MULTINATIONAL TIME USE STUDY

USER'S GUIDE AND DOCUMENTATION

Version 5 - updated

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Important:

This User Guide and Documentation pertains to Release 5 of the World5.53 dataset and replaces Release 4 (October 2011), Release 3 (March 2009), Release 2 (May 2005) and Release 1 (March 2003). Errors have been corrected and new variables have been added. This documentation additionally covers the first release of the World 5.8 and World 6.0 versions.

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Disclaimer

Although we aimed at the highest level of accuracy when preparing this document, errors are possible. Users of the MTUS dataset do so at their own risk. Note also that the User's Guide thoroughly documents the recoding of the harmonised variables for the Release 4 version of World5.5 dataset, and Release 1 of the versions World 5.8 and World 6.0. Earlier versions of the harmonised dataset are available for a larger number of surveys (World5.0 and World 5.52). These additional surveys have not yet been checked for cross-survey consistency. They will be gradually be checked and added to future releases.

INTRODUCTION

This *User's Guide and Documentation* is the companion document to the MTUS dataset. Information on other time use surveys not included in the harmonised version of the dataset are included on the Centre for Time Use Research web site (http://www.timeuse.org/information/studies/). More information on the background of the MTUS also are available on-line http://www.timeuse.org/mtus/. This User Guide is publicly available. Access to the data is however restricted and requires authorization (see http://www.timeuse.org/mtus/access/). This User Guide and Documentation pertains to Release 5 of the World5.5 dataset and replaces Release 4 (November 2011). This documentation also covers Release 1 of the World 5.8 and World 6.0 datasets.

The User's Guide describes the structure of the MTUS dataset and discusses issues of comparability across surveys. To date, nearly 60 time use surveys have been archived at MTUS. This User's Guide, however, pertains to only a subset of these surveys. Future releases of the dataset and User's Guide will gradually cover all the surveys currently archived at MTUS, in addition to new surveys.

The current version of this User's Guide covers the following surveys:

- Australia 1974, 1987, 1992, 1997, 2006
- Austria 1992
- Canada 1971-72, 1981, 1986, 1992, 1998
- Denmark 1964, 1987, 2001
- Finland 1979, 1987/88, 1999
- France 1966, 1974, 1985, 1998
- Germany 1991-92, 2001
- Israel 1991-92
- Italy 1989, 2003
- The Netherlands 1975, 1980, 1985, 1990, 1995, 2000, 2005
- Norway 1971, 1981, 1990/91, 2000
- Slovenia 2000
- Spain 2002-03, Basque Region of Spain 1992-93, 1997-98, 2002-03, 2008-09
- South Africa 2000
- Sweden 1990/91, 2000
- UK 1961, 1974-75, 1983, 1987, 1995, 2000-01, 2005
- USA 1965-66, 1975-76, 1985, 1992-94, 1994-95, 1998-01, 2003-11

This User's Guide describes the surveys and the various harmonised variables. It also discusses the weighting of time use survey as well as the methods of analysis of time use data. Survey-specific information regarding the coding of harmonised variables appear separately in the README documents for each survey. These are available by clicking on the year in the middle column of the surveys included page (http://www.timeuse.org/mtus/documentation/surveys/).

The MTUS team also has produced a separate *Coding Procedure Document* which covers the information in this document of greatest use to people harmonising the MTUS files, as well as supplementary information relating to the conversion process. This document is also available online (http://www.timeuse.org/mtus/convert/).

CHAPTER 1: OVERVIEW OF THE MTUS DATASET

1.1 Introduction

The origins of the Multinational Time Use Study (MTUS) go back to the 1980s following an initiative of Professor Jonathan Gershuny. The idea was to create a cross-nationally harmonised set of time use surveys composed of identically recoded variables. The first version of the MTUS dataset comprised some 20 countries, and has since been regularly expanded. The fifth version, named World5, comprised 35 surveys and was at the basis of the landmark study '*Changing Times*' by J. Gershuny (2000). The World5 version of the dataset was restricted to the population aged 20 to 59 years old, even though the original versions of many of the surveys covered a wider range of respondents. The MTUS coordinating committee (http://www.timeuse.org/mtus/coordinators/) expanded to the whole age range of respondents from Release 2 of Version 5.52. This User's Guide describes the harmonised aggregate files for the Release 3 version of World5.5 of nearly 40 surveys. Future releases of this User's Guide will gradually cover all the surveys in the MTUS archive.

The MTUS archive, located at the Centre for Time Use Research in the Department of Sociology at the University of Oxford includes:

- **Original files**: Episode and aggregate files, not generally available for distribution except be arrangement with the data provider. In some

cases, CTUR only holds an interim version of the original data or only the MTUS version of the data.

- **World 5.53**: A harmonised aggregate file with all surveys from all countries except those surveys collected by the Australian Bureau of Statistics, Statistics Finland and Statistics Sweden, with diarists of all ages and with additional variables, but only with the old 41-digit activity codes. In this file, each row represents a 24-hour observation (diary).
- **World 5.8**: Two harmonised aggregate files (one for adult diarists aged 18+ and a separate file for diarists aged less than 18) with all surveys from all countries except those surveys collected by the Australian Bureau of Statistics, Statistics Finland and Statistics Sweden, with the same survey, household and diarist variables in World 5.53, but with summary time in both the old 41-category list and in a new and updated 69 activity code list. Again, each row represents a 24-hour diary.
- **World 6.0**: Two harmonised episode files (one for adult diarists aged 18+ and a separate file for diarists aged less than 18) with all surveys from all countries except those surveys collected by the Australian Bureau of Statistics, Statistics Finland and Statistics Sweden, with the identifier variables, sex, age, and diary details: main activity, coded in both the 41 and 69 category frames; secondary activity in the 69 category frame, location, mode of transport whether ICTS were used, and who else was present. In these files, episodes represent a change in main activity, secondary activity, or location.
- **Restricted files** in versions 5.53, 5.8 and 6.0 for Australia, Finland and Sweden, are released separately and **require additional permission to access.**
- **Supplementary files** with additional variables for the UK (http://www.timeuse.org/mtus/supplementary/) and the USA (American Heritage Time Use Study – AHTUS http://www.timeuse.org/ahtus/).

Three variables, EDUCA, INCORIG and EMPINCLM, contain the original categories from each survey, and hence the labels are not included in the mega files. All the other variables are harmonised across surveys and not affected by this merge. We report the labels in the readme files for each individual survey (http://www.timeuse.org/mtus/documentation/surveys/).

We split the megafiles for the most recent versions into child and adult files for two reasons. First, the age of the youngest diarists vary highly across the surveys. Also, as children's time use differs markedly from the activities of adults, excluding children from the main file increases the harmonisation of the adult files (users can always either make use of the Version 5.53 or use the identifier variables to match the adult and child files together into the full surveys).

Additionally, there are a number of surveys that only sampled young people. We hope in the future to include some of these surveys in the child files.

1.2 Format and structure of the datasets

The harmonised surveys are saved in **SPSS**, **STATA**, and **Flat text** formats. In future we also plan to make files available in SAS and R. People who download the flat text files can access the variable and value labels from the User Contributions page (http://www.timeuse.org/mtus/contributions/). Users are advised to either download the SPSS or STATA labels, change the extension form .sps or .do to .txt, then you can open the labels in a text editor.

In most descriptive analyses, MTUS Users are encouraged to use all cases and disregard the fact that the total number of cases (i.e. diaries) correspond to a smaller number of respondents for some surveys. However, when carrying out analyses based on inferential statistics, MTUS Users should be aware of the non-independence of cases and should use appropriate statistical techniques for those surveys which collected multiple diaries from the same respondent.

People with older versions of the MTUS data will note that in the past, we converted full-week surveys into a day representing average time in each activity across the week. From the release of Version 5.53 through all future releases, each individual diary day appears independently.

Also in contrast with early versions of the MTUS, we no longer exclude diaries missing large amounts of time. Instead, we retain all diaries, but include a marker variable (badcase) which distinguishes quality from low-quality diaries. In addition, our recommended weight, propwt, assigns a zero-value to all low-quality diaries. Thus, when the data are weighted in analysis, low-quality diaries are excluded.

Some original surveys additionally include row cases for non-respondents who do not complete a diary. Nevertheless, most of the surveys do not include specific information on non-respondents in the data files. The MTUS format provides a suitable platform to analyse good quality diaries as well as low-quality diaries, but users would need to take greater account of original survey information to investigate people who do not respond at all. When original surveys include case rows for non-diarists (people with 24 hours of no reported activity), we delete the non-diary cases.

Further, from the release of Version 5.53, we have undertaken additional data preparation work before identifying low-quality diaries, as well as expanding the definition of a low-quality diary to consider factors in addition to missing time.

The time use diary is a narrative account and not a series of quantitative questionnaire answers. People can give a full account of their day without necessarily completing all columns of the diary for all potential time slots. For example, when offered a main activity and a mode of transport column, some diarists opt to make a time-saving minimal entry of writing “drove car” or “train” in the mode of transport column while not recording anything in the main activity column when their activity is transport. We consider entries across the whole diary to define the main activity, not just the information recorded in the main activity column.

We also impute activities in three specific instances. In cases where the main activity is missing at the beginning or end of the diary day, where the diarist records being at home or at another person’s home, where the subsequent activities after the initial gap at the beginning or the preceding activities before the final gap at the end of the diary day are the sorts of activities which typically follow or precede sleep (have a drink, low-activity leisure like watch TV or read, dress/undress, personal care) we presume the missing activity to be sleep. (We make this assumption both on account of the pattern of activity and as time-diary surveys tend to start the observation window as a point of the day when most people in the population are asleep). Second, in circumstances of a missing period of 25 or fewer minutes that precedes leaving home to travel somewhere else or following returning home after travel from activities away from home, we assume the missing activity to include a combination of personal and household care. The documentation specific to each survey (conversion files) includes information on the number of cases amended by these procedures. Finally, where the diarist gives location information indicating that they are not at home but records no activity, we mark the case with the category unknown activity away from home on the newer 69 category activity code frame (though these cases are treated as missing time on the older 41 category activity list).

After this data preparation work, we define any diary to be low quality, when:

- continues to have 91 or more minutes of missing time,
- it has fewer than 7 episodes,
- it is missing two or more of four basic activities, or
- it was filled in by a diarist whose age or sex is not known.

We define the four basic activities as those necessary for basic functioning on a day-to-day basis:

1) eating or drinking (measured by time in these activities, or time recorded working with food (set or clear table, food preparation, cooking and the like), or the diarist being in a location where they are likely to be around food and drink, that is attending a feast or being at a pub or in a restaurant);
2) sleep or rest (including do nothing, think, time out, or take a work break)
3) personal care (including assumed self care preceding or following travel and receiving personal services, such as at hair dresser or doctor)
4) exercise and/or travel (including leisure excursions, gardening, walk dogs, imputed travel where no activity is recorded but the diarist records a change of location or records a mode of transport).

Diaries with large volumes of missing time do not account for enough of the day to allow imputation of what is likely to have taken place in the missing periods.

Very low episode diaries and diaries missing basic activities do not give complete accounts of the day, and both lead to over-estimates of the activities the diarist did record and under-estimates of the activities the diarist did not record. Age and sex are two variables highly associated with specific time use patterns, and these variables are required for the creation of the recommended weight.

We make **five exceptions in relation to these quality rules**.

- Diarists may not record any travel when their travel episodes are very short, but may record a pattern in the diary that lets us know that they did travel and where in the day the travel took place. In such diaries, you will find patterns of continuous reports of activity, and a change of location (such as eating breakfast at home then doing paid work at the office) with no report of travel in between the change of location. We handle these cases by making a flag variable for unreported travel present (0=no such missed travel, 1=missed travel). If the diary includes 2 of the 4 basic activities, one of the 2 missing activities is exercise or travel and the diary is flagged as including missing travel, then we count this diary as a good diary. We do not alter the diary record in such cases, and users of the MTUS would have to make their own adjustments to the entries made by the diarists if they wish to account for such travel.
- Diarists may not record any personal care when their episodes of personal care are short. In such diaries, you will find patterns of continuous reports of activity, and transitions where personal care is highly likely to have occurred (sleep for 2+ hours at home followed by other activities with no care, eating meals at home where the meal

consumption lasts at least 10 minutes followed by other activities with no record of personal care). If such patterns are present, we make a flag variable for unreported personal care (0=no, 1=yes). If the diary is missing 2 basic activities, and one of these missing activities is personal care and we can flag this diary as having unreported personal care patterns, then we count this diary as a good diary. We do not alter the diary record in such cases, and users of the MTUS would have to make their own adjustments to the entries made by the diarists if they wish to account for such personal care.

- Diaries of carers (either the variable "carer" flagging cases of people who look after an adult needing assistance =1 for yes, or the diary includes any time in any form of adult or childcare) who otherwise meet the other 4 good diary criteria count as good diaries.
- Diaries including only 2 of the basic activities but that have at least 12 episodes where the diarist reports being at home all day (defined as no travel but eloc=1 – own home, or eloc=2 – other's home for at least 1000 minutes), but otherwise meet the other 4 good diary criteria count as good diaries.
- Other diaries including only 2 of the basic activities and 15 or more episodes count as good diaries.

Some original surveys additionally include row cases for non-respondents who do not complete a diary. Nevertheless, most of the surveys do not include specific information on non-respondents in the data files. The MTUS format provides a suitable platform to analyse good-quality diaries as well as low-quality diaries, but users would need to take greater account of original survey information to investigate people who do not respond at all. When original surveys include case rows for non-diarists (people with 24 hours of no reported activity), we delete the non-diary cases.

1.3 Surveys included

The following table lists all the surveys included in MTUS, as well as the surveys that we hope to include in coming years.

Table 1.1 – List of surveys included and versions available

Country	Surveys and years	Versions available		
Austria	1992	5.53	5.8	6.0
	2008-09	Hope to include in future		
Australia	1974	5.53	5.8	6.0

	1987	5.52		
	1992	5.52		
	1997	5.53	5.8	6.0
	2006	5.53	5.8	6.0
Belgium	1965	5.0		
	1999	Hope to include in future		
Bulgaria	1965	Hope to include in future		
	1988	5.0		
	2001-02	Hope to include in future		
Canada	1971	5.52		
	1981	5.52		
	1986	5.52		
	1992	5.52		
	1998	5.52		
	2005	Hope to include in future		
Denmark	1964	5.53		
	1975	Hope to include in future		
	1987	5.53		
	2001	5.53		
Estonia	1999-2000	Hope to include in future		
Finland	1979	5.53	5.8	6.0
	1987	5.52		
	1999	5.52		
France	1966	5.0		
	1974-75	5.0		
	1986	Hope to include in future		
	1998-99	5.53	5.8	6.0
Germany	1965	W5.0 only for now		
	1991-92	5.53	5.8	6.0
	2001-02	5.53		
Hungary	1965	5.0		
	1976-77	5.0		
	1986-87	Hope to include in future		
	1999-2000	Hope to include in future		
India	1998-99	Hope to include in future		
Ireland	2007-08	Hope to include in future		
Israel	1991-92	5.53	5.8	6.0
Italy	1979-80	5.0		
	1989	5.53	5.8	6.0
	2002-03	5.53		
Japan	1976	Hope to include in future		

	1981	Hope to include in future		
	1986	Hope to include in future		
	1991	Hope to include in future		
	1996	Hope to include in future		
	2001	Hope to include in future		
	2006	Hope to include in future		
Latvia	2003	Hope to include in future		
Lithuania	2003	Hope to include in future		
Netherlands	1975	5.53	5.8	6.0
	1980	5.53	5.8	6.0
	1985	5.53	5.8	6.0
	1990	5.53	5.8	6.0
	1994	5.53	5.8	6.0
	2000	5.53	5.8	6.0
	2005	5.53	5.8	6.0
New Zealand	1998-99	Hope to include in future		
	2008-09	Hope to include in future		
Norway	1971	5.52		
	1981	5.52		
	1990	5.52		
	2000	5.52		
Peru	1966	Hope to include in future		
Poland	1965	5.0		
	1975-76	Hope to include in future		
	1984	Hope to include in future		
	2001	Hope to include in future		
Portugal	1999	Hope to include in future		
Romania	2001	Hope to include in future		
Slovak Republic/ Czechoslovakia	1965	5.0		
	2006	Hope to include in future		
Slovenia / Yugoslavia	1965	5.0		
	2000	5.52		
South Africa	2000	5.53	5.8	6.0
	2010	Hope to include in future		
Spain	1992-93 (Basque)	5.53	5.8	6.0
	1997-98 (Basque)	5.53	5.8	6.0
	2002-03 (national)	5.53	5.8	6.0
	2002-03 (Basque)	5.53	5.8	6.0
	2008-09 (Basque)	5.53	5.8	6.0
	2009-10 (national)	Hope to include in future		
Sweden	1991	5.52		

	2000	5.52		
	2010	Hope to include in future		
Turkey	2006	Hope to include in future		
United Kingdom	1961	5.52		
	1974-75	5.53	5.8	6.0
	1983-84	5.53	5.8	6.0
	1987	5.53	5.8	6.0
	1995	5.53	5.8	6.0
	2000-01	5.53	5.8	6.0
	2005	5.53	5.8	6.0
USA	1965-66	5.53	5.8	6.0
	1975-76	5.53	5.8	6.0
	1985	5.53	5.8	6.0
	1992-94	5.53	5.8	6.0
	1994-95	5.53	5.8	6.0
	1998-2001	5.52		
	2003-11	5.53	5.8	6.0
Totals: 22 countries	68 surveys*	5.53: **39**	5.8: **34**	6.0: **33****

* 76 surveys in total if one counts each of the American Time Use Survey years separately

** 41 surveys in total if one counts each of the American Time Use Survey years separately

1.4 Technical information on the surveys

The table below contains key information on the sample size, age of respondents, response rate, etc. for each of the surveys included in the MTUS. These tables summarise the information in the top table of the readme files.

