

MTUS CODING PROCEDURES

Harmonised Episode (HEF), Aggregate (HAF), and Core Files (HCF)

(Release 3)

Kimberly Fisher and Jonathan Gershuny¹
With contributions from: Jooyeoun Suh and Ewa Jarosz²
Earlier contributions by Anne H. Gauthier³

22 February 2016

Introduction

This document describes the coding procedures used to create Release 2 of the Multinational Time Use Study harmonised data file sequence. This version offers two components. A larger set of files appear in the Core File format. This Core File presents the summary of total minutes per day spent in 25 activity categories alongside a limited set of background variables. Some surveys that appeared in older versions of the MTUS and are not upgraded, and thus fit less well in the core format than files directly added to this format. A smaller list of the surveys included in the Core File also are harmonised into an Aggregate File, with a more extensive set of background variables and summary time use variables, as well as in the Episode File, where each row case represents a change in some dimension of daily behaviour. The Episode File covers main and secondary activity, location, mode of transport, who else was present, and whether activities took place using the internet and ICTs. We aspire to upgrade these older files while continuing to add new surveys to the MTUS.

¹ Centre for Time Use Research, University of Oxford, United Kingdom.

² Centre for Time Use Research, University of Oxford, United Kingdom.

³ Department of Sociology, University of Calgary, Canada

This guide covers the file structures, missing value conventions, construction of the harmonised variables, quality checks, and documentation. The information and procedures described here should be followed by anybody creating a harmonised dataset for MTUS.

When special conversion procedures are required for a specific survey, these procedures should be described in the Readme file and comment lines in the conversion programme for that survey.

In order to standardise the coding procedure, the MTUS team has produced variable and value format and label templates in SPSS, and a variable and value label .do file for STATA. The templates and .do file are posted on the MTUS website. These files will prove useful while following these guidelines and save converters the trouble of creating code to add labels.

Table of contents

1. Preparation of the data
2. File naming conventions
3. Template programmes
4. Missing value conventions
5. Identification of quality diaries
6. Harmonised survey, demographic and socio-economic variables
7. 69 activity categories (HAF and HEF)
8. Core file 25 activity categories
9. 41 activity categories (retained from older MTUS versions)
10. Harmonised Episode File variables
11. Weights
12. Variable ordering in final main files
13. Supplementary files
14. Quality checks
15. Documentation

1. Preparation of the data

The Harmonised Aggregate Files (HAF) and the Harmonised Core File (HCF) offer **aggregate (summary)** versions of the time-use surveys, where each row case in the dataset reflects a record in 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 HAF and HCF include survey, demographic and socioeconomic information about respondents (hereafter called diarists) and their households alongside the aggregated time-use variables.

The Harmonised Episode Files (HEF) cover sequence information. In the HEF, each row case represents one episode, or change of main activity, secondary activity, location, use of computers or the internet, mode of transport, or presence of others, 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 the HEF files are large, only the identifiers, age and sex are included in the HEF alongside the diary information. Users will need to match the HEF with the HAF file to pick up the corresponding background variables.

The process of making the HAF and HEF files takes around three to five weeks of cumbersome work, and can take longer in the case of older time use surveys where information is reported in uneven intervals and more considerable efforts are required to resolve errors in original files. For this reason, only a limited number of surveys will be coded into the HAF and HEF formats. More surveys will be included only in the simpler HCF format.

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 and the Readme file. In some cases, combinations of original variables are needed to create the MTUS variables. We also triangulate information in files to use any available information to fill gaps, not to impute data, but to make maximum use of the information coded in the file. As an example, a diarist may have no answer recorded for the question of marital status. Nevertheless, a household grid may show that this person is the spouse of another diarist, and this person may report time with this spouse in the diary,

and this diarist's diary may match patterns the spouse reports being with this diarist, indicating that the person is in a couple even though the couple variable has a missing value.

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 “took 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 (main=62).
- 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 at the end of the

diary, or asleep following the gap at the beginning of the diary, 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 meal breaks at work (Main=5), from eating out in a restaurant (Main=39), from eating meals at home or elsewhere (Main=6). Likewise, location can distinguish paid work at home (Main=8) from paid work away from home (Main=7). 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 (Main=58) from watching TV (Main=59) to listening to music (Main=57). All combinations of information used to code a category should be included in the documentation.

