnaire	—	Yes when caring for sick, children, or	CAUTAL; CMAUT (Mexican

						household members			other people who need attention	Classification)
Cuba (4)	2001	—	Independent	15+	4,524 individuals; 1,969 households	All rural population from Pinar del Rio, San Juan y Martinez, Habana Vieja, Bayamo	Diary	Self-reporting	—	ICTUA
Ecuador (6)	2012	—	Independent	12+	22,968 dwellings	National, urban and rural	Stylized diary (132 questions)	—	—	—
El Salvador (2)	2010–2011	—	Module in EHPM	10+	3,728 households	National, all eligible	Stylized diary (47 questions)	—	—	Ad hoc detailed, international classifications are not used
Guatemala (4)	2014	—	Module in the National Employment and Income Survey	—	—	—	—	—	—	—
Honduras (2)	2011	—	Module in Permanent HH Survey	10+	21,336 households	National	Stylized diary; activities list	—	—	International classifications were not used
México (5)	2014 (and every 5	Previous week from M-Sun.	Independent (ENUT)	12+	16,996 dwellings	National, all eligible	Direct questionnaire	Interview recall method	Yes	CMAUT based on ICATUS 2012 and

	years after)									CMAUT 2005
Nicaragua (2)	1998	Previous day	Module	6+	2,325	Representative at the macro-regional level	List of activities	—	Yes, but method of asking about simultaneous activities does not identify which other activities were combined with childcare or other simultaneous activities	International classifications are not used
Panamá (2)	2011	1 weekday & 1 weekend day	Independent	15+	3,720 dwellings	All urban areas except for Darien	Questionnaire - List of activities	Interview	—	Ad hoc detailed
Paraguay (2)	2000–2001	—	Module in HH Survey	6+	—	—	—	—	—	—
Perú (2)	2010	—	Independent	12+	4,580 households	National, all eligible	Stylized questionnaire	Interview	—	ICATUS
Dominican Republic (2)	2006–2007	—	Question in the Demographic and Health Survey	10+	30,937 individuals; 8,363 households	All resident households not living in collective housing, defined as more than 5 households living together. Regular armed	Questionnaire and diaries for household and individual expenses collection	PAPI	—	International classification not used

						forces living in military facilities excluded from sample.				
Uruguay (4)	2013	—	Module in Continuous Household Survey	14+	7,447 individuals; 3,391 households	National	—	—	—	ICATUS
Venezuela (2)	2011–2012	—	Independent	12+	32,500 individuals; 10,500 households	National, all eligible	Diary	—	—	ICATUS
Middle East & Africa										
Algeria (1)	2012	—	Independent	12+	9,015 households	National, all eligible	24-hour questionnaire		Yes	ICATUS
Islamic Republic of Iran (1)	2008–2009	—	Independent	15+	3,220 households per season	National, all eligible	24-hour diary (15 minute intervals) and questionnaires		—	ICATUS
Iraq (1)	2007	—	Module in HH survey	10+	24,445 individuals; 18,144 households	National	24-hour light diary (26 activities)	—	—	
Morocco (2)	2011–2012	—	Independent	7+	9,200 households	National	24-hour full and open diary	—	—	ICATUS

Oman (2)	2007–2008	—	Module of Household Expenditure and Income Survey (HEIS)	15+	9,063 individuals	National, all eligible	24-hour light diary (19 activities)	—	None	—
State of Palestine (2)	2012–2013	—	Independent	10+	5,903 households	National, household members- 2 persons (male and female) from each household: 40/60 female/ male	Full 24-hour diary: 30 minute-intervals between 10 pm and 6 am; and 10 min intervals between 6 am and 10 pm	—	Yes	ICATUS
Qatar (1)	2012–2013	—	Independent	15+	16,574 individuals	—	Diary	—	—	Pre-listing of more than 20 activities
Tunisia (3)	2014	Last week and previous day	Module in Labor Force Survey	6+	11,738 adult individuals and 2,305 children (6-14); 4,521 households in urban areas	—	Stylized diary analogue with specific activities	Interview recall method	Yes	Own codes
Turkey (2)	2014–2015	1 weekday & 1 weekend	Independent	10+	11,440 sample households	National	2 diaries	—	—	HETUS
Benin (1)	1998	—	Module of household survey on labour, income	6–65	5,834 individuals from 1,787 households in	National, all eligible	Diary- 15-minute intervals	Recall interview	Yes	"Classification system listed activities in the order in

			and social indicators in rural areas; independent survey on time use and education in urban areas		urban areas; 6,770 individuals from 1,419 households in rural areas					which they were most likely to be performed during the day. 63 activities classified into 9 categories."
Djibouti (1)	2012	—	Module in HH Expenditure Survey	10+	1,500 households	National, all eligible	24-hour full diary	—	Yes	—
Egypt (3)	2012	Past 7 days	Module in Labour Market Panel Survey	6–64	37,140 individuals [28,770 (77 percent) were successfully re-interviewed]	—	—	Interview recall method	—	Own codes
Ethiopia (2)	2013	Previous day	Independent	10+	52,262 individuals in 20,280 households	National, all eligible	24-hour diary	Face-to-face recall interview	Yes	ICATUS
Ghana (5)	2012–2013	Past 7 days	Module in Ghana Living Standards Survey	7+	16,772 household	National, all eligible	Questionnaire	Interview recall method	—	—
Lesotho (1)	2002–2003	—	Module of Household Budget Survey	15+	8,182 individuals	National	24-hour light diary (11 activities)	—	—	—