Table 1.2 Technical information on the time use surveys

Country[1]	Year	Age	Sample Size[2]	Survey Period (# months)[3]	Response rate (%)	Diary (# days)	Type of diary	Time interval	Household members[4]
AUS	1974	18+	1491	7	67% A/W 58% Melb	1	On day	Free	No
	1987	15+	1011	2	74.2%	2	On day	15min	Yes
	1992	15+	7045	11	82.9%	2	On day	5 min	Yes
	1997	15+	7246	8	72.0%	2	On day	5 min	Yes
	2006	15+	13617	8	82.5%	2	On day	5 min	Yes
OST	1992	10+	25233	2	47.0%	1	On day	30 min	Yes
CAN	1971	18-64	2141	8	72.0%	1	On day	Free	Yes
	1981	15+	2686	3	46.0%	1	On day	Free	No
	1986	15+	9946	3	78.9%	1	On day	Free	No
	1992	15+	9815	12	77.0%	1	Recall	Free	No
	1998	15+	10749	12	77.6%	1	Recall	Free	No

Country[1]	Year	Age	Sample Size[2]	Survey Period (# months)[3]	Response rate (%)	Diary (# days)	Type of diary	Time interval	Household members[4]
DEN	1964	15+	4069	2	80.4%	1	Recall	30/15 min	In limited cases
	1987	16-74	3584	3	72.7%	1	Recall	15 min	No
	2001	16-74	4000	4	70.0%	2	On day	10 min	In limited cases
FIN	1979	10-64	12038	4	81.0%	2	On day	10 min	No
	1987	15+	7758	12	74.0%	2	On day	10 min	No
	1999	10+	10561	12	52.0%	2	On day	10 min	Yes
FRA	1985/6	15+	16047	12	66.9%	1	On day	5 min	Yes
	1998/9	15+	15441	12	88.3%	1	On day	10 min	Yes
GER	1991/2	12+	7200	4	Quota	2	On day	5 min	Yes
	2001/2	10+	11919	12	95.5%	3	On day	10 min	Yes
ISR	1991-92	14+	4843	6	84.9%	1 (more limited cases)	Recall	15 / 30 min	In limited cases
ITA	1988/9	3+	38110	12	70.0%	1	On day	Free	Yes
	2002/3	3+	55773	12	91.8%	1	On day	10 min	Yes
NET	1975	12+	1309	1	76.0%	7	On day	15 min	No
	1980	12+	2730	1	54.0%	7	On day	15 min	No
	1985	12+	3263	1	54.0%	7	On day	15 min	No
	1990	12+	3158	1	49.0%	7	On day	15 min	No
	1995	12+	3227	1	20.0%	7	On day	15 min	No
	2000	11+	1813	1	25.0%	7	On day	15 min	No
	2005	12+	2204	1	37.0%	7	On day	15 min	No
NOR	1971/2	16-74	3040	12	58.0%	2 & 3	On day	15 min	No
	1980/1	16-74	3307	12	65.0%	2	On day	15 min	No
	1990/1	16-79	3097	12	64.0%	2	On day	15 min	No
	2000/1	9+	3211	12	50.0%	2	On day	10 min	Yes
SPA	1992/3 b	16+	5040	6	73.0%	1	On day	5 min	No
	1997/8 b	16+	5023	6	Missing	1	On day	5 min	No
	2002/3 b	10+	5039	6	64.0%	1	On day	5 min	No
	2002/3 n	10+	46774	12	86.0%	1	On day	10 min	Yes
	2008/9 b	10+	6746	12	73.5%	1	On day	5 min	No
	2009/10 n						On day	10 min	Yes
SLO	2000/1	10+	4500	12	52.5%	2	On day	10 min	Yes
RSA[5]	2000	10+	14553	3	94.0%	1	Recall	30/10-15 min	Yes
SWE	1990/1	20-64	3943	9	75.0%	2	On day	10 min	No
	2000/01	20-99	3976	12	50%	2	On day	10 min	No
UK[6]	1961	15+	2363	1	69.8%	7	On day	30 min	Yes
	1974/75	5+	3583	4	60.0%	7 (see note)	On day	30 min	Yes
	1983/84	14+	1525	2	51.0%	7	On day	15 min	Yes
	1987	16+	3035	1	70.0%	7	On day	15 min	Yes
	1995	16+	1875	1	93.0%	1	Recall	15 min	No
	2000/1	8+	11667	15	45.0%	2	On day	10 min	Yes
	2005	16+	4941	10	59%	1	Recall	10 min	No
USA	1965	18-64	1243	7	74.0%	1	On day	Free	Yes

Country[1]	Year	Age	Sample Size[2]	Survey Period (# months)[3]	Response rate (%)	Diary (# days)	Type of diary	Time interval	Household members[4]
	1975/76	18+	2406	3	72.0%	1	On day	Free	No
	1985	12+	5358	12	55.2%	1	On day + recall	Free	Yes
	1992/4	0+	9386	12	63.0%	1	Recall	Free	No
	1994/5	18+	1199	13	64.6%	1	Recall	Free	No
	1998/1	18+	1700	12	56.0%	1	Recall	Free	No
	2003-11	15+	124517	96	52-57%	1	Recall	Free	No

Notes:

1- More countries have carried out time use surveys. A more comprehensive list is available at the MTUS web site: http://www.timeuse.org/information/studies/
2- Unless otherwise indicated, the sample size refers to the number of individuals. The actual number of cases is larger in surveys where 2 or 3 diaries were collected.
3- 'Period' refers to different collection periods throughout the year.
4- Indicates whether or not more than 1 household member was included in the survey.
5- The South African diary includes 30 minute intervals. People could nominate multiple activities, and if they nominated more than 1 activity, were asked in the activities were simultaneous or consecutive. The original file codes multiple consecutive activities in 10 as well as 15 minute intervals.
6- The UK 1974-75 survey collected 4 rounds of 1 week diaries. Only the Monday and Tuesday diaries remain for the collection wave that took place in September 1974. The 1983-84 and 1987 surveys are treated as a single survey in the recent versions, though the variable msamp allows the user to distinguish between the two surveys.

1.5 File naming conventions

We have standardised the way files are named in MTUS. The name of each file distinguishes:

- The country (2 or 3-letter code) (see table below);
- The year of the survey (4-digit);
- The version of the archive (World5.3, 5.8, 6.0);
- The type of file (extensions 'sav' or 'dta' for data files, and extensions 'sps' or 'do' for programme files).

For example, Release 3 of the World 5.5 version of Canada 1992 is called 'Can1992W553.sav', which should be read as:

Country: Can
Year: 1992
Version: W553
Type: sav (the SPSS version)

Note that in surveys for which the data collection spread over more than 1 year, SURVEY takes the value of the year when the data collection began. For

example, Finland 1987/88 is referred to as FIN1987. For exceptions to this rule, see the survey-specific README documents.

Country	Code	Country	Code
Argentina	ARG	Latvia	LAT
Australia	AUS	Lithuania	LTH
Austria	OST	Netherlands	NET
Belgium	BEL	New Zealand	NWZ
Brazil	BRA	Norway	NOR
Bulgaria	BUL	Peru	PER
Canada	CAN	Poland	POL
China	CHI	Portugal	POR
Denmark	DEN	Republic of Korea	RKR
Estonia	EST	Romania	ROM
Finland	FIN	Russia	RUS
France	FRA	Slovak Republic/Czechoslovakia	SPA
Germany	GER	Slovenia/Yugoslavia	SLO
Hungary	HUN	South Africa	RSA
India	IND	Spain	SPA
Ireland	IRE	Sweden	SWE
Israel	ISR	Turkey	TUR
Italy	ITA	United Kingdom	UK
Japan	JPN	United States of America	USA

1.6 Missing value conventions

We use three codes to mark missing values, and a separate fourth convention for weights and identifier variables that are not present, as follows:

- "-7" refers to situations for we can create a variable for this survey, but we cannot create the variable for this diarist (or diary) as the respondent was not asked for the information on this diary or because the information is not relevant to that respondent (such as the employment status of a spouse for a person who is single and not living with a co-habiting partner). Although this missing value option potentially applies to all variables, it is mainly used for AGEKIDX, AGEKID2, WORKHRS, EMPSP, PARNTID1, PARNTID2, PARTID and EMPINCLM.
- "-8" refers to situations where we can create the harmonised variable for the study, but no information is recorded for this case (item non-response or insufficient information to create the variable for that case).

- "-9" refers to situations for which the harmonised variable could not be computed for the survey (with exceptions for weights and case identifier variables – although the identifier of spouse or of parents can have a -8 value if this could not be created for a case). Note that we use -9 with the time use activity variables to distinguish true 0s (the diarist did not record any time in this activity, though in theory they could have done so) from cases where no time is recorded in the activity because we could not create this time use category for this survey.

There are cases where an original weight is not present. In these cases, we use "0" rather than a missing value to indicate that this weight is not present in the study (and anyone attempting to use this weight would find they have no cases remaining for analysis from the survey). The conventions for the identifiers are set out in detail below.

Users also should note that we do not use missing values for the aggregated or summary time use variables, unless the category is not available for the whole survey. A value of 0 means that the diarist did not record any minutes in the activity (it is impossible to say for certain if this is because the diarist did not do any of the activity or if the diarist actually did undertake the activity but did not report doing the activity in the diary). If a category is not coded in the survey, then the summary value is set to -9 for the whole survey. Users should take notice of -9 values. If one sums time across a variable that cannot be created for a survey without first addressing the missing categories, 9 minutes will be subtracted in error for each category that is not present.

There are no system missing cases in MTUS data files. All cases for all variables have either a valid value or a standardised missing value. The MTUS data files contain no declared missing values. MTUS users need to declare missing values if they choose to do so before running their analysis.

1.7 Data preparation

The World 5.53 and World 5.8 Versions of the harmonised MTUS datasets are restricted to the **aggregate (summary)** version of the time-use surveys. The MTUS includes survey, demographic and socioeconomic information about respondents (hereafter called diarists) and their households alongside the aggregated time-use variables. Each row case in the W5.53 and W5.8 files represents one 24-hour time diary. For those studies where respondents completed more than one diary, individual diarists appear on a separate row for each diary they completed.

The World 6.0 files include the sequence information, though this version will only be created for a limited subset of datasets as the process of conversion is more cumbersome, especially in the case of older time use surveys where information is reported for uneven intervals. In the World 6.0 episode files, each row case represents one change of main activity, secondary activity or location in a diary. Where the diarist completed more than one diary, the episodes of the subsequent diary or diaries follow the episodes of the first diary. As this file is large, only the identifiers, age and sex are included in the World 6.0 file alongside the diary information. Users will need to match the World 6.0 files with the corresponding World 5.8 file for the additional background variables.

Before beginning the actual conversion, users should undertake three steps to ensure maximum data quality.

DATA PREPARATION STEP 1 – Check alternative options for the MTUS background variables to ensure that you are using the option with the cleanest profile compared with other reported results and the least missing data. If there are options and one is better than others, the choice should be documented in the conversion syntax. In some cases, combinations of original variables are needed to create the MTUS variables.

DATA PREPARATION STEP 2 – Apparently missing main activity time in diaries is not necessarily missing. The point of the diary is to collect information about what people are doing at any point in time. Diarists sometimes do not fill in the main activity column – creating the appearance of missing data, but fill in other information elsewhere in the diary that nonetheless indicates their activity and allows us to properly code the time period. We should recognise that elements of the diary are not always separate. At points of overlap, diarists can record a comprehensible and clear response in the diary in one place but not in others. For example, an entry “too train to work” is both a location/mode of transport and an activity, and this dual meaning is clear even if the entry is written only once in either the main activity column or the location column. The redundancy of writing the same entry in two places is not necessary for the diary to have a full account of a participant’s activities. We recommend the following steps be undertaken where a main activity is missing before converting the data:

a) Completing a time diary can be an onerous task, and some diarists do not appreciate making redundant entries. Where diaries have a location or mode of transport column and the diarist is travelling, some diarists may write “drive my car to work” or “on the bus” in the mode of transport column and see no point in writing the same entry in the activity column. When main activity is missing but the diarist has recorded a mode of

transport during this time period, we recode the missing main activity slot as unspecified travel.

b) Some diarists get confused while they complete the diary in a hurry, and may record the main activity in the secondary activity column. Another possibility is that a diarist may be undertaking a series of main activities while also doing an extended secondary activity – for instance alternating between care of pets, care of children and housework as main activities while listening to the radio. An item on the radio may be particularly interesting and attract the diarist's full attention for 10 minutes, but the 10 minutes of main activity radio listening is more efficiently recorded by simply extending the radio listening recorded in the secondary activity column. Where main activity is missing but a valid secondary activity is recorded, we recode the main activity as the reported secondary activity, and recode the secondary activity as no reported second activity. These are cases where the diarist has reported one valid activity.

c) For short gaps in the early hours at the beginning or end of the diary where the diarist is at home or in the same location where they report sleeping on the diary day and asleep before the gap or asleep following the gap, we recode the gap as imputed sleep.

d) If a short gap (<25 minutes) occurs at home just before travel or at home just after travel home, set the missing time to imputed personal and household care.

e) If there is other diary information that illuminates the activity in an episode where there is no recorded main activity, this should be used to identify the activity. As some examples, individual surveys in the past have recorded information as the number of cigarettes smoked during the episode, which television station the diarist watched if they watched TV during the episode, which type of material the diarist read if they read during the episode, and the like. Similar to the instance of the diarist recording a mode of transport but not recording a main activity, a diarist might record that they smoked 10 cigarettes in 15 minutes or watched a specific television station for 45 minutes but not record a main activity. Nonetheless, such records do reveal what the diarist was doing, so can be used to complete apparently missing time episodes.

All these changes are making use of information the diarist supplied about their activity, and this procedure eliminates some unnecessary wastage of diaries. All such data cleaning should be fully documented in the conversion programme.

DATA PREPARATION STEP 3 – Check to see if other diary information facilitates the coding of time use activities. Different studies code activities in different ways. Sometimes researchers need to use multiple columns from the diary to code a single activity. For instance, some surveys simply code "eating/drinking" in the main activity, and the location variable is needed to distinguish breaks at work (AV1) from eating meals at home (AV15) from drinking in a pub (AV27) from eating out in a restaurant (AV28) from eating a meal at a friend's house (AV29). Likewise, location can distinguish socialising with friends at home (AV38) from socialising with friends away from home (AV29) or paid work (main job) at home (AV2) from paid work (main job) away from home (AV1). Who else is present information sometimes is needed to distinguish childcare from adult care. Some cases arise peculiar to only one dataset. For instance, Denmark 1964 includes an original code for all media use, but also has a separate column where diarists indicated what media they were reading, watching, or listening to, and this second column enables the separate coding of listening to the radio (AV30) from watching TV (AV31) to listening to music (AV32). All combinations of information used to code a category should be included in the documentation.

We engage in a series of quality checks in the post-harmonisation process. These quality checks are detailed in Section 11 (Quality checks) of the MTUS coding procedures document available elsewhere on the MTUS web pages (http://www.timeuse.org/mtus/convert/).

1.8 Identifying good-quality diaries

Diaries with large volumes of missing time do not account for enough of the day to allow imputation of what is likely to have taken place in the missing periods. Very low episode diaries and diaries missing basic activities do not give complete accounts of the day, and both lead to over-estimates of the activities the diarist does record and under-estimates of the activities the diarist did not record. We make one exception in relation to these quality rules. Some people who care for a young child or an adult on their diary day appear not to record their own rest, consumption or personal care. We count diaries of people who performed any care (of a child, pet or adult) on the diary day who otherwise reported 7 or more episodes and have accounted for at least 22 hours and 30 minutes as quality even if two or more basic activities are missing. Age and sex are two variables highly associated with specific time use patterns, and these variables are required for the creation of the recommended weight, as is the day of the week on which the diary was completed. We also classify diaries missing age or sex of

the diarist or the day of the week on which the diary was completed as low quality diaries.

For this reason, the MTUS includes the variable BADCASE to distinguish quality diaries from diaries lacking sufficient standards for analysis. The MTUS team defines any diary to be low quality when:

- continues to have 91 or more minutes of missing time;
- it has fewer than 7 episodes;
- it is missing two or more of four basic activities, or
- it was filled in by a diarist whose age or sex is not known;
- the day of the week on which the diary was completed is not know.

We define the four basic activities as those necessary for basic functioning on a day-to-day basis:

1. eating or drinking (measured by time in these activities, or time recorded working with food (set or clear table, food preparation, cooking and the like), or the diarist being in a location where they are likely to be around food and drink, that is attending a feast or being at a pub or in a restaurant);
2. sleep or rest (including do nothing, think, time out, or take a work break);
3. personal care (including assumed self care preceding or following travel and receiving personal services, such as at hair dresser or doctor);
4. exercise and/or travel (include leisure excursions, gardening, walk dogs).

Note that only quality diaries have positive values in the MTUS weight PROPWT. Low quality diaries should have “0” values for this weight. Also, as previously noted in this document, we keep only diary cases. Cases of non-diarists (effectively row cases for non-respondents) are removed.

CHAPTER 2: VARIABLES FROM OLDER VERSIONS NO LONGER IN USE

The MTUS has evolved with time. In addition to adding a number of variables, we also have dropped some variables available in earlier versions. We detail the changes and the variables no longer in use here for those users who have read

research using older versions of the MTUS of who themselves have used previous versions of the files.

The Szalai surveys which gave inspiration for the original MTUS covered the working-age population (people aged 18-60). The older versions of the MTUS restricted the diaries included to this age range. From the World 5.1 version, we now include all diaries.

From the early versions through the World 5.52 version, diaries missing 61 or more minutes of main activity time were deleted. We now include all diaries, low-quality and good quality, though we 0-weight the low-quality diaries. We continue to exclude row cases of non-participants where these are included in the original data.

Some variables have evolved or been dropped. We now detail the older names and the dropped variables.

- PERIOD: Time survey period
- ID: Case Identifier
- AGE1/2: Age
- AGEGR5Y: Five-year age groups
- AGEKID: Age of the youngest child in household
- EMPSTAT2/3
- TOTTIME
- OPOPWT
- ODAYWT
- POPWT2
- DAYWT2
- 22-category activity typology

PERIOD: Survey time period

This variable records the period during which the survey was carried out. The values range from 1961-69 (value '1') to 2000-04 (value '7'). Precise information on when the survey was carried out is recorded in the variable 'Survey'.