2. File naming conventions

We have standardised MTUS file names. The name of each file distinguishes:

- The country (2 letter code) (see table on next page)
- The first year in which the survey started data collection (4-digit)
- The version of the archive (HEF, HAF, HCF)
- The type of file (extensions 'sav' or 'dta' for data files, and extensions 'sps' or 'do' for programme files)

For example, Release 1 of the HEF version of Spain 2009-2010 is called 'es2009hef.sav', which should be read as:

Country: es (for Spain)

Year: 2009 (the first year in which data collection took place)

Version: hef (harmonised episode file)

Type: sav (an SPSS file)

Country	Code	Country	Code	Country	Code
Albania	AL	Hungary	HU	Poland	PL
Algeria	DZ	India	IN	Portugal	PT
Armenia	AM	Indonesia	ID	Qatar	QA
Australia	AU	Ireland	IE	Republic of Korea	KR
Austria	AT	Israel	IL	Romania	RO
Belgium	BE	Italy	IT	Russian Federation	RU
Bosnia & Herzegovina	BA	Japan	JP	Serbia	RS
Brazil	BR	Laos	LA	Slovenia	SI
Bulgaria	BG	Latvia	LV	South Africa	ZA
Canada	CA	Lithuania	LT	Spain	ES
Chile	CL	Macedonia	MK	Sweden	SE
China	CN	Mauritius	MU	Switzerland	CH
Czechoslovakia	CZ	México	MX	Tanzania	TZ
Denmark	DK	Mongolia	MN	Thailand	TH
Djibouti	DJ	Morocco	MA	Tunisia	TN
Estonia	EE	Netherlands	NL	Turkey	TR
Ethiopia	ET	New Zealand	NZ	United Kingdom	UK
Finland	FI	Norway	NO	United States	US
France	FR	Oman	OM	Uruguay	UY
Germany	DE	Pakistan	PK	Yugoslavia	YU
Ghana	GH	Palestine	PS		
Greece	GR	Peru	PE		

These country codes are based on the International Organisation for Standardisation (ISO) 3166-1 alpha-2 typology. Users should note three derivations. The official designation for the United Kingdom is GB, but UK is reserved for use by the UK. As the MTUS documents already used UK, we deemed changing to GB an inefficient use of our labour, hence UK remains. The

YU for Yugoslavia was deleted from the original ISO 3166-1 but remains reserved transitionally for Yugoslavia. As the survey from Yugoslavia has elements in two newer countries, both of which have data in the MTUS, we retain this designation for this older survey. CZ now applies only to the Czech Republic. The Czechoslovakian surveys are old, and neither the Czech Republic nor Slovakia have recent time use surveys. Information taken from this website:

https://en.wikipedia.org/wiki/ISO_3166-1_alpha-2#Exceptional_reservation

3. Template programmes

We have developed templates of variable and value labels for all three versions. These are located on the User Contributions page of the MTUS web site:

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

Examples of these SPSS syntax, STATA do files, and SAS programme files can be found in the Appendix of the MTUS documentation:

<http://www.timeuse.org/mtus/documentation/surveys/>

4. 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.

- “-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 summaries of minutes over 24 hours spent in an 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.

IMPORTANT NOTES

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.

5. Defining good and bad-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. Low episode diaries and diaries missing basic activities do not give complete accounts of the day. Low quality diaries lead to over-estimates of the activities the diarist does record and under-estimates of the activities the diarist did not record. Age, sex and day of the week are highly associated with specific time use patterns, and these variables are required for the creation of the recommended weight. 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 NOWGHT to diaries with sufficient information to make the weight from diaries lacking sufficient standards for most analysis which we zero-weight. The MTUS team defines any diary which:

- continues to have 91 or more minutes of missing time after data cleaning,
- which has fewer than 7 episodes,
- which is missing two or more of four basic activities - with 5 exceptions (defined below)

The four basic activities necessary for basic day-to-day functioning are:

- 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);
- sleep or rest (including do nothing, think, time out, or take a work break)
- personal care (including assumed self care preceding or following travel and receiving personal services, such as at hair dresser or doctor)
- 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).

The five exceptions where MTUS does not count a diary as being low quality if the only problematic dimension is missing two or more of four basic domains of activities are as follows:

- 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.
 - which 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 known
- to be low-quality.

Note that only good-quality diaries have positive values in PROPWT. Low-quality diaries should have 0 values on PROPWT.