Malawi (3)	2010–2011	—	Module	15+	12,288 households	National	—	—	—	—
Madagascar (1)	2001	—	Parallel sample attached to permanent survey	6–65	7,743 individuals and 2,663 households	National	24-hour diary	—	—	—
Mali (1)	2008	—	Independent	6–65	2,249 individuals	Random selection	Diary	Interview	—	List of 63 activities
Mauritius (1)	2003	—	Module	10+	19,907 individuals and 6,480 households	National	24-hour diary (10 activities)	—	Yes	—
South Africa (2)	2010	—	Independent	10+	30,897 dwellings	National, 2 eligible household members	Interview	Face-to-face	Yes	ICATUS
Tanzania (2)	2014	Interview day	Module in Labour Force Survey	5+	11,520 households	Covering Mainland Tanzania - selected household members	24-hour diary with one-hour time slots starting from 6 am to 6 pm	Interview recall method	Yes	ICATUS
Uganda (1)	2009–2010	—	Module	14–64	—	—	—		—	—
The Caucasus & Asia										
Armenia (2)	2008	1 weekday & 1 weekend	Independent	15–80	1,342 individuals in 512 households	National, all eligible	2 diaries	—	Yes	HETUS

Azerbaijan (1)	2008	—		15+	—	—	—	—	—	—
Bangladesh (2)	2012	1 weekday & 1 weekend	Independent	15+	3,780 households	National	2 diaries	Self-administered for educated respondents & face-to-face interview for non-educated respondents	Yes	ICATUS
Cambodia (1)	2003–2004	Past 7 days	Module in Socio-economic Survey	5+	15,000 households	All eligible	Stylized diary analogue with pre-specified list of 22 activities	Interview recall method	No	Own codes
China (1)	2008	1 weekday & 1 weekend	Independent	15–74	37,142 individuals in 16,661 households	10 provinces, all eligible	24-hour diary	—	Yes	—
India (1)	1998–1999	Past 24 hours	Independent	6+	18,591 households	6 states coverage, all eligible	Three diaries (a normal day, an abnormal day and a weekly variant of the past week)	Recall interview	Yes	Own codes
Indonesia (3)	2005	—	Independent	10+	360 households (90 households	Pilot in 4 provinces	Questionnaire	—	—	—

					per province)					
South Korea (9)	2014	2 consecutive days	Independent	10+	27,000 individuals; 12,000 households	National	24-hour diary: 2 consecutive days	Self-completed	Yes	Ad hoc detailed classification
Kazakhstan (2)	2012	1 weekday & 1weekend day	Independent	10+	33,830 respondents in 12,000 households	National	24-hour diary with 10-minute interval time diary completed on two randomly designated days	—	Yes	ICATUS
Kyrgyzstan (4)	2015	—	—	—	—	—	—	—	—	—
Lao People's Democratic Republic (4)	2007–2008	—	Module	10+	—	National, all eligible	24-hour light diary (22 activities)	—	No	—
Malaysia (1)	2003	—	—	15–64	15,000 living quarters and 32,000 respondents	National	2-day diary	—	—	—
Mongolia (4)	2015	Previous week	Independent	12+	13,726 individuals in 4,000 households	—	24-hour diary and interview	Self-complete diary and recall interview	Yes	Own codes
Pakistan (1)	2007	—	Independent	10+	19,600 households	National, 2 eligible household	24-hour diary	—	Yes	—

						members				
Thailand (4)	2014	Random day	Independent	6+	83,880 households	National, 1 eligible respondent per household	Diary of 10-minute intervals in 24-hour period on randomly selected day, using 15 major activities	Direct interview and self-complete diary	Yes	ICATUS
North America & Other Developed Countries										
Australia (3)	2006	2 consecutive days	Independent	15+	6,961 individuals in 3,643 households	National, all eligible	Two 24-hour diaries (from 12 am to 12 am) for 2 consecutive days	self-complete	Yes	—
Canada (7)	2015–2016 (and every 5 years after)	—	Independent module	—	61,500 households	National, 1 eligible respondent per household	24-hour diary & phone call	—	Yes	Based on HETUS with own codes
Japan (6)	2016	—	—	10+	200,000 individuals in 88,000 households	—	Questionnaires	—	—	—
New Zealand (2)	2009–2010	—	Independent	12+	8,500 individuals	National, 2 eligible household	48-hour full diary	—	Yes	ACTUS

						members				
USA (12)	2014	—	Independent	15+	26,400 households per year	National, 1 designated person per household	Diary		Care for children under age 13 is only secondary activity information collected. If respondents report simultaneous activities, they are asked to separate time spent on each activity or specify main activity.	ATUS

Source: adapted from Buvinic and King (2018)