Note that the length of each period is not equal. Cut-off points were chosen to maximise the number of countries in each period and to ensure that there was only 1 survey per period for any specific country. In cases for which multiple surveys were available for a country during a specific period, only one of these surveys has been included in the MTUS dataset.

Value	Label
1	1961 – 1969
2	1970 – 1975
3	1976 – 1984
4	1985 – 1989
5	1990 – 1994
6	1995 – 1999
7	2000 – 2004
8	2005 – 2009
9	2010 – 2014

ID: Diary identifier

In the oldest version of the MTUS, this variable served as a case id within each survey. No regard was given to multiple diaries per person or multiple diaries per household. Rather, this variable ranged in value from 1 to the highest number of diaries in the survey. This decision was recognised as a mistake, and in most versions of the MTUS, this variable distinguishes diaries, and taken alongside persid, hldid, msamp, swave, survey, and country, uniquely identifies cases.

AGE1/2: Age

This variable records the age of respondents (up to 3 digits). For surveys in which age was recorded in categories, we recoded age into a continuous variable by assigning the mid-point of each age group (e.g. 17 for age group 15-19). When surveys only included the year of birth of respondents, we computed AGE by subtracting the year of birth from the year of the survey. This variable was renamed as AGE for clarity from the release of Version 5.53.

AGEGR5Y: Five-year age groups

This variable, derived from AGE2, recorded respondent's age in 5-year bands.

Value	Label
1	0-4
2	5-9
3	10-14
4	15-19
5	20-24
6	25-29

7	30-34
8	35-39
9	40-44
10	45-49
11	50-54
12	55-59
13	60-64
14	65-69
15	70-74
16	75-79
17	80+

AGEKID: Age of youngest child in household

This variable records information on the age of the youngest child in the household. If there are no children under 18 in the household, this variable takes the value -7 (even if the original survey gives a valid value for such cases).

Value	Label
1	Youngest child between 0-4
2	Youngest child between 5-12
3	Youngest child between 13-17

This variable is highly comparable across surveys. However, the cut-off point for the age of the child varies across surveys. Also, in some surveys the data correspond to the diarist's children rather than children residing in the diarist's household. This variable has been upgraded to AGEKIDX which now includes a category for a child aged 18 or older in the household.

EMPSTAT2/3: Employment status

This variable has been updated and modified slightly over various incarnations of the of MTUS. The first version, called simply EMPSTAT, had three categories, 1=Full-time employed, 2=Part-time employed, and 3=no employed. Diarists who said that they were in the military but for whom no hours of work were reported were coded as '3' (other, not employed).

We recognised this as a mistake, and from version 5.51, changed category 3 to "employed, hours unknown" and coded people not employed as 4. With this change, diarists who reported serving in armed forces or otherwise being employed but whose weekly hours of work were unknown were coded as the

new category 3. This recoding affected few surveys and very few cases, but to note the change, the variable was renamed EMPSTAT2.

With the release of Version 5.52, we further amended the coding of this variable. In previous incarnations of the MTUS, people reporting working 30 or more hours per week were coded as working full-time. From the release of version 5.52, preference was given to self-declared full-time or part-time status. The variable was renamed to EMPSTAT3. No further changes were added when the variable was renamed to EMPSTAT from the release of version 5.53 – but we felt that the variable name EMPSTAT was more clear than EMPSTAT3 – which creates the expectation that two other variables also are available in the same file. Also, few people used the MTUS in the old SPSS versions when the original variable also had this name, and we felt that the length of time which has passed justified the return to the original name with minimal chance that users might be inconvenienced.

TOTTIME: Total diary minutes per day

This variable was a constant value of 1440 – and was generated during tests that all diaries had been correctly coded. As this variable merely is an interim check and of no research value, we no longer include it.

OPOPWT: Original population weight

Where original surveys included a weight that correct for over- and/or under-sampling and non-response but did not correct for the distribution of the days of the week, we included this weight under this column heading. This weight appeared in versions World 5.0 through World 5.52.

ODAYWT: Original day weight

Some original surveys offered separate weights, one which corrected for the variation between the observed population and the respondents, and another for balancing the distribution of the days of the week (but not the sample variation from the observed population). If the original survey included separate weights, we used this name for the day of week distribution weight.

POPWT2: Post-hoc sex-age weight

Where original surveys did not include a weight that corrected for the distribution of age and sex groups in the population, we calculated such a weight on the basis of the age/sex group distribution in that country reported in an international

organisation text, such as the International Labour Organization (ILO) Year Book. This weight appeared in versions World 5.0 through World 5.52.

DAYWT2: post-hoc day weight

Where original surveys did not include a weight that corrected for the distribution of the days of the week, we constructed this weight. This weight appeared in versions World 5.0 through World 5.52.

General note on older weights

All the weights in earlier versions of the Multinational Time Use Study were post-hoc types, that is, weights that were computed by the MTUS team as opposed to 'original' weights computed by the statistical agencies in charge of administering each survey. These post-hoc weights were age-sex-employment specific. They were computed based on official data published in the ILO's *Year Book of Labour Statistics.* From Version 5.0 through 5.52, the original survey weights were included wherever possible, and ad hoc weights only constructed when original weights were not calculated.

SEXEMPWT: Sex, age, employment weight (not account for day)

This weight balanced the demographic distributions in accordance with ILO data. This older weight made use of employment data as well as sex and age, though has been superseded. Partly, in older and younger age categories in some datasets, too few people were employed to allow for meaningful weights to be based (in the earliest versions of the MTUS were employment status also was used, the MTUS sample also was restricted to people aged 20-60 – the working age population). Also, in the majority of more recent surveys, weights provided with the original data account for an even wider range of demographic characteristics.

SURVWT: Weight to get 2000 per survey (not account for day of week)

This weight generally reduced the apparent size of the survey, though in a limited number of cases inflated the size of the survey to place all surveys on a comparable sample size. More recent surveys tend to have significantly larger samples, and better options are available in statistical software than were available in the mid-1980s, and we no longer make this restriction.

COUNWT: Weight to get 2000 cases per country (not account for day)

This weight created an artificial balance between the countries. When the MTUS covered a smaller scope and time period, this weight served some limited research purposes of the original creators. As more countries, some of which have many surveys over decades and some of which have only one survey, this weight no longer makes the same sense, so no longer is created.

DAYWT: Weight to balance the distribution of the days of the week

This weight balances the distribution of the days of the week for the survey.

SEDWT: Sex, and age weight from ILO data (not account for day of week)

This weight balanced the demographic distributions of sex and age only in accordance with ILO data.

SEDWT2: Sex, age, employment, and day weight

SEXEMPWT * DAYWT generates this weight. This weight is the weight most often used in the analysis of the earlier versions of the MTUS.

SEDWT3: Sex, age, employment, day and survey balance weight

SEXEMPWT * DAYWT * SURVWT generates this weight.

SEDWT4: Sex, age, employment, day, survey, and country balance weight

SEXEMPWT * DAYWT * SURVWT * COUNWT generates this weight.

22-category activity typology

Table 3.1 shows how the 41 activity category code list collapses into 22 categories. Half the categories directly map to one category on the AV41 code list. The SPSS syntax which makes this collapse is available on the user contributions page of the CTUR website:

http://www.timeuse.org/mtus/contributions/

Table 3.1: Map of the 22-category to 41-category MTUS activity codes

22 codes	MAIN	Notes on changes and similarities
paidetc	AV1 AV2	Paid work and education combined

	AV3 AV5	
hwork	AV7	Routine housework
cooking	AV6	Food preparation and cooking
eating	AV15	Meals and snacks
kidcare	AV11	Child care
shopping	AV10	Shopping (all sorts)
dtravel	AV12	Domestic related travel
otravel	AV17 AV18	All other non-work travel
perscare	AV13 AV16	Personal care activities
eatout	AV28	Eating out
pubsclubs	AV26 AV27	At pubs or clubs
spectat	AV20 AV22 AV23 AV24 AV25	Spectator
asports	AV19	Active sporting
walking	AV21	Walking
visits	AV29 AV38	Visiting or entertaining friends **Note that we return to this collapsed category in the 69-category typology**
tvrad	AV30 AV31 AV32	Televisions, radio etc.
reading	AV33 AV34 AV35	Reading books, papers or magazines **Note that we return to this collapsed category in the 69-category typology**
chatsets	AV36 AV37	Talking, relaxing
oddjobs	AV8 AV9	Non-routine domestic work
hobbies	AV39 AV40	Other at-home leisure
medical	AV14	Medically related personal care
educ	AV4	Education (included in paidetc in the earliest versions of the MTUS)

CHAPTER 3: CODES OF ACTIVITIES

Alexander Szalai directed the project which collected the first cross-nationally comparable time-diary surveys in 12 countries in the mid-1960s (Szalai 1972). This research consortium, developed a 90-code activity typology which continued to influence to code frames of other time use studies for many subsequent decades. More recently, Eurostat developed a more contemporary activity code frame with four-levels of codes and including a minimum of over 300 classification for time use studies collected in Europe between 1999 and 2003 (the Harmonised European Time Use Surveys – HETUS[1]). Eurostat subsequently modified this code frame slightly for the more recent round of HETUS data collection which began in 2008. The United Nations Development Programme and UN Statistics Division developed an international classification of activities (ICATUS[2]), and these codes have been used in UN-sponsored time use studies collected to measure gender equality and domestic work for assessment in the annual UNDP Human Development reports. The United States Bureau of Labor Statistics began collecting the first continuous set of time-diary data (the American Time Use Study - ATUS[3]) in 2003, and developed a code frame partly based on internal data needs of the USA government but also modelled from the code list developed by the Australian Bureau of Statistics, which the BLS identified as the gold standard code list on which to base their codes.

Professor Gershuny developed the MTUS in the early 1980s with the aims of resurrecting the academic use of the Szalai surveys and allowing cross-time study of changes in daily activities in the UK compared with other countries. The early versions of the MTUS included a 41-activity code list based largely on the Szalai activities, but also including some activities of particular relevance at the time in the UK (going to the pub, going to social clubs). The 41-activity typology collapsed to a 22-activity classification as some older surveys had limited code frames. For the benefit of people who have used the MTUS for a long period and historical continuity in this dataset, we retain the original 41-activity classification (the AV time use variables), though from this release, the 22-code collapsed list is no longer included. Users who wish to replicate this original 22-activity list can find SPSS syntax which creates these variables from AV1 to AV41 on the User Contributions web page (http://www.timeuse.org/mtus/contributions/).

1 https://www.testh2.scb.se/tus/tus/

2 http://unstats.un.org/unsd/methods/timeuse/icatus/icatus_1.htm

3 http://stats.bls.gov/tus/

As some significant changes in some activities have arisen from the expanding prevalence of computers and mobile phones, we also have created a more up-to-date and detailed harmonised code list that covers 69 activities, and accounts for the categories available in HETUS, ICATUS and the ATUS. We now detail both MTUS activity typologies. Tables mapping the original activity codes of each survey harmonised into the MTUS may be found in the survey-specific README documents. In the summary MTUS files, where each row represents a time use diary, the total time spent across the 41 categories and separately across the 69 activity categories sums to 1440 minutes, the total minutes in a 24-hour day.

Users should note that as those variables which cannot be coded for a particular survey are set to -9 to allow users to distinguish true 0s (that is cases where the diarist did not report any time in the activity) from 0s arising where a survey did not separately collect instances of the activity, they will need to exclude the -9 missing cases before they sum AV1 to AV41 or MAIN1 to MAIN69 (otherwise they will produce total time that is less than 1440).

Users are advised to be very familiar with the coding of activities in order to avoid misinterpretations of some of the results. The following sections of this chapter draw attention to some of the activities that could have been classified elsewhere under a different classification scheme.

3.1 MTUS 41-activity typology

Table 2.1 summarises the older 41-activity codes used in the MTUS, and the subsequent text details specific interpretative rules for each category. The default value for all time use variables that can be created is 0. If a category cannot be created, this AV variable should be coded as -9. The value of 0 should indicate that the diarist did not record any time in an activity, though they had the opportunity to report such an activity. In some cases, no diarist in a sample might report a particular activity, even though the survey allowed the possibility for such activity to be recorded. These circumstances could have 0 values for the AV variable in all cases. Nonetheless, such cases should be possible to distinguish from cases where no diarist had time in that activity coded.

Table 2.1: Harmonised activity codes (41-category typology)

MTUS Variable Name	Variable Label	MTUS Variable Name	Variable Label
AV 1	Paid work	AV 21	Walking
AV 2	Paid work at home	AV 22	Religious activities

AV 3	Paid work, second job	AV 23	Civic activities
AV 4	School, classes	AV 24	Cinema or theatre
AV 5	Travel to/from work	AV 25	Dances or parties
AV 6	Cook, wash up	AV 26	Social clubs
AV 7	Housework	AV 27	Pubs
AV 8	Odd jobs	AV 28	Restaurants
AV 9	Gardening	AV 29	Visit friends at their homes
AV 10	Shopping	AV 30	Listen to radio
AV 11	Childcare	AV 31	Watch television or video
AV 12	Domestic travel	AV 32	Listen to records, tapes, cds
AV 13	Dress/personal care	AV 33	Study, homework
AV 14	Consume personal services	AV 34	Read books
AV 15	Meals and snacks	AV 35	Read papers, magazines
AV 16	Sleep	AV 36	Relax
AV 17	Free time travel	AV 37	Conversation
AV 18	Excursions	AV 38	Entertain friends at home
AV 19	Active sports participation	AV 39	Knit, sew
AV 20	Passive sports participation	AV 40	Other leisure
		AV 41	Unclassified or missing

AV1: Paid work

Including such activities as:

Normal work
Unscheduled break at work
Scheduled break at work (eg meal)
Other work-related activities

Notes:

- Any activity done during work hours, but not related to work (i.e. shopping, going to doctor/dentist) should be coded in their respective categories (i.e. shopping, receiving personal services).
- Meal breaks at work or during work hours are to be coded as AV1.
- Courses/studies taken for work during work hours should be coded as AV1. Work-related courses taken in free time should be coded as AV4.
- Farming as the main economic activity should be coded as AV1.
- Unpaid *help* to another business/farm should be coded as AV8. Unpaid *work* for family business/farm should be coded as AV3.
- Any unpaid work away from workplace but not at home (related to main job) or conversations about work but not during work hours should be coded as AV1.
- General work-related variables to be coded as AV1 (i.e. sundry work-related activities, "other" work-related activities).

AV2: Paid work at home

Including such

Childminding

activities as:	Running a catalogue Job seeking paperwork at home (Other) Job search activities Other home-working (non-computer) Other home-working (computer) Work "brought home" (non-computer) Work "brought home" (computer)
Notes:	▪ Any code or code related to "unemployment benefits" or "welfare" should be coded as AV2. ▪ "Childminding" implies paid child minding.

AV3: Paid work, second job

Including such activities as:	Second, third etc. job (for money) Other informal economic activity
Notes:	▪ Any activity (other than the main occupation) done for sale/exchange should be coded here (i.e. hobbies, crafts for sale, car boot or yard sale, sell items on Ebay). ▪ Any variable implying "help to family business" (paid or unpaid) should be coded here.

AV4: School/classes

Including such activities as:	Educational activities Lunch break at education establishment Student at educational establishment Other educational activities Night and privately tutored classes for hobbies
Notes:	▪ Include codes related to work-related courses done in free time ▪ Include breaks and waiting at school/educational establishment

AV5: Travel to/from work

Including such activities as:	Job seeking activities outside home Travel to/from work Education travel Job search – travel Other work-related travel
Notes:	▪ Also includes travel *during* or *for* work/school

AV6: Cook/wash up

Including such activities as:	Food preparation Baking, freeze foods, make jams/pickles/preserves, dry herbs Washing up, putting away dishes Making a cup of tea, coffee, etc.

Set table

Notes:

- None

AV7: Housework

Including such activities as:

Washing clothes, hanging washing out to dry, bringing it in
Ironing clothes
Making, changing beds
Dusting, hovering, vacuum cleaning, general tidying
Outdoor cleaning
Other manual domestic work
Housework elsewhere unspecified
Putting shopping away

Notes:

- Include all “sundry” or “other” house/domestic work variables

AV8: Other domestic work

Including such activities as:

Repair, upkeep of clothes
Heat and water supply upkeep
DIY, decorating, household repairs
Vehicle maintenance, car washing, etc.
Home paperwork (not computer)
Pet care, care of houseplants
(Other) tasks in and around the home, unspecified
Tasks – unspecified
Feeding and food preparation for dependant adults
Washing, toilet needs of dependant adults
Shopping for others
Fetching/carrying for other
Other care of adults
Doing housework for someone else (unpaid)
Care of adults (unspecified)
Service for animals (eg animals to vet)
Fetching, picking up, dropping off
Home paperwork on computer

Notes:

- Include helping/caring for sick/disabled adults (excludes “volunteering” – see AV23).
- Include any *general* care of family (i.e. Italy 1989: AV2411 – “Other family care activities”).
- Include obtaining medical care *for* household adults; also include *self administered* medical care and medical care administered *to* (by respondent) other household adults.
- Include unpaid help to others (i.e. house cleaning; farm help; assistance in correspondence, transportation, etc)
- Include variables such as “dressmaking” or “making clothes” when they are grouped with other “domestic work” variables in the original dataset. This would imply that they are not leisure activities.

AV9: Gardening

Including such activities as:

Gardening

Notes:

- Include any original variables which *combine* “gardening” and “animal care”

AV10: Shopping

Including such activities as:

Everyday shopping, shopping unspecified
Shopping for durable goods
Services for upkeep of possessions
Money services
Attending jumble sales, bazaars, etc.
Video rental or return
Other service organizations or use (e.g. travel agent)

Notes:

- Include all activities where a “maintenance service” is used (i.e. fill up car at petrol station, taking clothes to the cleaners etc)
- Include all activities labelled “other” or “uncodeable” services.
- Include “errands” and “running errands”)

AV11: Childcare

Including such activities as:

Feeding and food preparation for babies and children
Washing, changing babies and children
Putting children and babies to bed or getting them up
Babysitting (i.e. other people’s children)
Other care of babies
Medical care of babies and children
Reading to, or playing with babies and children
Helping children with homework
Supervising children
Other care of children
Care of children and babies – unspecified

Notes:

- Include “obtaining” medical care for children/babies
- Include all activities involving/in relation to child care, time spent with children or activities for the purpose of caring for children.
- “Babysitting” implies unpaid child care.