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. Where original surveys include case rows for non-diarists (people with 24 hours of no reported activity), we delete the non-diary cases.

6. Harmonised survey, demographic, and socio-economic variables

The harmonised background variables, which also appear in the data files in the following order, cluster into five sets:

- **Diary, survey and case information**
COUNTRY, SURVEY, SWAVE, MSAMP, HLDID, PERSID, ID, PARNTID1, PARNTID2, PARTID, DAY, CDAY, MONTH, YEAR, DIARY, NOWGHT
- **Household-level variables**
HHTYPE, HHLDSize, NCHILD, AGEKIDX, AGEKID2, INCORIG, INCOME, OWNHOME, URBAN, COMPUTER, VEHICLE
- **Person-level demographic variables**
SEX, AGE, FAMSTAT, SINGPAR, RELREFP, CIVSTAT, COHAB, CITIZEN
- **Employment and education**
EMPSTAT, EMP, UNEMP, STUDENT, RETIRED, EMPSP, WORKHRS, EMPINCLM, OCCUPO, ISCO1, SECTOR, EDUCA, EDCAT
- **Health**
RUSHED, HEALTH, CARER, DISAB

Some background variables are not included in all versions of all files. The table shows which variables are in which MTUS versions. We present the variables in the order in which they should appear in the final files in both the table and the subsequent variable descriptions.

Variable	Episode File	Aggregate File	Core File
Country – country	Included	included	Included
Survey - survey start year	Included	included	-
Swave - wave if longitudinal	Included	included	-
Msamp - multi-sample marker	Included	included	-
Hldid - household identifier	Included	included	Included
Persid - person identifier	Included	included	Included
Id - diary identifier	Included	included	Included
Parntid1 - identifier parent 1	Included	included	-
Parntid2 - identifier parent 2	Included	included	-
Partid - spouse identifier	Included	included	-
Day - day of week diary kept	Included	included	included
Cday - calendar day of diary	Included	-	-
Month - month diary kept	Included	included	included
Year - year diary kept	Included	included	included

Diary - diary order	Included	included	-
---------------------	----------	----------	---

Variable	Episode File	Aggregate File	Core File
Nowght – marker of no weight	included	included	-
Hhtype - household type	-	included	-
Hhldsize - household size	-	included	included
Nchild - number children <18	-	included	included
Agekidx - age youngest groups	-	included	included
Agekid2 - age youngest actual	-	included	-
Incorig - original hhld income	-	included	-
Income - hhld income groups	-	included	-
Ownhome - own or rent home	-	included	-
Urban - urban or rural home	-	included	-
Computer - has home internet	-	included	-
Vehicle - household vehicles	-	included	-
Sex - sex of diarist	included	included	included
Age - age of diarist	included	included	included
Famstat - diarist & child age	-	included	-
Singpar - single parent diarist	-	included	-
Relrefp - relation to reference person	-	included	-
Civstat - is diarist in couple	-	included	included
Cohab - married or cohabit	-	included	-
Citizen - citizen of country	-	included	-
Empstat - employment status	-	included	included
Emp - employed or not	-	included	-
Unemp - unemployed	-	included	-
Student - diarist is a student	-	included	-
Retired - diarist is retired	-	included	-
Empsp - spouse employment	-	included	-
Workhrs - paid work hours	-	Included	included
Empinclm - labour income	-	Included	included
Occupo - original occupation	-	Included	-
ISCO1 - 1-digit occupation	-	Included	-
Sector - public or private job	-	Included	-
Educa - education - original	-	Included	-
Edcat - highest education	-	Included	included
Rushed - time pressure	-	Included	-
Health - self-assessed health	-	Included	-
Carer - looks after an adult	-	Included	-
Disab - diarist has disability	-	Included	-

COUNTRY: Country of survey - HEF HAF HCF

This variable records the country where the survey was carried out. This is the only text variable in the MTUS.

Country	Code	Country	Code	Country	Code
Albania	AL	Hungary	HU	Poland	PL
Algeria	DZ	India	IN	Portugal	PT
Armenia	AM	Indonesia	ID	Qatar	QA
Australia	AU	Ireland	IE	Republic of Korea	KR
Austria	AT	Israel	IL	Romania	RO
Belgium	BE	Italy	IT	Russian Federation	RU
Bosnia & Herzegovina	BA	Japan	JP	Serbia	RS
Brazil	BR	Laos	LA	Slovenia	SI
Bulgaria	BG	Latvia	LV	South Africa	ZA
Canada	CA	Lithuania	LT	Spain	ES
Chile	CL	Macedonia	MK	Sweden	SE
China	CN	Mauritius	MU	Switzerland	CH
Czechoslovakia	CZ	México	MX	Tanzania	TZ
Denmark	DK	Mongolia	MN	Thailand	TH
Djibouti	DJ	Morocco	MA	Tunisia	TN
Estonia	EE	Netherlands	NL	Turkey	TR
Ethiopia	ET	New Zealand	NZ	United Kingdom	UK
Finland	FI	Norway	NO	United States	US
France	FR	Oman	OM	Uruguay	UY
Germany	DE	Pakistan	PK	Yugoslavia	YU
Ghana	GH	Palestine	PS		
Greece	GR	Peru	PE		

These country codes are based on the International Organisation for Standardisation (ISO) 3166-1 alpha-2 typology. Users should note three derivations. The official designation for the United Kingdom is GB, but UK is reserved for use by the UK. As the MTUS documents already used UK, we deemed changing to GB an inefficient use of our labour, hence UK remains. The YU for Yugoslavia was deleted from the original ISO 3166-1 but remains reserved transitionally for Yugoslavia. As the survey from Yugoslavia has elements in two newer countries, both of which have data in the MTUS, we retain this designation for this older survey. CZ now applies only to the Czech Republic. The Czechoslovakian surveys are old, and neither the Czech Republic nor Slovakia have recent time use surveys. Information taken from this website: https://en.wikipedia.org/wiki/ISO_3166-1_alpha-2#Exceptional_reservations

Surveys collected in what were East and West Germany, and the Slovenian and Serbian elements of the 1965 Yugoslavia Szalai survey can be distinguished using the variable MSAMP.

SURVEY: Year the survey began - HEF HAF only

This variable records the 4-digit year in which data collection began

SWAVE: Longitudinal study wave marker - HEF HAF only

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 - HEF HAF only

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 SCEDI survey
8	UK 1987 - spouses and additional household members
9	East Germany
10	West Germany

HLDID: Household identifier - HEF HAF HCF

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 - HEF HAF HCF

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 - HEF HAF HCF

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 = 1.

PARNTID1: Person identifier of 1st parent of diarist - HEF HAF only

This variable records the person-level identifier of the first parent of the diarist if that parent also completed a diary or otherwise has person-level information included in the original survey. In cases where only one person per household completed a diary and no other information is available about household members, 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 person identifier.

PARNTID2: Person identifier of 2nd parent of diarist - HEF HAF only

This variable records the person-level identifier of the second parent of the diarist if the parent also completed a diary or otherwise has person-level information included in the original survey. In cases where only one person per household completed a diary and no other information is available about other household members, 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 or have other person-specific information in the original survey, this variable takes the value of the parent with the higher person identifier.

PARTID: Person identifier of spouse or partner - HEF HAF only

This variable records the person-level identifier of the spouse or partner of the diarist if the spouse or partner also completed a diary or has other person-level information in the original survey. In cases where only one person per household completed a diary and other information is not available about other household members, 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 cannot be identified, this variable takes a value of -8.

DAY: Day of week diary kept - HEF HAF HCF

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	Averaged time across week
9	Unspecified weekday
10	Unspecified weekend day

CDAY: Calendar day diary kept - HEF only

The sole 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).

MONTH: Month diary kept - HEF HAF HCF

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 - HEF HAF HCF

This variable records the year when the diary was kept in four digits.

DIARY: Diary order - HEF HAF only

When surveys collected more than one diary per person, this variable records the order in which diaries were completed. In most cases, this variable has the same value as ID, the diary identifier. In a limited number of surveys, the UK 2000-01 and France 2009-10, a minority of diaries have a diary identifier order that differs from the date order in which diaries were completed. In both cases, this coding variation reflects coding mistakes. We use the variable DIARY to mark the order of completion rather than correcting the variable ID so that users are able to smoothly match MTUS data back to the original survey data. Where users wish to control for or examine effects of completing multiple diaries, users will need to use this variable instead of ID. 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

NOWGHT: Marker of insufficient cases with no propwt - HEF HAF only

This variable distinguishes diaries with sufficient detail to make the propwt weight from insufficient cases which MTUS 0-weights. Weighted diary properties:

- (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; location or any other dimension of the diary);
- (d) have at least 3 of the 4 basic activities described in Section 5 above which most people undertake at least once per day (with exceptions for people who recorded care of adults, children or pets on their diary day but otherwise have a good quality diary, as well as cases of people who record sequences where we have some idea where missing basic activities took place. The four basic activities include: sleep and rest; eating and drinking; self care; and travel or exercise.