AV12: Domestic travel

Including such activities as:

Accompanying adult or child (i.e to doctor)
Shopping/services (travel to/from)
Care of others (travel)
Posting a letter

Notes:

- Include all travel related to household, care of children, shopping, personal services/care, etc.

AV13: Dress/personal care

Including such activities as:	Personal hygiene and self-care, “dressing”, “got ready to go out”, “got up”, “went to bed”, “put on make-up”, “go to toilet”, “take bath or shower”
	“Arrived home”, “went out”

Notes:

- Include variables such as “personal activities” or “other personal activities” (or any ambiguous or “other” variable that appears in a series of personal activities variables).

AV14: Consume personal services

Including such activities as:	Personal medical, dental, paramedical care Other personal care/need activity – not specified Personal services (eg hairdresser) Other medical services (eg sick note) Welfare services, counselling Personal services not elsewhere specified

Notes:

- Include *in home* personal medical service
- Include “other” *professional* services (i.e. lawyer)

AV15: Meals/snacks

Including such activities as:	Eating at home Drinking

Notes:

- Do not include take out food, or meals at restaurants (code as AV33) or eating or drinking in pubs (code as AV27)

AV16: Sleep

Including such activities as:	Main sleep Short naps and snoozes Being sick, ill in bed Imputed sleep

Notes:

- None

AV17: Free time travel

Including such activities as:	Going for a drive Travel to/from leisure activity Travel for religious, political, community, voluntary activity Other travel Travel – not specified

Notes:

- Include all travel involving codes 18-40 (all free time activity travel).
- Include any general or ambiguous travel codes

AV18: Excursions

Including such activities as:

Camping, caravanning
Day trips to town or cities
Visiting beauty spots
Zoos, museums, galleries, stately homes, exhibitions
Unspecified active leisure outside home
Going to a library

Notes:

- Include "cultural event" (or related variables)

AV19: Active sports participation

Including such activities as:

Outdoor team games
Non-team ball hitting sports
Running, jogging, cross-country, track and field
Golf
Fishing
Bowls
Martial arts
Swimming and other water sports
Keep fit, yoga, aerobics, dance practice
Cycling
Other outdoor sports
Other indoor sports
Horse rides
Hunting, shooting, fishing, etc.
Other participation in sport and active leisure activities

Notes:

- Include communication for the purposes of active leisure
- Include general variables such as "other" active leisure or "other" sport
- If "walking" is grouped in an original variable that involves active leisure/sports, code in AV19.

AV20: Passive sports participation

Including such activities as:

Watching sport live at the event

Notes:

- None

AV21: Walking

Including such activities as:

Walks, rambles
Other outdoor hobbies (i.e. painting, collecting mushrooms)

Notes:

- Include general "outdoors" variables

AV22: Religious activities

Including such activities as:	Religious practices
Notes:	▪ Include religious services, religious practices, etc. ▪ Do not include variables concerning voluntary activities for/with church, church meetings, etc. – code as AV23. ▪ Do not include social events (i.e. picnic, performances) with church group – code in AV25. ▪ Include variables simply labelled “religion”.

AV23: Civic activities

Including such activities as:	Legal services, dealing with police Community/political, trade union meetings Activities as councillors, officials Voluntary tutoring Organizing sports/coaching Providing meals/refreshments Paperwork associated with voluntary activity Other voluntary/organizational work Other political/community activities (eg demonstration) Other religious, political, community, voluntary activities Scouts / guides / sea cadets, related civic groups for young people (includes adults who act as leaders) Filling in time budget diary
Notes:	▪ Include variables concerning “meetings” (i.e. “church meeting”)

AV24: Cinema or theatre

Including such activities as:	Watch films at cinema, other public viewing of recorded material Going to theatre Other live entertainment (i.e. concert, opera) Pop concert
Notes:	▪ None

AV25: Dances or parties

Including such activities as:	At a party/dance Meeting friends, relatives outside respective homes Gambling (i.e. at betting shop, casino Driving lessons Other – leisure and entertainment activities out of home Leisure and entertainment – not specified “Went dancing” (i.e. disco or dance hall)
Notes:	▪ Include variables concerning weddings, family gatherings, religious performances, etc. ▪ Include general out of home “social” variables (i.e. “social away”,

"other social activities").
- Include general entertainment variables (i.e. "other entertainment").

AV26: Social clubs

Including such activities as: At a social or night club

Notes:
- None

AV27: Pubs

Including such activities as: At the pub
Alcohol, tobacco (smoking) and drugs consumption (away from home)

Notes:
- Include variables such as "at a bar" or "drinking at the bar".

AV28: Restaurants

Including such activities as: Eating out at restaurants, cafes
Eating out at a fast food or takeaway
Eating out not specified
Eating meal at pub (not snack)

Notes:
- None

AV29: Visit friends at their homes

Including such activities as: Eating out at a colleague's, relatives, friend's house
Visiting relatives
Alcohol, tobacco (smoking) and drugs consumption (at another's home)

Notes:
- Include variables simply labelled "visiting"

AV30: Listen to radio

Including such activities as: Listening to radio

Notes:
- None

AV31: Watch TV or video

Including such activities as: Watching broadcast TV
Watching video tapes and discs
Programming video, rewinding tapes

Notes:
- None

AV32: Listen to records, tapes, cds

Including such activities as:	Listening to tapes, records, etc.
Notes:	▪ None

AV33: Study, homework

Including such activities as:	Studying Computer activities (educational, programming)
Notes:	▪ Include “reading” for the purposes of education/study activities (i.e. if a general “reading” category is grouped with other study variables, code as AV33.

AV34: Read books

Including such activities as:	Reading books
Notes:	▪ None

AV35: Read papers, magazines

Including such activities as:	Reading newspapers, magazines Reading letters
Notes:	▪ Include general “reading” variables if grouped with reading books, reading magazines, etc. (i.e. “reading”, “other reading”, etc)

AV36: Relax

Including such activities as:	Relaxing, puttering around Sitting in garden, sunbathing Kissing, cuddling, fondling Other leisure activities Leisure – unspecified
Notes:	▪ Include general “passive leisure” variables if grouped with passive leisure variables in original list (i.e. “other passive leisure”, “doing nothing”, “other leisure”, etc)

AV37: Conversation

Including such activities as:	Talking, chatting, arguing, discussing Telephoning
Notes:	▪ Include “tantrums”. ▪ Implies general “leisure” conversations.

AV38: Entertain friends at home

Including such activities as:	Entertaining at home Alcohol, tobacco (smoking) and drugs consumption (at home)

Notes:
- None

AV39: Knit, sew

Including such activities as: Knitting, sewing, dressmaking

Notes:
- Include only related variables that are part of leisure (i.e. grouped with other leisure variables); if knitting, sewing, or dressmaking is grouped with "domestic work" types of variables, code as AV8.

AV40: Other leisure

Including such activities as:
Home-brewing, wine making
Watching home movies, slides
"Playing"
Playing video/computer games
Playing games, cards
Artistic and music activities
Hobbies, collections not shown elsewhere
Writing – longhand or typewritten (default)
Writing on word processor

Notes:
- Include ambiguous computer use variables (i.e. "other computer use")
- Completing the time diary was included in this AV category in older versions of the MTUS, but now is located in AV23

AV41: Unclassified or missing activities

Including such activities as: Entry missing or undecipherable

Notes:
- None

3.2 MTUS 69-activity typology

The more recent activity code list both updates the original list and amends some shortcomings of that original classification. Some of the 41 codes grouped categories where few minutes of time were recorded, but the nature of these activities differs markedly (particularly in paid work time and odd jobs, the latter of which spans adult care, pet care, DIY and household management). Also, some new activities (computing and computer games) have become prominent since the original MTUS project started. For releases 5.8 and 6, we include an expanded list of activity codes alongside the AV codes. Version 5.53 covers only the summary time (total minutes per 24-hour diary) across the 41 AV activity categories. In Version 5.8 we likewise cover summary time in the AV as well as the new MAIN activity lists. In World 6, we code the episode level information for

main (AV and MAIN) as well as secondary activities, technology use, mode of transport, and location.

Table 2.2 summarises the 69 category main activity list (we use the same codes for secondary activities in the World 6 file). Table 2.3 maps the older AV categories into the 69 category list, and highlights points at which the two code frames differ. The old and new categories do include some differences, and the more detailed list does not simply collapse back to the older less detailed list.

Table 2.2: Harmonised activity codes (69-category typology)

Activity codes	Description
MAIN/SEC 1	imputed personal or household care
MAIN/SEC 2	sleep and naps
MAIN/SEC 3	imputed sleep
MAIN/SEC 4	wash, dress, care for self
MAIN/SEC 5	meals at work or school
MAIN/SEC 6	other meals or snacks
MAIN/SEC 7	paid work - main job (not at home)
MAIN/SEC 8	paid work at home
MAIN/SEC 9	second or other job not at home
MAIN/SEC 10	unpaid work to generate household income
MAIN/SEC 11	travel as a part of work
MAIN/SEC 12	work breaks
MAIN/SEC 13	other time at workplace
MAIN/SEC 14	look for work
MAIN/SEC 15	regular schooling, education
MAIN/SEC 16	homework
MAIN/SEC 17	leisure/other education or training
MAIN/SEC 18	food preparation, cooking
MAIN/SEC 19	set table, wash/put away dishes
MAIN/SEC 20	cleaning
MAIN/SEC 21	laundry, ironing, clothing repair
MAIN/SEC 22	home/vehicle maintenance/improvement
MAIN/SEC 23	other domestic work
MAIN/SEC 24	purchase goods
MAIN/SEC 25	consume personal care services
MAIN/SEC 26	consume other services
MAIN/SEC 27	pet care (other than walk dog)
MAIN/SEC 28	physical, medical child care
MAIN/SEC 29	teach, help with homework
MAIN/SEC 30	read to, talk or play with child

MAIN/SEC 31	supervise, accompany, other child care
MAIN/SEC 32	adult care
MAIN/SEC 33	voluntary work, civic, organisation activity
MAIN/SEC 34	worship and religious activity
MAIN/SEC 35	general out-of-home leisure
MAIN/SEC 36	attend sporting event
MAIN/SEC 37	cinema, theatre, opera, concert
MAIN/SEC 38	other public event, venue
MAIN/SEC 39	restaurant, café, bar, pub
MAIN/SEC 40	party, reception, social event, gambling
MAIN/SEC 41	imputed time away from home
MAIN/SEC 42	general sport or exercise
MAIN/SEC 43	walking
MAIN/SEC 44	cycling
MAIN/SEC 45	other out-of-doors recreation
MAIN/SEC 46	gardening/forage (eg pick mushrooms), hunt/fish
MAIN/SEC 47	walk dogs
MAIN/SEC 48	receive or visit friends
MAIN/SEC 49	conversation (in person, phone)
MAIN/SEC 50	other in-home social, games
MAIN/SEC 51	general indoor leisure
MAIN/SEC 52	artistic or musical activity
MAIN/SEC 53	written correspondence
MAIN/SEC 54	knit, crafts or hobbies
MAIN/SEC 55	relax, think, do nothing
MAIN/SEC 56	read
MAIN/SEC 57	listen to music, ipod, CD, audio book
MAIN/SEC 58	listen to radio
MAIN/SEC 59	watch TV, DVD, video
MAIN/SEC 60	play computer games
MAIN/SEC 61	send e-mail, surf internet, computing
MAIN/SEC 62	no activity but mode of recorded travel
MAIN/SEC 63	travel to or from work
MAIN/SEC 64	education-related travel
MAIN/SEC 65	travel for voluntary/civic/religious activity
MAIN/SEC 66	child/adult care-related travel
MAIN/SEC 67	travel for shopping, personal or household care
MAIN/SEC 68	travelling for other purposes
MAIN/SEC 69	no recorded activity

Table 2.3: Map of the 41-category to 69-category MTUS activity codes

AV	MAIN	Notes on changes and similarities
AV1	**Main5** Main7 Main10 Main12 Main13	eating at work, work breaks, other time at the workplace separated out from paid work. Main7 covers most activity included in AV1
AV2	Main8 Main14	paid work at home separated from job search activities
AV3	Main9	second job – equivalent categories
AV4	**Main5** Main15 Main17	eating at school, and leisure classes separated out from main education. Main14 covers most time that was in AV4
AV5	Main11 Main63 Main64	travel to/from work, travel as a part of paid work, education-related travel separated out from work-related travel
AV6	Main18 Main19	food preparation and cooking separated from setting and clearing table/wash dishes home brewing, wine making moved from leisure to food preparation in new code
AV7	Main20 Main21	cleaning separated from laundry/clothing care
AV8	Main22 Main23 Main27 Main32	home/vehicle maintenance, other domestic work, pet care, adult care separated out from old odd jobs category. Also, informal assistance to people outside the household moved to the voluntary activity category (Main33 rather than AV8), and help to another person that involves child or adult care moved from Av8 to the respective child care or adult care code in the Main scheme.
AV9	Main46	gardening – mostly equivalent categories, except that foraging (ie collecting mushrooms) was formerly in walking category – AV21, and hunting & fishing was formerly in AV19 – sport
AV10	Main24 Main26	shopping for goods separated from using services – ie bank, post office
AV11	Main28 Main29 Main30 Main31	physical/medical child care, teach or help with homework, read to and play with child, and supervise or other childcare distinguished. Also note that AV11 only covers child care of household children, childcare as help had been coded in AV8. In the new code, all child care, whether for a household child or as help to someone else is coded in the Main28 to 32 codes
AV12	Main66 Main67	child and adult care-related travel separated from shopping and services travel
AV13	Main1	imputed personal and household care added to

	Main4	personal care
AV14	Main25	personal services – equivalent category
AV15	Main6	meals & snacks – equivalent categories
AV16	Main2 Main3	recorded sleep and naps, imputed sleep
AV17	*Main62* Main65 Main68	no activity but mode of travel reported, voluntary and civic activity travel distinguished from leisure travel
AV18	Main35 Main38 Main45	general out of home leisure, attending event, other outdoor recreation distinguished
AV19	Main42 Main44	cycling distinguished from other exercise and sport
AV20	Main36	attend sporting event – equivalent code
AV21	Main43 Main47	dog walking (which sometimes was lumped with AV8) separated from other walking
AV22	Main34	religious activities – equivalent categories
AV23	Main33	voluntary/civic/organisational – note a change; the old MTUS coded only formal volunteering for an organisation in AV23, Main33 covers both formal organisational volunteering and informal unpaid assistance to a person outside the household – the informal volunteering had been coded in AV8.
AV24	Main37	cinema, theatre, concert – equivalent activities
AV25 AV26	Main40 Main41	social clubs grouped with dances, receptions, parties; other social and imputed events away from home added that previously would have been in missing time
AV27 AV28	Main39	restaurants, bars, pubs combined
AV29 AV38	Main48 Main50	receive and visit friends combined – distinguishable by location code, imputed in-home social code also added to these categories
AV30	Main58	listen to radio – equivalent categories
AV31	Main59	watch TV/DVD – equivalent categories
AV32	Main57	listen to CDs, music – equivalent categories
AV33	Main16	study, homework – equivalent categories
AV34 AV35	Main56	reading books combined with other reading
AV36	Main55	relax – equivalent categories
AV37	Main49	conversation – equivalent categories
AV39 AV40	Main51 Main52 Main53	knitting, sewing combined with crafts and hobbies; but playing games/in home social with family, general indoor leisure, artistic and musical activity; casual writing by hand; computer

	Main54 Main60 Main61	games, and email/internet/chat room distinguished home brewing, wine making moved from leisure to food preparation in new code
AV41	Main69	missing any account distinguished from missing time where the activity is away from home

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MAIN1 / SEC1 : Imputed personal or household care

Including such activities as: "prepare to go out" or "arrive home"
also include imputed time in gaps of 20 or more minutes prior to the diarist leaving the house of just after the diarist returns home (see Data Preparation Step 2)

Notes:
- None

MAIN2 / SEC2 : Sleep and naps

Including such activities as: Main sleep
Short naps and snoozes
Being sick, ill in bed

Notes:
- None

MAIN3 / SEC3 : Imputed sleep

Including such activities as: Imputed sleep (see Data Preparation Step 2)

Notes:
- None

MAIN4 / SEC4 : Wash, dress, care for self

Including such activities as: Personal hygiene and self-care, "dressing", "got ready to go out", "got up", "went to bed", "put on make-up", "go to toilet", "take bath or shower"

Notes:
- Include variables such as "personal activities" or "other personal activities" (or any ambiguous or "other" variable that appears in a series of personal activities variables).

MAIN5 / SEC5 : Meals at work or school

Including such activities as: Meals at work or school – if not a separate activity, may need to use the location codes for activity eating and location canteen or lunch room at school or work

Notes:

- None

MAIN6 / SEC6 : Other meals or snacks

Including such activities as:

Eating or drinking, but not eating at work or school, and not eating or drinking out in a restaurant, café, pub, or bar

Notes:

- Meals in venues where someone was not likely to have paid for the meal or to have paid more than a nominal contribution (meal at church) go into this category.
- If eating and drinking is not broken down to distinguish eating or drinking at work, eating out, and other eating, use the location information to distinguish this category from meals at work/school and from meals eaten out.

MAIN7 / SEC7 : Paid work – main job (not at home)

Including such activities as:

Paid work for the main job (or unspecified paid work) that does not take place at home

Notes:

- Any activity done during work hours, but not related to work (i.e. shopping, going to doctor/dentist) should be coded in their respective categories (i.e. shopping, receiving personal services).
- Courses/studies taken for work during work hours should be coded as MAIN / SEC 7. Work-related courses taken in free time should be coded as MAIN / SEC 17.
- Farming as the main economic activity should be coded as MAIN / SEC 7.
- Unpaid *help* to another business/farm should be coded as MAIN / SEC 33. Unpaid *work* for family business/farm should be coded as MAIN / SEC 9.
- Any unpaid work away from workplace but not at home (related to main job) or conversations about work but not during work hours should be coded as MAIN / SEC 7.
- General work-related variables to be coded as MAIN / SEC 7 (i.e. sundry work-related activities, “other” work-related activities).