Value	NOWGHT Labels
0	Diary case has a weight
1	Insufficient information to create weight: propwt=0

HHTYPE: Household type - HAF only

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 (in couple) and hhtype=4.

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

In some surveys, we cannot 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 - HAF HCF only

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 should be 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 of parent and child. 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 of parent and child and no person aged 17 or younger lives in the household. 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: NCHILD=0; AGEKIDX and AGEKID2= -7.

NCHILD: Number of children under 18 in household - HAF HCF only

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 (including adult children) - HAF HCF only

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 and all members are aged 18 or older, 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 - HAF only

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 60, the age should be top-coded at 60 – that is the value 60 means 60 or older.

INCORIG: Original household income - HAF only

This variable records total household income as originally recorded in the survey. 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 document for the survey.

INCOME: Total household income - grouped - HAF only

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 household owns or rents home - HAF only

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 - HAF only

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 conversion code. Look up the official statistical office definition of rural areas where the available data indicate the population of the area in which the diarist resides.

COMPUTER: Does household have a computer - HAF only

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

Value	Label
0	No
1	Yes

VEHICLE: Does household have a private vehicle - HAF only

This variable reflects 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 countries, 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

SEX: Sex - HEF HAF HCF

Value	Label
1	Man
2	Woman

AGE: Age - HEF HAF HCF

This variable records the age of respondents (2 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 90 – that is the value 90 means aged 90 or older. Some older surveys set the age cap at a lower level, and where this is the case, we note the variation in the individual survey documentation. In a limited number of countries where the average age of death is low relative to the world average, we set the top code at a lower level, noted in individual survey documentation. The MTUS allows this higher age cap as, with population ageing in a number of countries, the ability to look at the time use patterns of older populations will be increasingly important for provision of services to older people, assessment of population health and study of the social consequences of extending life spans. At the time the MTUS team decided to increase the age cap from 80 to 90 in 2015, people who would have been aged over 80 in the 1990s or earlier are minimally likely to still be alive, thus the possibility of identifying and the influencing individuals aged between 80 and 90 in earlier surveys will rapidly move from extremely unlikely to not possible.

FAMSTAT: Individual level family status - HAF only

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 any children in the household (irrespective of whether those children are the diarist's own children), and the diarist's age.

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

SINGPAR: Whether diarist is a single parent - HAF only

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

Value	Label
0	No
1	Yes

RELREFP: Relation to household reference person - HAF only

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: Is diarist in a couple? - HAF HCF only

This variable marks whether the diarists is in a couple.

Value	Label
1	Yes, diarist is in a couple, lives with spouse/partner
2	No, diarist not in a couple

COHAB: Respondent is cohabiting - HAF only

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 diarist is a citizen of the country - HAF only

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

EMPSTAT: Employment status - HAF HCF only

This variable reflects attachment to the labour market. 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 - HAF only

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 between 1 and 3 for EMPSTAT.

Value	Label
0	Not in paid work
1	In paid work

UNEMP: Unemployed - HAF only

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 self-reported themselves to be unemployed. Ideally, when combined with EMPSTAT, this variable should distinguish unemployed people not undertaking any paid work from those with some part-time or unknown hours work time.

Value	Label
0	Not-unemployed
1	Unemployed

STUDENT: Whether diarist is a student - HAF only

This variable indicates whether or not the diarist was a student. This variable should be coded from a question about whether or not the diarist was a student (or was enrolled in school). Where no information on whether the diarist is a student is available, but the diarist is in the age range where children are required to attend school in the country where the survey was collected, if any study activity is coded in any of the diaries from this respondent or the diary is

completed during school holidays, we code this diarist as a student. When combined with EMPSTAT, this variable should distinguish working and non-working students.

Value	Label
0	Not a student
1	Student

Some surveys only identify students whose general economic activity status is study. In such surveys, 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'. Cases where a general economic activity status variable is the only way to identify students should be noted in the Readme documentation file.