MAIN8 / SEC8 : Paid work at home

Including such activities as:

Paid work for main or second job (or unspecified paid work) that takes place at home

Notes:

- Includes paid childminding at home.
- Includes running a catalogue round (ie Avon).
- Includes work brought home.

MAIN9 / SEC9 : Second or other job (not at home)

Including such activities as:

Paid work for a second, third, small hours job that does not take place at home
Busking or other performance for money

Notes:

- This is paid work or work that involves regular hours and working conditions (such as unpaid work in a family business)

MAIN10 / SEC10 : Unpaid work to generate household income

Including such activities as:

Any activity designed to contribute to household income which is neither is done for pay nor involves regular schedules or conditions that were a business not a family enterprise otherwise would be salaried income. This activity involves tasks preparing items that could be sold later to generate income, such as preparing home garden produce for sale/trade, or hobbies or crafts designed to make items to sell/trade. This is activity where return to the household has no necessary association with the time committed to the activity.

Notes:

- Includes other informal economic activity, such as a yard or car boot sale, sell items on E-bay.

MAIN11 / SEC11 : Travel as a part of paid work

Including such activities as:

Bus / taxi / train driver driving, pilot flying etc. as part of job
Travelling to a meeting or conference for work, or on the road as a sales rep or delivery driver, etc.

Notes:

- This activity covers travelling during paid time, not commuting to work

MAIN12 / SEC12 : Work breaks

Including such activities as:

Scheduled work breaks, coffee breaks at work, cigarette breaks at work

Notes:

- None

MAIN13 / SEC13 : Other time at workplace

Including such activities as:

Waiting for repair, wait for workplace to open, wait for someone else to finish at workplace

Notes:

- Time at the workplace which is not part of work time and not part of a voluntary or union activity and not coded in another activity elsewhere (not education or personal care etc)

MAIN14 / SEC14 : Look for work

Including such activities as:

Job search activities
Attend interview
Activities related to claiming unemployment benefits or welfare

Notes:

- None

MAIN15 / SEC15 : Regular schooling or education

Including such activities as:	Classes, lectures, tutorials
Notes:	▪ Includes lectures watched on-line, on-line or teleconferenced tutorials, watching lecture that is part of a formal course on television

MAIN16 / SEC16 : Homework

Including such activities as:	Homework, including at the library for study, as well as preparing for an exam or other education project
Notes:	▪ None

MAIN17 / SEC17 : Leisure / other education or training

Including such activities as:	Leisure courses Interview or audition for a place on a course Course for general interest but not for a qualification (take singing or language lessons) Take short course for employment related qualification which is not a part of a job (ie take course on own time to improve chances for future employment or change of employment)
Notes:	▪ Includes any activity done for a formal course or qualification not during class or tutorial time or not at school, such as shopping form items for a course

MAIN18 / SEC18 : Food preparation, cooking

Including such activities as:	Any preparation of food or drink, including making jams / preserves, canning or pickling food for long-term preservation Home brewing, wine making
Notes:	▪ Not done for pay

MAIN19 / SEC19 : Set table / wash or put away dishes

Including such activities as:	Set table, lay out dishes Clean up from meal, wash or put away dishes Load or unload dishwasher
Notes:	▪ Not done for pay

MAIN20 / SEC20 : Cleaning

Including such activities as:	Straightening, tidying, routine cleaning Clean car Routine cleaning of grounds (chemicals in pool, rake leaves,

sweep patio or pavement) that is not gardening

Notes:

- Not done for pay
- Does not include activities related to repairs or redecoration, cleaning brushes after repainting a room or repairing the engine of a car should be coded in MAIN / SEC 22
- Does not include cleaning related to food preparation or cleaning and repair of clothing and textiles (MAIN / SEC 21)

MAIN21 / SEC21 : Laundry, Ironing, Clothing Repair

Including such activities as:

Laundry, hang clothes on the line
Put clothes away
Repair clothes or other textiles

Notes:

- Not done for pay
- Does not include making clothes or textiles for gifts or as a hobby (MAIN / SEC 54)
- Does not include making clothes or gifts for sale (MAIN / SEC 10)

MAIN22 / SEC22 : Home / vehicle maintenance / improvement

Including such activities as:

Painting, decorating, landscaping
Repair car or furniture
Tend domestic animals / livestock, - code care of pets, disability assistance animals, horses, or working dogs in MAIN / SEC 27)
Collect fuel or water
Forage for building materials (thatch, stone or wood etc)

Notes:

- Not done for pay
- If done as a favour to someone else on someone else's property, code as MAIN / SEC 33

MAIN23 / SEC23 : Other domestic work

Including such activities as:

Household management, accounting, pay bills
Paperwork / household computing

Notes:

- Not done for pay
- Include any general unspecified housework here

MAIN24 / SEC24 : Purchase goods

Including such activities as:

Grocery / routine shopping
Purchase household goods, personal items (clothes, jewellery, mobile phone, ipod etc.)
Purchase house, car, other high value items
Purchase access to leisure (buy tickets, buy gym / zoo / museum etc. membership)
Window shopping

Notes:

- Include goods bought in stores, over the internet, while browsing car boot or yard sales
- Include research to inform a purchase

MAIN25 / SEC25 : Consume personal care services

Including such activities as:

Hair dresser, barber, beautician, manicure
Medical / dental care, rehabilitation, physiotherapy
Psychological care, counselling
Alternative therapy, massage
Outing to spa

Notes:

- Include general personal services, and services received at home
- Include services provided to the diarist by charities, voluntary organisations, as informal help from another household, or as part of government services
- Yoga, Tai Chi and related exercise should go into MAIN / SEC 42

MAIN26 / SEC26 : Consume other services

Including such activities as:

Pay for or arrange personal (ie groomer) or medical services for a pet, domestic animal, or another household member
Legal, accounting, banking, postal services
Dry cleaning, laundry or ironing service, arrange / pay for / manage domestic help
Arrange / pay for child care, pet care, adult care

Notes:

- Include any services for which the diarist pays or someone pays for or donates on behalf of the diarist
- Include services to the household provided to the diarist's household by charities, voluntary organisations, as informal help from another household, or as part of government services

MAIN27 / SEC27 : Pet care (other than walk dog)

Including such activities as:

Look after, groom, feed, provide medical care to a pet
Train, teach, work with pet, working dog, horse, assistance animal
General pet care

Notes:

- Walking dogs (or taking other pets for a walk) go in MAIN / SEC 47
- General pet care with the mode of transport "walking" should go into MAIN / SEC 47
- Riding horses goes into MAIN / SEC 42

MAIN28 / SEC28 : Physical or medical care of child

Including such activities as:

Feeding young child, breastfeeding
Bathing, changing nappy (diaper), toilet training

Helping child dress, learn to walk
Providing medical care to child

Notes:

- Include general or unspecified child care here
- Unpaid child care only, if paid to provide this care, code in MAIN / SEC 8 or 9
- Include child care done as help to a family member, friend or neighbour

MAIN29 / SEC29 : Teach child, help with homework

Including such activities as:

Help with homework
Show child how to do something, teach child

Notes:

- Unpaid child care only, if paid to provide this care, code in MAIN / SEC 8 or 9
- Include child care done as help to a family member, friend or neighbour

MAIN30 / SEC30 : Read to, talk to, play with child

Including such activities as:

Read to child or read with child
Conversation with child
Play (inside or outside) with child

Notes:

- Unpaid child care only, if paid to provide this care, code in MAIN / SEC 8 or 9
- Include child care done as help to a family member, friend or neighbour

MAIN31 / SEC31 : Supervise, accompany, other child care

Including such activities as:

Keep an eye on, accompany child
Parent / teacher meetings, filling in permission forms for child to attend event
Other specified child care

Notes:

- Unpaid child care only, if paid to provide this care, code in MAIN / SEC 8 or 9
- Include child care done as help to a family member, friend or neighbour

MAIN32 / SEC32 : Adult care

Including such activities as:

Help adult get up/go to bed, get dressed, bathe
Supervise, keep an eye on adults not able to look after themselves
Accompany adults (take shopping when they cannot do this without assistance, help them get around at an event)
Help with taking medication, help with special meals
Help with filling out forms, correspondence, making calls

Notes:

- Include care to a child with a disability which is related to the disability and not an element of standard child care here
- Unpaid adult care only, if paid to provide this care, code in MAIN / SEC 8 or 9
- Include adult care done as help to a family member, friend or neighbour, whether or not the care recipient lives in the same household as the diarist

MAIN33 / SEC33 : Voluntary work, civic organisation activity

Including such activities as:

Vote, attend public or community meeting, deal with police
Formal voluntary work for an organisation
Informal help to community or other household
Unpaid work for union, ideological / religious / hobby or interest group
Attend demonstration
Scouts / guides / sea cadets, other civic activity for young people (includes adults who act as leaders)
Fill in time use diary, participate in other social science study

Notes:

- Include activities related to meetings, promotions and fundraising for an agency that is not an employer
- Voluntary care of children or adults should be coded in MAIN / SEC 28 to 32

MAIN34 / SEC34 : Worship and religious activity

Including such activities as:

Attend formal services at a place of worship
Pray alone or with others, meditate, spiritual activity
Read sacred text, religious study

Notes:

- Any fundraising, meetings, collective efforts to repair, restore or improve part of a sacred site should be coded in MAIN / SEC 33
- Picnics or informal meals at a religious establishment go into MAIN / SEC 6; a wedding reception and the like go into MAIN / SEC 40
- Include yoga here if recorded as for religious purposes, but if yoga not explicitly recorded as a religious event, code in MAIN / SEC 42

MAIN35 / SEC35 : General out-of-home leisure

Including such activities as:

Unspecified or other specified leisure away from home

Notes:

- None

MAIN36 / SEC36 : Attend sporting event

Including such activities as:

Attend sporting match or games
Watch sport in social context (with friends, at sports bar)

Notes:
- None

MAIN37 / SEC37 : Cinema, theatre, opera, concert

Including such activities as:
Any specified public performance

Notes:
- None

MAIN38 / SEC38 : Other public event

Including such activities as:
Museum, art exhibition, watch public demonstration or parade
Visit historic site, garden, zoo, take bus or walking tour
Fair, exhibits and amusement rides at a rodeo or circus (also unspecified rodeo or circus)
Go to library (not for study)

Notes:
- If watching the competition at a rodeo, code in MAIN / SEC 36
- If watching the main performance of a circus, code as MAIN / SEC 37

MAIN39 / SEC39 : Restaurant, café, bar, pub

Including such activities as:
Go out for meal or drink

Notes:
- If working at restaurant, pub, café, bar, code in MAIN / SEC 7 or 9
- If special event like party or wedding reception, code in MAIN / SEC 40

MAIN40 / SEC40 : Party, reception, social event, gambling

Including such activities as:
Event for large number of people at home
Event for multiple people away from diarist's or other's home

Notes:
- Events for one or a few people at the diarists or another's home go into MAIN / SEC 48
- Include go out dancing

MAIN41 / SEC41 : Imputed time away from home

Including such activities as:
No activity recorded, but location is not at home

Notes:
- None

MAIN42 / SEC42 : General sport or exercise

Including such activities as:
Any specified sport or exercise (leisure physical activity)
Apart from walking, cycling, gardening, hunting & fishing

Notes:

- If walking or cycling grouped with other exercise, code here

MAIN43 / SEC43 : Walking (not walk dogs)

Including such activities as:

Activity recorded as walking (for pleasure or as transport)
Hiking, fell walking
No activity recorded but more of transport "walking" or "on foot" recorded

Notes:

- If main activity is transport and the mode of transport is walking and no secondary activity, code the secondary activity as walking

MAIN44 / SEC44 : Cycling

Including such activities as:

Activity recorded as cycling (for pleasure or as transport)
No activity recorded but more of transport "cycling" recorded

Notes:

- If main activity is transport and the mode of transport is cycling and no secondary activity, code the secondary activity as cycling

MAIN45 / SEC45 : Other out-of-doors recreation

Including such activities as:

Camping, at the beach, caravanning
Day trip countryside

Notes:

- None

MAIN46 / SEC46 : Gardening / forage, hunt/fish

Including such activities as:

Gardening (ornamental or to produce flowers or food for the home)
Pick mushrooms, gather pine cones, truffles, wild flowers etc.
Hunting or fishing

Notes:

- Gardening or hunting to produce good to sell later should go into MAIN / SEC 10
- Not as part of a paid job

MAIN47 / SEC47 : Walk dogs (or other animals)

Including such activities as:

Walk dog
General pet care, mode of transport reported as walking

Notes:

- None

MAIN48 / SEC48 : Receive or visit friends

Including such activities as:

Social occasion with people from another household in the diarist's or another's home
General visit friends, have guests
Meal, alcohol, tobacco with guests at own or another's home

Notes:
- None

MAIN49 / SEC49 : Conversation

Including such activities as:
Talk with other household members
Talk with people from other households outside own or other's home
Phone call

Notes:
- Includes calls on mobile phones, Skype

MAIN50 / SEC50 : Other in-home social, games

Including such activities as:
Social activities with household members or others
Games of skill (including solitaire)

Notes:
- None

MAIN51 / SEC51 : General indoor leisure

Including such activities as:
Unspecified or general indoor leisure

Notes:
- None

MAIN52 / SEC52 : Artistic or musical activity

Including such activities as:
Paint or other art, compose music, play an instrument

Notes:
- Not for pay or to produce goods for sale

MAIN53 / SEC53 : Written correspondence

Including such activities as:
Fill in forms, write poetry, prose, scripts, diaries, letters (not on the computer)

Notes:
- Do not include paid activity, care, study or household management activity

MAIN54 / SEC54 : Knit, crafts, hobbies

Including such activities as:
Knit, crafts, hobbies

Notes:
- Meetings or events with groups with similar interests go into MAIN / SEC 33
- If producing goods for sale, put in MAIN / SEC 10

MAIN55 / SEC55 : Relax, think do nothing

Including such activities as:	Just relax, think Do nothing
Notes:	▪ None

MAIN56 / SEC56 : Read

Including such activities as:	Read (books, papers, magazines, or related materials)
Notes:	▪ Do not include reading as a part of paid work or education and study

MAIN57 / SEC57 : Listen to music, audio book

Including such activities as:	Listen to records, tapes, CDs, ipod Listen to audio books or other recorded material
Notes:	▪ Do not include listening as a part of paid work or education and study

MAIN58 / SEC58 : Listen radio

Including such activities as:	Listen to radio
Notes:	▪ Include listening to radio over internet or mobile phone

MAIN59 / SEC59 : Watch TV

Including such activities as:	Watch TV, video, DVD, video on demand
Notes:	▪ Include watching programmes on-line ▪ Do not include watching lectures or other education activities on-line or on TV

MAIN60 / SEC60 : Play computer games

Including such activities as:	Play alone as well as play in groups or on-line
Notes:	▪ None

MAIN61 / SEC61 : Send e-mail, surf internet, computing

Including such activities as:	Includes on-line chat room

Notes:
- Do not include computer use related to paid work, education, housework, care, or voluntary activity

MAIN62 / SEC62 : No activity but mode of recorded travel

Including such activities as: No activity recorded, but a mode of transport that is neither walking nor cycling

Notes:
- None

MAIN63 / SEC63 : Travel to or from work

Including such activities as: Commuting, including travel to or from job interview or job search

Notes:
- None

MAIN64 / SEC64 : Education-related travel

Including such activities as: Travel to or from school or location (such as library) for study

Notes:
- None

MAIN65 / SEC65 : Travel for voluntary, civic or religious activity

Including such activities as: Travel to or from location for voluntary, civic or religious activity

Notes:
- None

MAIN66 / SEC66 : Child or adult care travel

Including such activities as: Take child to school/day care / pick up from school / day care
Take child or adult shopping, to event or appointment

Notes:
- None

MAIN67 / SEC67 : Travel for shopping, personal or household care

Including such activities as: Travel to or from shops or services
Travel to run errands

Notes:
- None

MAIN68 / SEC68 : Travel for other purposes

Including such activities as: Travel to or from leisure activities
Drive, ride train for fun, go for drive

Notes:
- Include travel with no specified purpose here

MAIN69 / SEC69 : No recorded activity

Including such activities as:	No entry, also incomplete, undecipherable or nonsense entry
Notes:	▪ No mode of transport recorded and location either at home or at unknown location

3.3 Context and episode variables

From Release 1 of versions 5.8 and 6.0 of the MTUS, we now include context information as well as the main activity. In the 5.8 files, we simply sum total main activity time as well as total time (minutes in the 24-hour period) spent with the spouse or partner (SPPART). For surveys where who else is present or time with the spouse or partner is not available, we set this variable to -9. If the diarist is not married and does not have a cohabiting partner, we code this variable as -7. Otherwise, the variable is coded as the sum of minutes reported as spent with the spouse or partner.

Use of other context variables is more complex, hence we include these variables only in the episode-level file. We include sex and age, as well as the diary variables and identifier variables in Version 6.0. Users should treat this file as a database from which to extract variables to then match back into the Version 5.8 file for analysis. **This section now considers the additional variables which appear only in the Version 6 file.**

CDAY: Calendar day diary kept

The sole diary variable not in the other versions is **CDAY**. This variable takes a value between 1 and 31 where the information has been released, or -9 if the information is not available. This variable appears here partly to allow matching of additional information relevant to specific days (weather conditions, sunrise and sunset on the diary day, whether the diary took place before or after a major event), and partly to allow testing of potential minor variations in activities across months (for instance closer or further away from when most people get paid).

TIME: Duration of activity in minutes

We calculate this variable by subtracting START from END. Many surveys include a variable for the duration of the episode in minutes, though some files include errors in the variable, and in some cases, described in more detail in

relation to the activity variables below, the CTUR team modified the definition of an episode. Consequently, while people converting original surveys into MTUS format should double check their calculation for time against the duration variable in the original file and carefully check any inconsistencies, the variable time should be the variable calculated by the converter of the survey.

CLOCKST: Start time on 24-hour clock

This variable represents the time on the 24-hour clock when the episode started. We report this variable as a 4-digit number. The digit(s) prior to the decimal represent the hour; the two digits following the decimal represent the minute.

6.35	(thirty five minute past 6AM)
18.05	(five minutes past 6PM)

We represent midnight as 0.00.

START: Start minute

END: End minute

There are two ways to represent time in the diary episode file: time as reported on the 24-hour clock, and time in terms of the number of minutes which have elapsed since the start of the diary observation period. A 24-hour file contains 1440 minutes - except on those days where an adjustment of an extra minute is added to the day to adjust for minor variations in the actual rotation speed of the Earth around the sun (though users should note that very few diaries are collected on such days, partly as few of such days appear in the sampled periods and partly as few participants have been willing to keep a time diary on New Year's Eve when such adjustments are added.) The addition or absence of the additional 60 seconds makes little difference to population behaviour patterns, so this dataset makes no attempt to account for these adjustments.

All the surveys included in the MTUS cover an observation period of 24 hours (1440 minutes), and all surveys begin at a point on the 24-hour clock where the majority of the observed population was asleep. There is considerable variability about the start-time on the 24-hour clock, both in the sense that the start time of the diaries varies from midnight to 6:00, and that the time when the diarists in different surveys (as well as in the same survey in the case of countries that span multiple time zones) start their diary in relation to Greenwich Mean Time. As people lead their lives in 24-hour cycles, we harmonise the concept of time in Version 6 by reporting the start and end minutes of the episode in the 1440 minute observation period. The first episode in all diaries has a start value of 1, and the last episode in all diaries has an end value of 1440.

EPNUM: Episode number

This variable is the identifier of the episode. The first episode has a value of 1.
Episode(n+1) = epnum(n)+1.

We generate the episode number after cleaning and harmonising the files. Consequently, the number of episodes in the MTUS may differ from the number of episodes in the original data.

MAIN: Main activity (69 category list)

AV: Main activity (41 category list)

These variables mirror the MAIN1 to MAIN69 and AV1 to AV41 variables in Version 5.8. MAIN covers the main activity codes in the 69 category list of categories. AV covers the main activity codes in the original 41 category list of categories. A code of “33” in MAIN means the diarist performed voluntary work or a civic activity in that time slot (and this time would be summed in MAIN33 for the diary day). The labels of the values in the AV and MAIN activity lists appear in the previous two sections.

In cases where only one activity has been recorded, but we can identify missing travel records (the diarist starts in one place and ends up in another place with no recorded travel), we code the secondary activity as imputed travel. For cases where we identify missing eating or drinking (the diarist records working with food (food preparation or set/clear table) but never reports eating or drinking, or the diarist records social activity at an event where other household members classify the activity as eating, if there is no secondary eating, we add eating as a secondary activity.

As already noted in the first section on the preparation of the data on page 2, CTUR has a number of conventions for filling in other instances where the diarist fills in some elements of the diary but not others yet has provided sufficient information to reveal the sequence of her or his activities in the gap. These cases of filling in information may result in additional episodes appearing in MTUS versions of the data that were not apparent in the original release of the data.

Some surveys collected activities in half-hour time slots. Such long observation periods will include multiple episodes on occasion. In particular, short travel episodes can be left out of the half hour slots. In the case of missing short travel in these 30-minute time slot surveys, as well as in cases where the diarist coded

one activity as the main activity and travel as the secondary activity, we code 20 minutes of the 30 minute slot as the main activity, and 10 minutes as travel. The placement of the 10 minutes of travel depends on the sequence in which the time slot occurs. If a diarist has been working at the office for 7 hours, then has a time slot with missing or secondary travel where the main activity is recorded as paid work, then in the next episode is doing activities at home, we code the first 20 minutes of the episode that includes travel and the last 10 minutes as secondary travel. In contrast, if after seven hours of paid work, the diarist then records an episode of eating at a restaurant with secondary travel, and the next time slot is a continuation of eating out, then we code the first ten minutes of the time slot with the short travel episode imbedded as travel and the second 20 minutes as eating out in the restaurant.

This procedure increases the number of episodes in the MTUS version of the data as compared to the original data. For this reason, the episode number and start and stop minute of episodes need to be calculated after the activity and ancillary variables have been constructed.

SEC: Secondary activity (69 category list)

Simultaneous activities do not sum to 1440, nor should the user attempt to do so. While people may undertake more than one activity at the same time (such as driving while listening to the radio), the surveys harmonised here have highly variant instructions about the degree of detail respondents should try to capture in the recording of secondary activities. Also, the degree of commitment implied by different combinations of activities is not the same. Consider the difference between watching the waves while sunbathing on a beach, watching the children while making dinner, and looking after an adult with dementia while watching television. The first activity combines forms of leisure, the second combines care and domestic work and the third combines care and leisure. In many research contexts, the first of these combinations might be treated as a single activity. The same is not the case for the second two examples.

Researchers using time use data should consider the nature of their analytic needs in deciding whether and how to include secondary activities. In some cases, some combinations of simultaneous activities will count as new activities added to the instances of singular or focussed activity, and the total time spent in the day across this expanded and customised list of activities should total 1440 minutes. Which secondary activity combinations are relevant will vary by the focus of the research. We code the secondary activities using the 69 category list also used to code main activities.

In some diary surveys, diarists were able to report more than one secondary activity. Where this occurs (UK 1987), we split the episode into sub-episodes that total to the same length of the original episode, one new episode for each reported secondary activity. In these cases, we coded the main activity and context information as applying across all elements of the split episode, except where there is a clear transition to travel. Users can identify these cases as these sub episodes have the same value for the variable clockst, while all unsplit episodes have different values for clockst (the start time of the episode on the clock).

INOUT: Inside or outside

ELOC: Location

Table 2.4: Location codes

Location variables	Description
INOUT = -8	location unknown
INOUT = 1	Inside
INOUT = 2	outside
INOUT = 3	travelling
ELOC = -8	location unknown
ELOC = 1	at own home
ELOC = 2	at another's home
ELOC = 3	at workplace
ELOC = 4	at school
ELOC = 5	at services or shops
ELOC = 6	at restaurant, café, bar, pub
ELOC = 7	at place of worship
ELOC = 8	travelling
ELOC = 9	other locations

Table 2.4 details the location codes. We draw these location codes both from separate location variables and from imbedded information in the original activity codes. Users should note that the degree of specification about whether an activity in inside or outside is highly variable by survey, and caution should be used with this variable for cross-country and cross-time analysis. During this process, we have checked any inconsistencies between the original location codes and the imbedded activity codes, and we comment on such cases in the conversion programmes for each survey. Where some location codes we aim to identify are collapsed into a general "other" code, where possible we use the activity codes to break down "other" locations. As examples, if there is no code for school, but the activity is formal schooling and takes place away from home,

we code the location as school. Similarly, if the activity is attend religious service and the location is other not at home, we code this activity as at a place of worship. If the diarist was travelling (including on foot and by bicycle), ELOC has the value of 8.

ICT: Used information communication technology during activity

We include a marker of whether the diarist used one or more ICTs during the activity. In some recent surveys, the diary included a column marking whether the diarist used ICTs. If such a column is available, then we use this column to create this 0/1 marker variable. In many cases, however, we can only identify this information from the activity code list. The HETUS surveys, for example, separately coded playing social games from playing social computer games, and doing household accounts and banking on the computer/over the internet from doing household accounts and banking on paper. In cases where the identification of ICT use is available in more than one format (a dedicated column as well as in activity codes), we use all forms of available information to create this marker. As is the case with the mode of transport, where the diarist may not write down the word “commute” in the activity column if they have written “drove car to work” in the location column, some diarists similarly might write “internet banking” as their activity but not bother to tick the used a computer box. Nevertheless, such an identification of the activity does give use sufficient information to know that the diarist used ICTs during this episode.

ICT values	Description
ICT = 0	no/not known if computer, mobile, web used
ICT = 1	computer, mobile phone, web used

MTRAV: Mode of transport

Most surveys that collect mode of transport gather this information in a separate column, but in some cases the mode of transport is recorded in the activity codes. Again, we use any available information in the data to code MTRAV. For those cases where we identify unrecorded travel, we record the mode of transport as travel by unspecified means. Where the original survey records an activity such as walking for pleasure, jogging or hiking and no mode of transport is recorded, we code MTRAV as walk / on foot. Where the activity is coded as a sport that also involves physical active travel (cycling, riding a horse etc.) and no mode of transport is recorded, we code MTRAV cycle or other active transport.

MTRAV values	Description
MTRAV = -8	activity missing

MTRAV = -7	not travelling
MTRAV = 1	travel in car/truck, on motorcycle (inc. taxi)
MTRAV = 2	travel on public transport
MTRAV = 3	walk / on foot
MTRAV = 4	cycle, other physically active transport
MTRAV = 5	travel by other/unspecified transport

ALONE: Alone or with strangers

CHILD: Child aged <18 present

SPPART: Spouse or partner present

OAD: Other adult present

Collection of the who else is present data varies more across the surveys than other information harmonised into the MTUS. Creating a useful single "who else was present" variable for a majority of surveys is almost impossible. Instead, we opted to make four flags. As with the other ancillary information, these flag variables are based on a combination of who else is present column information as well as activity codes (and any other relevant information in the diary). Some diary surveys have code frames that mark the presence of others in certain activities. A code for "physical care of children" implies that at least one child is present to receive this care. "Watch TV alone" similarly would indicate that other people are not present.

The concept "alone" does not necessarily mean that no other person was within sight of the diarist. If given the option of "alone" in a who else is present matrix, some diarists will select "alone" when on public transport at rush hour, while eating out in a restaurant or shopping for essential goods. In such cases, the diarist most likely is around other people, and the "alone" designation means that the diarist is not engaging with these other people, though the diarist may well moderate her or his behaviour on account of the presence of these other people. The "alone" flag marks cases where the diarist had an option on the survey instrument to indicate that he or she was alone and selected this option.

Most surveys do not ask diarists to count the exact number of other people present. The American Time Use Study includes the most detailed code frame for the presence of others, and even this list allows an unspecified number of certain categories of people to be covered by a single value. Users need to be aware that the presence of children or other adults will not necessarily allow them

to identify which children or other adults were present, only that children or other adults were present.

In the case of the presence of children, the MTUS does not distinguish household children from non-household children, or the diarists' own children from other children. Some original surveys do make such distinctions. In the MTUS case, the flag that a child was present simply means at least one person aged <18 was with the diarist.

Where the diarist is in a couple and the "who else is present" column allows us to distinguish if the spouse or partner was present, we mark this in the spouse column. Some surveys do not distinguish the presence of the spouse from the presence of other household adults. In these cases, we code the presence of the spouse for those cases where we can make this determination. In households comprised only of a couple or of a couple and children, the presence of another household adult necessarily means the presence of the spouse. We comment on this matter in the individual survey documentation and readme files. For such surveys, the presence of the spouse cannot be identified where the household includes more than one couple or a couple and other adults.

The OAD variable covers the presence of any other adult – this includes the presence of the spouse/partner. SPPART and OAD are not mutually exclusive as this allows us to make a maximally relevant code for the surveys harmonised into the MTUS. Users can make more detailed distinctions with some original datasets, though not with others.

Who else present variables	Description
ALONE = 0	others reported present
ALONE = 1	no others reported present
CHILD = 0	child not reported present
CHILD = 1	with child
SPPART = 0	spouse/partner not reported present
SPPART = 1	with spouse/partner
OAD = 0	other adults not reported present
OAD = 1	with other adults

3.4 Cross-survey comparability

The extent to which it was possible to create the harmonised codes is partly a function of the number of codes originally used in each survey. Table 2.5 provides further information on these codes.

Table 2.5: Information on the codes of activities used in each survey (prior to harmonization)

Country	Year	Number of codes	Range
Australia	1974	94	0 to 99
	1987	57	010 to 980
	1992	281	000 to 999
	1997	215	0 to 999
	2006	224	1 to 999
Austria	1992	202	100 to 900
Canada	1971	100	00 to 99
	1981	272	001 to 990
	1986	99	01 to 99
	1992	167	001 to 990
	1998	178	001 to 999
Denmark	1964	22	1 to 41
	1987	39	1 to 39
	2001		
Finland	1979	100	1 to 99
	1987	100	1 to 100
	2000	265	0 to 9990
France	1985	200	1 to 199
	1999	145	111 to 911
Germany	1992	231	11 to 999
	2001-02	271	000 to 999
Israel	1991-92	90	1 to 90
Italy	1989	150	1001 to 6009
	2002-03	176	001 to 999
Netherlands	1975-95*	354	000 to 999
	2000-05	274	000 to 999
Norway	1971	97	1 to 99
	1981	97	1 to 99
	1990	123	700 to 1310
	2000	265	0 to 9990
Slovenia	2000	265	0 to 9990
South Africa	2000	100	010 to 990
Spain	1992-93	192	100 to 999

Country	Year	Number of codes	Range
	1997-98 Basque	192	100 to 999
	2002-03 Basque	229	100 to 999
	2002-03 national	198	000 to 9900
	2008-09 Basque	229	100 to 999
Sweden	1991	108	110 to 6121
	2000	150	0 to 999
UK	1961	106	001 to 193
	1974-75	73	1 to 99
	1983-84	185	101 to 9999
	1987	193	101 to 9999
	1995	31	1 to 31
	2000-01	268	0 to 9990
	2005	41	1 to 99
USA	1965	100	00 to 99
	1975	175	000 to 999
	1985	88	0 to 99
	1992-94	91	1 to 99
	1994-95	93	1 to 99
	1998	94	1 to 99
	2003-2011	91/564	1 to 98/3 tiers (some changes over time, over 400 codes

Notes:

* Based on the merged 1975 to 1995 file provided by the Netherlands. This merged file contains identical codes across the 5 surveys. The codes for each individual survey may have differed prior to this harmonization.

CHAPTER 4: DIARY, DEMOGRAPHIC AND SOCIO-ECONOMIC VARIABLES

The MTUS contains identifiers (equal to the original survey identifiers wherever possible), as well as harmonised diary, demographic and socio-economic variables. Most original datasets contain a larger number of such variables. In the context of MTUS, we prioritise variables available in a large majority datasets. This section lists the categories of the harmonised variables. Details of the specific conversions appear in the survey-specific (readme) documents.

The harmonised variables cluster into the following five sets:

- Diary, survey and case information
- Household-level variables
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4.1 Diary, survey and case information

- COUNTRYA
- COUNTRY
- SURVEY
- SWAVE
- MSAMP
- HLDID
- PERSID
- ID
- PARNTID1
- PARNTID2
- PARTID
- DAY
- MONTH
- YEAR
- DIARY
- BADCASE

COUNTRYA: Country or region of study

This variable records the country where the survey was carried out.

Value	Label	Value	Label
1	Argentina	**20**	Latvia
2	Austria	**21**	Lithuania
3	Australia	**22**	Netherlands
4	Belgium	**23**	New Zealand
5	Brazil	**24**	Norway
6	Bulgaria	**25**	Peru
7	Canada	**26**	Poland
8	China	**27**	Portugal

9	Denmark	**28**	Republic of Korea
10	Estonia	**29**	Romania
11	Finland	**30**	Russia
12	France	**31**	Slovak Republic/Czechoslovakia
13	Germany	**32**	Slovenia/Yugoslavia
14	Hungary	**33**	South Africa
15	India	**34**	Spain
16	Ireland	**35**	Sweden
17	Israel	**36**	Turkey
18	Italy	**37**	United Kingdom
19	Japan	**38**	USA

Two country issues deserve note. The 1965 Szalai survey collected separated studies in what were then East and West Germany. These two surveys are merged in the MTUS, though they are marked separately with the MSAMP variable. Yugoslavia participated in the Szalai study. One element of what was then Yugoslavia, Slovenia, has conducted more recent time use studies included in the MTUS.

COUNTRY: Country where study conducted

This is the old variable that records the country where the survey was carried out. In this old variable, countries were given the next number as they were added to the MTUS. This variable remains solely for those users who may still have code for analysis of older versions of the MTUS.

Value	Label	Value	Label
1	Canada	**18**	Italy
2	Denmark	**19**	Australia
3	France	**20**	Israel
4	Netherlands	**21**	Sweden
5	Norway	**22**	Germany
6	UK	**23**	Austria
7	USA	**24**	South Africa
8	Hungary	**25**	Spain
9	Japan	**26**	Estonia
10	Poland	**27**	Brazil
11	Belgium	**28**	Ireland
12	Bulgaria	**29**	Korea (South)
13	Czechoslovakia	**30**	Mexico
14	India	**31**	New Zealand
15	Peru	**32**	Portugal
16	Russia	**33**	Romania
17	Finland	**34**	Slovenia

SURVEY: Year the survey began

This variable records the 4-digit year in which data collection began.
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SWAVE: Longitudinal study wave marker

This variable is relevant only for surveys that are longitudinal.

Value	Label
0	Not longitudinal
1	Wave 1
2	Wave 2
3	Wave 3
4	Wave 4

Note that in the case of Denmark 1987/2001 (with multiple samples), the code “1” in 1987 and “2” in 2001 indicates a longitudinal case, while the code ‘0’ indicates that that it is not a longitudinal case.

MSAMP: Multiple samples using the same diary instrument

Value	Label
0	One sample
1	Szalai USA 1965 sample
2	National USA 1965 sample
3	USA 1998-99
4	USA 2000-01
5	Slovenia in Szalai Yugoslavia
6	Serbia in Szalai Yugoslavia
7	UK 1987 - main sample, drawn from SCELI survey
8	UK 1987 - spouses and additional household members
9	East Germany
10	West Germany
11	Basque Region in Spain

HLDID: Household identifier

This variable uniquely identifies households for those studies where more than one household member completed a diary. For surveys in which only one person per household completed a diary and no household identifier is included in the original data, HLDID=0. For surveys in which only one person per household completed a diary but a household identifier is included, HLDID takes the original value for the corresponding variable. If the household identifier should be combined with a higher level identifier, such as sampling region, then the value of HLDID should combine the larger group identifier and the household identifier so that each HLDID uniquely identifies one household.

In some limited cases, the original survey data does not include a household identifier even though the study collected a diary from more than one person in the household. In these cases, we construct a household identifier using a combination of other variables that enable us to make a unique identification (full details of these cases are explained in the survey conversion files where this was needed).

If the household identifier maps to other data but is not relevant to the time use survey or if the household identifier needs to be computed or adjusted in any way, an explanatory note should be included in the readme documentation file.

The household identifier should enable users to match MTUS data back to the original survey.

PERSID: Person/diarist identifier

This variable uniquely identifies diarists within sampled households. For surveys with only one diarist per household, this identifier should uniquely identify each diarist. Use the original person-level identifier to allow users to match back to the original data. If no identifier was included with the data, construct an identifier from a combination of person and household-level variables that allows the unique identification of diarists.

ID: Diary identifier

This variable uniquely identifies each diary kept by each diarist. Normally, if the survey collected three diaries per participant, ID would have values between 1 and 3. Keep the original diary identifier if there is one to allow users to match MTUS data back to the original data. If the survey collected only one diary per diarist, ID should = PERSID.

PARNTID1: Person identifier of 1st parent of diarist

This variable records the person-level identifier of the first parent of the diarist if that parent also completed a diary. In cases where only one person per household completed a diary, this variable is coded as -9. If multiple people completed diaries in the household and the diarist does not live with a parent, this variable takes a value of -7. If the diarist lives with a parent and this parent should have but did not complete a diary or cannot be identified, this variable takes a value of -8. If both parents are in the same household and completed diaries, this variable takes the value of the parent with the lower personal identifier.

As the variable CPHOME marks unmarried children living with parents, cases of married people living with their parents can be identified by PARNTID1=-8 or >-7.

PARNTID2: Person identifier of 2nd parent of diarist

This variable records the person-level identifier of the second parent of the diarist if the parent also completed a diary. In cases where only one person per household completed a diary, this variable is coded as -9. If multiple people completed diaries in the household and the diarist does not live with a parent or only lives with one parent, this variable takes a value of -7. If the diarist lives with

two parents and both parents should have but did not complete a diary or cannot be identified, this variable takes a value of -8. If both parents are in the same household and completed diaries, this variable takes the value of the parent with the higher personal identifier.

PARTID: Person identifier of spouse or partner

This variable records the person-level identifier or the spouse or partner of the diarist if the spouse or partner also completed a diary. In cases where only one person per household completed a diary, this variable is coded as -9. If multiple people completed diaries in the household and the diarist does not have a spouse or partner, this variable takes a value of -7. If the diarist has a partner who should have but did not complete a diary or who cannot be identified, this variable takes a value of -8.

DAY: Day of week diary kept

This variable records the day of the week when the diary was kept. Note that some older surveys only included all week averages or distinguished Saturdays and Sundays from week days, but did not distinguish week days.

Value	Label
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday
8	Whole week average
9	Weekday

MONTH: Month diary kept

This variable records the month when the diary was kept. Some surveys only record the quarter or season when the survey was carried out. In such cases, we assumed that the survey was conducted during the first month of the quarter even though the data collection was actually spread throughout the quarter. Such cases are documented in the relevant README documents.

Value	Label
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

YEAR: Year diary kept

This variable records the year when the diary was kept.

DIARY: Diary order

When surveys collected more than one diary per person, this variable records order in which diaries were completed. For surveys that collected only one diary per participant, this variable takes the value 1.

Value	Label
1	First diary day
2	Second diary day
3	Third diary day
4	Fourth diary day
5	Fifth diary day
6	Sixth diary day
7	Seventh diary day
8	Weekly average

BADCASE: Marker of low-quality cases

This variable distinguishes quality diaries from various categories of low-quality diaries. We define quality diaries as those which:

(a) have valid values for day of the week the diary was kept as well as a significant proportion of basic background variables about the diarist, including age and sex;
(b) have no more than 90 minutes missing time per 24-hour diary (calculated after diary processing, filling in gaps in main activity with information recorded in other sections of the diary;
(c) have at least 7 episodes per 24 hours (defined from the original sequence data as a change in main activity, secondary activity or location);
(d) have at least 3 of the 4 basic activities described in Section 5 above which most people undertake at least once per day (the exception is for people who recorded care of adults, children or pets on their diary day – diaries of people who performed care are counted as good diaries as long as the basic diary and respondent information is present, sufficient time is accounted and enough episodes are reported). The four basic activities include: Sleep and rest; eating and drinking; self care; and travel or exercise.

Value	Label
0	Quality diary
1	Missing age or sex of diarist only
2	Missing day of week diary completed only
3	Missing 91+ minutes only
4	Fewer than 7 episodes only
5	Missing 2-4 of four basic activities
6	Missing diarist's age or sex and day of the week
7	Missing diarist's age or sex and 91+ minutes
8	Missing diarist's age or sex and <7 episodes
9	Missing diarist's age or sex and 2+ basic activities
10	Missing day of week and 91+ minutes
11	Missing day of week and <7 episodes
12	Missing day of week and 2+ basic activities
13	Missing 91+ minutes and <7 episodes
14	Missing 91+ minutes and 2+ basic activities
15	<7 episodes and missing 2+ basic activities
16	Missing age/sex, day of week, & 91+ minutes
17	Missing age/sex, day of week & <7 episodes
18	Missing age/sex, day of week, & 2+ basic acts
19	Missing age/sex, 91+ minutes & <7 episodes
20	Missing age/sex & 91+ minutes and 2+ basic acts
21	Missing age/sex & 2+ basic acts, <7 episodes
22	Missing day of week, 91+ minutes & <7 episodes
23	Missing day of week, 91+ minutes & 2+ basic acts

24	Missing day of week <7 episodes & 2+ basic acts
25	Missing 91+ minutes & 2+ basic acts, <7 episodes
26	Missing age/sex, day of week, 91+ minutes, & <7 episodes
27	Missing age/sex, day of week, 91+ minutes, & 2+ basic acts
28	Missing age/sex, day of week, 2+ basic acts & <7 episodes
29	Missing age/sex, 91+ minutes, <7 episodes, & 2+ basic acts
30	Missing day of week, 91+ minutes, <7 episodes, & 2+ basic acts
31	Low quality on all five measures

4.2 Household-level variables

- HHTYPE
- HHLDSIZE
- NCHILD
- AGEKIDX
- AGEKID2
- INCORIG
- INCOME
- OWNHOME
- URBAN
- COMPUTER
- VEHICLE

HHTYPE: Household type

This variable records the type of household in which the diarist lived at the time of the survey. This variable is computed from a household type variable or a household grid when available, and from a combination of marital status and household size, when no household type classification was available. Where there is inconsistency in the reporting in the survey, the converter should opt for the most logical solution and document the process of coding this variable in the code file.

One person households have only 1 member. In instances where a household size variable suggests that there is only one household member, but the person is also a parent and not in a couple and at least one child also lives in the household, then the household type should be coded as “4”.

Values “2” and “3” mark instances where a household includes a couple (cohabiting or married). If the couple are the only people in the household (and

the household size =2, then the appropriate code is category “2”. If a couple lives in the household with at least one other person, then the code is “3”. It does not matter if the couple are lodgers of the household reference person, or the household is a multi-couple household, or the reference person is a widow/widower or divorced person and has a child who has a partner that lives in the same household, or is a couple and children, the appropriate code is “3”. If two or more people live in the household, and no household member is in a couple, then the appropriate code is “4”. A crosstab of CIVSTAT and HHTYPE should produce no cases of a person with CIVSTAT=1 and HHTYPE=4.

Value	Label
1	One person household
2	Couple alone
3	Couple + others
4	Other household types

In some surveys, we can not identify cohabiting couples, and these people may be miscoded as HHTYPE =4. Some surveys make the identification of single parent households difficult. If there are potential miscodes in this variable, these should be noted in the documentation.

In contrast to FAMSTAT, this variable is a household characteristic and all household members should be coded the same way.

HHLDSIZE: Number of people in household

This variable records the total number of household members. In some surveys, the size of large households is capped, with the value ‘n’ meaning ‘n or more members’. Such cases are documented in the README documents.

There are cases where household size is not presented directly or in full. In such cases, we made the best possible calculation based on what information is available (summing number of income earners + non-income earners, number of people listed on the household matrix, 2 + the number of children for couple households with children, etc.). Any instances where this information is incomplete for a survey should be documented in the readme file for the survey.

General notes on 3 household child variables

If a household member is a dependent child, someone will have a legal responsibility for looking after that child, and the presence of the child in the household will likely have some impact on the behaviour of other household members (if only in influencing the storage of chemicals, use of language, some late night leisure activity choices, or timing of some forms of housework). NCHILD values 1 and higher, AGEKIDX values 1, 2 & 3, and AGEKID2 values 0 through 17 indicate that a child of this age lives in the household. The relationship of the child to the other household members does not matter. In some cases, a child may also be the household reference person. If a 17-year-old lives alone or a 16 and 17-year-old married couple live alone together, the NCHILD, AGEKIDX and AGEKID2 should have values in the child present range.

When we look at the time use patterns of adults, there are some altered social expectations when the relationship between two adults is that one adult is the parent of the other (or one is the child of the other). We also mark these relationships in the value of AGEKIDX=4 and values of 18 and greater for AGEKID2. AGEKIDX=4 and AGEKID2>17 apply only when the relationship between two people in the household is that one is the child of the other. If no people aged less than 18 live in the household and no household member is the child of another household member, then the appropriate codes are, as follows: NCHILD=0 and AGEKIDX and AGEKID2= -7.

NCHILD: Number of children under 18 in household

This variable records the total number of children aged under 18 in the household. The children are not necessarily the diarist's own children. If the diarist is aged <18, nchild should be >0, even if the diarist is married.

This variable is highly comparable across countries, though there are some surveys with limited information about household composition and different age bands (such as the number of children aged <15 or <12). We made adjustments and corrections when possible. Users are asked to consult the README documents for more detailed explanations.

AGEKIDX: Age of youngest child in household (categories including adults)

This variable records grouped information on the age of the youngest child in the household. If no household member is the child of another household member, this variable takes the value -7.

Value	Label

1	Youngest child aged between 0-4
2	Youngest child aged between 5-12
3	Youngest child aged between 13-17
4	Youngest child aged 18+

If the survey has different cut-off points in categories of age of the youngest child, or only report information on the diarist's children rather than children residing in the diarist's household, a note should be recorded in the README document.

AGEKID2: Age of youngest child in household

This variable records the actual age of the youngest child in the household. If a household member is aged less than 18, then this variable has a positive value (unless the exact age is not known). If no household member is aged less than 18 and no household member is the child of another household member, this variable takes the value -7. In the unlikely event that a child in the household is aged older than 80, the age should be top-coded at 80 – that is the value 80 means 80 or older.

INCORIG: Original household income

This variable records the household income as originally recorded in the surveys. This variable is not harmonised (see INCOME for the harmonised variable).

Note that when merging data from different surveys, the original value labels for this variable will be lost since they are survey-specific. Labels should be recorded in the README documents.

INCOME: Total household income - grouped

This variable records the annual household income, recoded in quartiles.

Value	Label
1	lowest 25%
2	middle 50%
3	highest 25%

Income often has a high percentage of cases with missing values. Also, in many surveys, data on household income was collected and/or coded in income

groups rather than interval values. As a result, the identification of the cut-off points for the first quartile (lowest 25%) and fourth quartile (highest 25%) may not be precise.

OWNHOME: Whether diarist's household owns or rents home

This variable marks whether a diarist's household owns or rents accommodation.

Value	Label
1	Own (outright or on mortgage)
2	Rent
3	Other arrangement

URBAN: Urban or rural household

This variable indicates whether or not the diarist lives in an urban area.

Value	Label
1	Urban/suburban
2	Rural/semi-rural

Survey-specific definition of 'urban' and 'rural' is included in the README file.

COMPUTER: Does household have a computer

This variable indicates whether the diarist's household has a home computer or internet access at home.

Value	Label
0	No
1	Yes

VEHICLE: Does household have a access to a private vehicle

This variable indicates whether the private transport options of the diarist's household. In most developed countries, the question of access to animal is not asked. In urban areas of many developed country, transport by animal may not be permitted. Most people in most developed countries can afford to purchase a

bicycle and are able to ride that bicycle if they chose to do so. Most surveys ask whether the household has a car or the number of cars the household owns. A smaller number of surveys ask whether the household owns a bicycle. Often the number of cars and ownership of a bicycle are separate questions. Unless noted in the documentation to the contrary, for most developed countries only options 0, 3 and 4 will apply. Options 1 and 2 are for those countries where such data are collected, generally also where the affordability of any private transport option is not accessible to all households.

Value	Label
0	No
1	Animal only
2	Non-motorised vehicle
3	1 car or motorcycle
4	2+ cars or motorcycles

4.3 Person-level demographic variables

- SEX
- AGE
- FAMSTAT
- CPHOME
- SINGPAR
- RELREFP
- CIVSTAT
- COHAB
- CITIZEN

SEX: Sex

Value	Label
1	Man
2	Woman

AGE: Age

This variable records the age of respondents (up to 3 digits). For surveys in which age was recorded in categories, we recoded age into a continuous variable by assigning the mid-point of each age group (e.g. 17 for age group 15-

19). When surveys only included the year of birth of respondents, we computed AGE by subtracting the year of birth from the year of the survey. To protect the anonymity of the oldest diarists, we top-code age at 80 – that is the value 80 means aged 80 or older.

FAMSTAT: Individual level family status

This variable is an individual characteristic, which means that not every member of a household would be coded the same way (in the case of multi-member surveys). It records the presence of children in the household (irrespective of whether those children are the diarist's own children).

Value	Label
0	Adult aged 18 to 39 with no co-resident children <18
1	Adult 18+ living with 1+ co-resident children aged <5
2	Adult 18+ living with 1+ co-resident children 5-17, none <5
3	Adult aged 40+ with no co-resident children <18
4	Respondent aged <18 and living with parent(s)/guardian(s)
5	Respondent aged <18, living arrangement other or unknown

CPHOME: Unmarried child living in parental home

This variable indicates whether or not diarists who are not married or cohabiting live with their parents, regardless of the diarists' age. Note that diarists who are the child of another household member who also are married can be indentified using PARNTID1 and PARNTID2.

Value	Label
0	Not a child in parental home
1	Child in parental home

SINGPAR: Whether diarist is a single parent

This variable records whether or not the diarist is a single-parent (a sole parent living with her or his children).

Value	Label
0	No
1	Yes

RELREFP: Relation to household reference person

This variable indicates the relationship of the diarist to the household reference person. In the MTUS, the reference person usually is the person who answered the household questionnaire (generally person identifier 1). In some cases, this may be the person the survey designates as the head of the household.

Value	Label
1	Person 1
2	Spouse/ Common-law partner
3	Child
4	Parent
5	Sibling
6	Son/Daughter-in-law
7	Father/Mother-in-law
8	Brother/Sister-in-law
9	Other Relative
10	Not related

CIVSTAT: Civic status

This variable records the diarist's couple status.

Value	Label
1	Diarist in couple, lives with spouse/partner
2	Diarist not in a couple

This variable is highly comparable across countries apart from the fact that most of the earlier surveys did not include a separate category for 'cohabiting' or 'common-law'. It is not possible to know how people living in such unions declared their marital status. They could have declared themselves as being married or as being single.

COHAB: Respondent is cohabiting

This variable indicates whether or not the diarist is cohabiting or legally married. People not in couples are coded as -7.

Value	Label
-7	Not in a couple
0	Married/civil partnership
1	Cohabiting

CITIZEN: Whether the diarist is a citizen of the country

This variable indicates whether or not the diarist is citizen or national of the country in which she or he completed the diary.

Value	Label
0	No
1	Yes

4.4 Employment and education variables

- EMPSTAT
- EMP
- UNEMP
- STUDENT
- RETIRED
- EMPSP
- WORKHRS
- EMPINCLM
- OCCUP
- SECTOR
- EDUCA
- EDTRY

EMPSTAT: Employment status

This variable reflects attachment to the labour market, and people who are retired, students, seeking work or looking after family but who work at least some hours should be coded as working part time. Category 4 should mean no

attachment to the labour force, though when it is not possible to make this distinction, this fact is noted in the README file for the survey.

Value	Value Label	Description
1	Employed Full Time	Employed/self-employed (including military service), full-time hours
2	Employed Part Time	Employed/self-employed (including military service), part-time hours
3	Employed, unknown status	Employed/self-employed (including military service), hours of work unknown
4	Not in paid work	Other Unemployed, looking for work Retired Homemaker Currently attending school Currently on maternity leave Disability retirement/leave

EMP: In paid work

This variable indicates whether or not the diarist was employed or self-employed (i.e. had a paid job) during the week prior to the survey (or whatever the period of reference was in the original questionnaire). The value 1 here means the diarist should have a value of 1 to 3 for EMPSTAT.

Value	Label
0	Not in paid work
1	In paid work

UNEMP: Unemployed

This variable indicates whether or not the diarist was unemployed during the week prior to the survey (or whatever the period of reference was in the original questionnaire). This variable does not differentiate between respondents who were registered as unemployed, who were not working but available for work and actively seeking work, and who reported themselves to be unemployed. People coded as 1 can be working short hours, and work hours variable should reflect these hours if this diarist has some employment.

Value	Label
0	Not-unemployed
1	Unemployed

STUDENT: Whether diarist is a student

This variable indicates whether or not the diarist was a student during the week prior to the survey (or whatever the period of reference was in the original questionnaire). This variable was coded from a question about whether or not the diarist was a student (or was enrolled in school). If such a question was not available in the original survey, use general economic activity status. Ideally, when combined with EMPSTAT, this variable should distinguish working and non-working students.

Value	Label
0	Not a student
1	Student

In surveys where STUDENT is derived from a question about the main activity during the week prior to the survey, students may be miscoded if the survey took place during summer months. For example, a student who is working full-time during summer months and is interviewed during such a month would declare his/her main activity during the week prior to the survey as ‘employed’ as opposed to ‘student’.

RETIRED: Whether diarist has retired

This variable indicates whether or not the diarist had retired. This variable was created from a question about retirement. If the study did not include retirement questions, the receipt of a retirement pension income was used instead. Only when this information was not available was data regarding the diarist’s main activity during the week prior to the survey used to compute this variable. Ideally, when combined with EMPSTAT, this variable should distinguish working and non-working retired people.

Value	Label
0	Not retired
1	Retired

EMPSP: Employment status of spouse/partner

This variable records the employment status of the diarist's spouse or partner. Where the survey collected diaries from both people in the couple, each partner's own self-reported employment status is used to identify the spouse's employment status of her or his partner. Where one partner's employment status is not reported or where only one person in the household completed a diary, we use questions about the employment status of the diarist's spouse during the week prior to the survey (or whatever the period of reference was in the original questionnaire).

Note that if the diarist is not in a couple (CIVSTAT=2), EMPSP is coded as '-7'.

Value	Label
1	Employed full-time
2	Employed part-time
3	Employed, unknown hours
4	Not in paid work

WORKHRS: Hours paid work last week including overtime

This variable records the number of hours of paid work reported during the week prior to the survey including any overtime. Note that the number of hours of paid work during the last week was given priority even if data on the number of hours 'usually worked' was available. If data on the number of paid work last week was not available, then WORKHRS was computed by using usual hours of paid work. When neither question was available, 7-day diaries or work schedules (as used in HETUS) were used to measure hours worked during the diary week. Surveys in which this variable does not represent hours worked last week should be documented in the README documents. The variable includes reported hours of paid work for any diarist who answered the question, whether or not this person reports being employed.

Values of 0 mean that the diarist reported zero hours of paid work. If diarists were not asked the question, they were given a value of -9 or -7 as appropriate. If diarists did not answer the question, they were coded as -8 for this variable.

EMPINCLM: Original monthly income from employment or self-employment

This variable records the monthly personal income from wages/employment/self-employment during the last month. This variable is not harmonised and is instead

recorded in national currency. Note that if data is only available on the personal income from wages/employment/self-employment during the last 12 months, include this variable as presented and add a note the README file.

Note that when merging data from different surveys, the original value labels for this variable will be lost since they are survey-specific. Labels should be recorded in the README document.

OCCUP: Occupation

This variable details the diarist's occupation. If the diarist is not presently employed, but there is information on the diarist's most recent occupation, use this information to code occupation.

Value	Label
1	Management (senior management, not supervisors) Code lower-level managers and self-employed professionals or small firm owners in the other codes below, for instance, include SOC codes 1110 and 1999
2	Finance and legal professionals For instance SOC codes 2411-2424; 3516-3541 or 3544
3	Science and engineering professionals For instance SOC codes 2321 or 2111-2209 or 3111-3119, or 3131 or 3132
4	Civil and social service professionals For instance SOC codes 2431-2443 or 3121-3123 or 3231 or 3232 or 3551-3561 or 3563-4099
5	Education and social science professionals For instance SOC codes 2322 or 2311-2319 or 2451 or 2452
6	Medical professionals For instance SOC codes 2211-2309 or 3210-3229
7	Other professionals For instance SOC codes 2329 or 2444 or 2521-2949 or 3311-3519 or 3542 or 3543 or 3562
8	Health, education, and social care support For instance SOC codes 5501-6209 or 9221
9	Clerical and office support For instance SOC codes 4111-5109 or 9211 or 9219
10	Security and armed forces For instance SOC codes 9241-9249
11	Sales, services, creative support, and cleaning For instance SOC codes 5411-6109 or 6141-8109 or 9222-9239 or 9251 or 9259
12	Farming, forestry, and fishing For instance SOC codes 5111-5209 or 8223 or 9111-9119
13	Construction, assembly & repair, moving goods, transport, extraction For instance SOC codes 5211-5409 or 8111-8222 or 8229-8532 or 9121-9209
14	Self-employed non-professionals

SECTOR: Sector of employment

This variable records if employed people work in the public or the private sector.

Value	Label
1	Public sector
2	Private sector

EDUCA: Educational level-original study code

This variable contains the diarists' education level as originally coded in the surveys. This variable is not harmonised. Note that when merging data from different surveys, the original value labels for this variable will be lost since they are survey-specific. Labels should be recorded in the README document.

EDTRY: Harmonised level of education

This variable contains the harmonised diarists' education level. It is based on the International Classification of Education (ISCED). This variable proved to be one of the most difficult to harmonise.

Value	Label	ISCED equivalent
1	uncompleted secondary or less	Not completed ISCED level 3
2	completed secondary	Completed ISCED level 3 and/or attendance at level 4
3	above secondary education	ISCED level 5 or above

This variable refers to the diarist's highest level of education completed (in the case of '1' and '2') or attended (in the case of '3').

More information regarding the ISEC classification can be found at:
http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm

4.5 Health variables

- RUSHED
- HEALTH
- CARER
- DISAB

RUSHED: Whether diarist generally feels rushed

This variable indicates self-reported feelings of time pressure. If the scale includes more categories in the original, make the most logical collapse.

Value	Label
0	Almost never
1	Sometimes
2	Often

HEALTH: Diarist's general health

This variable indicates is drawn from a self-reported general health status.

Value	Label
0	Poor
1	Fair
2	Good
3	Very good

CARER: Diarist looks after an adult or child with a disability

This variable indicates whether the diarist provides any level of routine care to an adult who needs regular assistance with daily living or looks after a child whose disability or health condition requires more than the standard care a child of that age might typically require.

Value	Label
0	No
1	Yes

DISAB: Diarist has a disability or long-term limiting health condition

This variable indicates whether or not the diarist has a disability or long-term health limiting condition.

Value	Label

0	No
1	Yes

It should be noted that the way disability is defined tends to vary across surveys, which may affect the degree of cross-survey comparability. We attempt to ensure consistency in the coding across time in the same country. Also, where possible, we use health variables and not economic activity status to code this variable (thus allowing users to identify working people with disabilities). When such distinctions are not possible, we add a note in the README documentation file.

CHAPTER 5: WEIGHTS IN MTUS

Time diary analysis requires two levels of weighting. First, as in all surveys, weights are needed to bring the sample in line with the population from which it was drawn. Second, weights also balance seasonal variations and variations by day of the week.

World5.3 and World 5.8 contain the following weights:

- OCOMBWT: Original weight (population & day preferred, or whatever original weight is available if not combined);
- PROPWT: Proposed weight (population & day combined weight rescaled if needed) (see below about the rescaling procedure);

The World 6 file does not contain weights for two reasons, First, the weights are calculated at the diary level. Non-response and sample distribution adjustments can be addressed at the level of the diary and the diarist. The meaning of an episode level weight is less clear. There is no way of knowing how many diaries are less detailed than the diarists' actual days or the degree to which activities are under-reported at the episode level. While the sample distribution can be reasonably accurately estimated, it is not possible to estimate the true distributions of episodes in a meaningful way. Second, the meaning of an episode varies by the context of the research purpose (discussed more in the next chapter). As there is not a set unit for all analysis at the episode level, the episode file is best treated as a database from which variables are extracted to match back into the World 5.53 or 5.8 version for analysis.

Some surveys inflate the sample size by a factor to mirror the size of the whole population of the country. If the original weight is inflated, OCOMBWT should be left inflated.

Nevertheless, to promote consistency among the datasets and to prevent surveys from countries with larger populations from apparently swamping surveys from countries with smaller populations, we deflate the original weight in the computation of PROPWT. The mean of the original weight will sum to the inflation factor. Where survey designs collect diaries on a weekday and a weekend day, it is advisable to use the mean of the weekday diaries to deflate weekday diaries and the mean of the original weight for the weekend diaries to deflate the weekend diaries.

If the survey does not include a weight, OCOMBWT should be set to 0. Researchers have to find official statistics describing the population by age and sex. We recommend the United Nations publication "*World Population Prospects*" which contains time-series (since 1950) of the population by age and sex for each country. Alternative internationally recognised sources, such as the ILO Yearbook also may be used. If the survey has enough cases for you to split age and sex groups by employment status (using emp, employed or not employed) – this means if you have at least 50 cases of working and not-working for each sex and age group – then also include employment status. Note that you may not include employment status for the youngest and oldest diarists if few are working, but include emp for the working age population.

The main MTUS weight, PROPWT, is calculated by:

1- Begin from the original survey weight (deflated if the original weight was inflated). If there is no original weight, construct a population weight by dividing the percentage of the population you would expect to be in each age/sex (and in some cases employment status) group by the percentage of cases you actually have in that age/sex (/employment status) category in the sample data (expected/achieved).
2- Create a good-diary inflation factor by dividing the total number of diaries collected in the survey by the number of good diaries (total diaries/good diaries).
3- Create an interim weight that starts with the same value of the weight in step 1. Second, set the value of this interim weight to 0 for all low-quality diaries (BADCASE=0). Third, multiply your interim weight by the good diary inflation factor you created in step 2 for all cases (it will stay 0 for the bad diaries).
4- Compute ASEWT - a sum of the weights for each age/sex(/employment status) group (across all days of the week).
5- Compute two further sums: ASEDayWT - a sum of weights for each age/sex (/employment status) group separately for each day of the week, and also: ASEDayCASE - the sum of the number of cases in each age/sex(/employment status) group for each day of the week. (This step

differs from step 4 as now you calculate the sums separately for each day of the week).

6- Compute an expected sum of weights (ESW) for each day of the week: ESW = ASEWT / 7 (divide by 7 as there are 7 days of the week).
7- PROPWT = **(**ESW **/** ASEDayWT**) / (**ASEDayCASE **/** ASEDayWT**)**
8- Check that the weight has calculated correctly. PROPWT should have a mean of 1, and PROPWT should sum to the total number of diary cases. When the weight has been applied, the weighted frequency of the diaries by the days of the week should be evenly distributed (14.3% for each day). Similarly, each age/sex group should have an even distribution of diaries across each day of the week.

CHAPTER 6: ANALYSIS OF TIME-USE DATA

In order to work with time use data, users should consider the nature of the data which diaries collect and also the population which is sampled. We begin this chapter by outlining key elements of time use data. We then offer some basic tips for working with diary data.

6.1 The data which time diaries collect

Time diaries collect stories. Even when presented in the quantitative data format, the diary row still represents a story and can be read as a story. Users should keep this narrative element of time use data in mind when working with the MTUS or any other time diary dataset.

The elements of a quantitative diary are not mutually exclusive but overlapping domains. In most cases, the domains in a diary are separate. Knowing that a person was reading does not cover the whole picture, as there are many qualitative differences between reading while on the beach but also keeping an eye on the children, reading alone in the house while drinking a glass of wine and listening to music, and reading while standing on crowded public transport at rush hour. Nonetheless, there are some cases where the domains overlap. Taking the train to work is simultaneously a location, a mode of transport and an activity. Washing and changing a baby is an activity, but also an activity in which the presence of the baby is a necessary element, and hence this activity also indicates that a child was present.

A second dimension of the narrative quality of diary data that users should keep in mind is that the ordering of elements reported in the diary is not always the motivator of the next element of behaviour in a diary sequence. This fact can be obscured as the first column diarists typically are asked to fill in when accounting for their day is called “main” or “primary” activity. Diary instructions generally distinguish main activity from simultaneous activities people are doing at the same time. Nonetheless, the record in the main activity column is not always the dimension of an episode which is the most important to the diarist. The main activity may be eating, but the most important element of the activity for the diarist might be that her children or the person he has wanted to date for months is joining the diarist during the meal.

A third key dimension of the narrative element of diary data is that accounts are mediated the participants. Diarists do not report activities they consider irrelevant, risky, shameful or compromising. Participants also report those activities which they notice and consider of sufficient importance to report. Some activities, such as violence and illegal behaviour, seldom appear, and diarists in some cultures report sexual behaviour, while others do not. People focussed on a particular activity (such as caring for an adult, or an intensive day on the job) may forget to report an essential activity like eating if they periodically fit the behaviour into short sessions of browsing food in between other intensive activity. The absence of a report does not mean that people did not undertake a particular activity. Likewise, absence of particular reports in and of themselves reveal what populations consider to be unimportant or not fit for public discussion.

Time diaries sample sequences of activities. Many constraints influence our patterns of behaviour. The weather, our general health, how energetic we feel at any given moment, where we are in relation to resources and facilities, the money and time we have to spend at any particular point, social expectations, the basic needs of our bodies, requirements of our care or paid work responsibilities are among the many constraints which limit the range of patterns of actions in which each individual might engage on any particular day. One way to measure patterns of daily activity involves following particular individuals over time and collect a rich and detailed dataset about their behaviour (though the expense of such collection means that the sample necessarily must be small). Such a strategy will reveal what a particular person typically does at a particular stage in that person’s life. Alternatively, a researcher can collect snapshots over a day or small number of days for a large number of people to get a sense of what patterns of behaviour occur across the population. The time-diary data included in the MTUS is of the latter variety. Large-scale diary surveys reveal what patterns of behaviour most regularly occur across a population and which groups of people are most likely to engage in different forms of behaviour. Large-

sample diary surveys do not reveal the full range of activities of any specific participant, but do reveal what people with similar characteristics to any given diarist are more likely to be doing on different days and at different times.

A related consequence is that time diary surveys do not produce normal distributions for all activities. People only can do so much in one day, and no one can do every activity they normally undertake on any single day. Some researchers unfamiliar with time diary data have over-used Tobit models on the grounds that large numbers of 0-time cases appear for most activities. Nevertheless, MTUS users should keep in mind that Tobit models assume that large numbers of 0 cases appear because of censorship of reporting imposed by the survey design. In some limited cases, 0s for some activities may represent censoring, but in general, the 0s represent real behaviour – people cannot do everything every day. For most time use diary analysis, users will need models which allow for real 0s in sequences of activities which occur over 24-hours.

Diaries will not reveal the full range of patterns of any given individual over longer periods. The unit of analysis is the sequence of activities or the summary time of activities for groups over 24-hours. For those activities which people undertake virtually every day (the domains noted elsewhere which we use as one dimension of distinguishing good-quality from low-quality diaries), we expect to observe at least one of the regular patterns of engagement in rest/sleep, eating or drinking, personal care and exercise or travel. For activities in which people generally engage on a less-than-daily basis, the diary data will reveal what people who undertake the activity do on days when they engage in the activity, but the diary data alone do not reveal whether any particular person ever undertakes the activity. To obtain this information, the survey designers would have to add supplementary questions to the diary asking participants if they ever undertake a particular activity, and if they do, how often they typically engage in that activity). While diary data can reveal which groups of people are most likely to take up an activity, diary data do not reveal total participation rates of activities people generally do not perform every day.

6.2 Basic analysis

People new to time use research should keep in mind a number of basic principles about working with this data. First, time is a rare commodity in that it is one of the few concepts we use on a daily basis but measure in units of 60 rather than in metric units. When modelling time, researchers use continuous measures such as of total minutes per day or week, participation rates, or the likelihood of categories of people engaging in a particular sequence of behaviours or not

participating in such activities. When the final analysis produces figures in minutes (per day or per week), though, if the number of minutes involved is large, researchers are wise to report the findings in weeks, hours and minutes rather than just in minutes. Reporting that a group sleeps and average of 475 minutes on weekdays but an average of 525 minutes on weekends does not present the information in a meaningful way to most readers. Reporting that a group sleeps and average of 7 hours and 55 minutes on weekdays but an average of 8 hours and 45 minutes on weekends is meaningful to a wider audience. The Centre for Time Use Research maintains a minutes to weeks, hours and minutes calculator on its web site to facilitate such more meaningful reporting (http://www.timeuse.org/information/tools/).

When time use researchers initially investigate data, they tend to produce three parallel sets of statistics:

- Average time spent in the activity over a 24-hour day of the whole population (total mean);
- Average time spent in the activity over a 24-hour day by those persons who undertook the activity on their diary day (participation mean);
- The proportion of the population who undertook the activity on their diary day (participation rate).

All three statistics have significant value. Knowing that people in a particular country work significantly fewer hours on night shifts over a 15 year period can mean multiple things. It might mean that fewer people work nights, but those who work nights continue to work similar shifts. It equally might mean that significantly fewer people work nights, but those who work nights work longer shifts. It also might mean that more people work nights but that they work shorter night shifts than in the past. To get a rounded picture, a researcher should calculate all three of these figures for basic analysis.

Time use collects general information. Concepts often can overlap, and many activities could fit into several different topics of analysis. If a researcher is interested in time that parents spend with children, passive supervisory care, playing active sports with children, helping with homework and showing children how to do things, physical and medical care, time escorting or travelling with children, and time when children are present but parents and their children are not interacting are all relevant. If the researcher is interested in travel to work, recorded commuting is relevant, but so is travel taking a child to school or day care before then travelling to the office, or walking a dog from the home to the office where the diarist records pet care as primary activity also are relevant to understanding how people get to work. If the researcher is interested in measuring the total physical activity of the population, sport and exercise are relevant, but so too are time travelling by physically active means (including walking and cycling), time playing outside with children (often coded in child care

activity ranges), and time in active care or physically active housework. These examples demonstrate that an activity like walking a child to day care can fit into the concept of child care, commuting or exercise. Researchers need to approach analysis by considering the total range of areas in the diary in which a person might record an activity of interest to that concept.

Similarly, the meaning of a sequence of activity likewise can vary by the nature of the concept the researcher investigates. In some cases, a sequence may include the presence of other activities outside the main domain of interest. If the researcher wishes to record the degree to which paid work impacts work-life balance, an episode of paid work may include time that is not spent working (taking a break, doing personal or household activities on the computer while at work, as examples). Similarly, if the researcher wishes to profile how having children impacts on parent's time use, time when the child is not present (such as waiting for a child to come out of school or working on paperwork for the child when the child is not present) would count as an episode of interest, and the episode would continue once the child arrives. In other cases, a change of activity out of a domain of interest would constitute and end of an episode. If the researcher is measuring total exercise time, time when a person stops physical activity to take a drink or meal break would not count as a continuation of the exercise episode. If the researcher is interested in time when children learn verbal language skills from their parents, time when the parents and children are not interacting does not count as the continuation of an episode. Researchers need to think about what constitutes a string of relevant information when deciding how they plan to use the time diary data.

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