RETIRED: Whether diarist has retired - HAF only

This variable indicates whether or not the diarist has retired. This variable should be created from a question about retirement. If the study did not include retirement questions, the receipt of a retirement pension income can be used instead. Where no information is reported, but the diarist is aged above the legal retirement age and does not report working full-time hours, we code this perso as retired. 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. The Readme documentation file should not when the retirement variable only can be created from a main economic activity status last week variable.

Value	Label
0	Not retired
1	Retired

EMPSP: Employment status of spouse/partner - HAF only

This variable records the employment status of the diarist's spouse or partner for diarists who are in couples. Where the survey collected diaries from both people in the couple, each partner's own self-reported employment status should be used to identify the corresponding spouse's employment status. 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: Paid work hours last week including overtime - HAF HCF only

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 hours 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 collected in HETUS surveys) 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 on a main economic activity variable.

Value of 0 means 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 employment income - HAF only

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.

OCCUPO: Original Occupation - HAF only

This variable details the diarist's occupation. If the diarist is employed at the time of the survey, use the diarist's current 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. Aim to use an ISCO 2008 compatible variable if this is available, otherwise use the closest approximation. Ensure that you enter the original value labels associated with each value in the survey documentation. If you need to combine multiple variables to make a single variable, ensure all the original elements have a separate label in the new combined variable.

ISCO1: ISCO 2008 1-Digit Occupation - HAF only

This variable uses the first digit of ISCO 2008 code for occupation groups. If a respondent's occupation is not given in ISCO categories, make the best approximation of these categories that can be made from OCCUPO and note the variations in the survey documentation. As with OCCUPO, if the diarist is presently employed, use the current occupation to make this variable. If the diarist is not currently employed but a last occupation variable is available, use this last occupation variable to make ISCO1.

Armed Forces occupations	0
Managers, senior officials and legislators	1
Professionals	2
Technicians and associate professionals	3
Clerical workers	4
Service and sales workers	5
Skilled agricultural, fishery, and forestry workers	6
Craft and related trades workers	7
Plant and machine operators and assemblers	8
Elementary occupations	9

SECTOR: Sector of employment - HAF only

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 - HAF only

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. Also note that where original surveys offer a large number of individual education qualification variables, use a highest level of completed education variable. If only a number of qualifications is offered and no highest level of education variable is available, we create a highest level of education from the available variables in the original survey.

EDCAT: Harmonised highest level of education - HAF HCF only

This variable contains the harmonised diarists' highest education level. It is based on the [International Classification of Education \(ISCED\)](#). This variable proved 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').

RUSHED: Whether diarist generally feels rushed - HAF only

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

Value	Label
0	Almost never
1	Sometimes
2	Often

HEALTH: Diarist's general health - HAF only

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 - HAF only

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 child care a child of that age might typically require.

Value	Label
0	No
1	Yes

DISAB: Diarist has disability / limiting health condition - HAF only

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 and the only information is from a main economic activity status variable, we add a note in the Readme documentation file.

7. 69 activity variables

We use this 69 category activity list for both the harmonised main and secondary activity variables. We summarise only main activity time in the Harmonised Aggregate File (HAF). Secondary activity only appears in the episode file.

69 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	meals or snacks in other places
MAIN/SEC 7	paid work - main job (not at home)
MAIN/SEC 8	paid work at home (main, second or other job)
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 course or 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, collect fuel
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 or medical child care
MAIN/SEC 29	teach child a skill, 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 or organisational 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 (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	games (social or solitary), other in-home social
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, including web streamed content
MAIN/SEC 60	play computer games
MAIN/SEC 61	send e-mail, surf internet, programming, computing
MAIN/SEC 62	no activity, recorded travel mode or change of location
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
SPPART	time with spouse or partner (for diarists in couples)

The default value for all time use variables that can be created is 0 in the Harmonised Aggregate File. If a category cannot be created, this Main variable should in the HAF should be coded as -9. The value of 0 in the HAF should

MAIN1 / SEC1 : Imputed personal or household care

Notes: ■ None

Notes: ☐ None

Notes: ■ None

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).
- Includes providing your own medical care – if you receive a medical service at home from someone else, then code the activity in Main 25.

Including such Meals at work or school – if not a separate activity, may need to

activities as: use the location codes for activity eating and location canteen or lunch room at school or work

Notes:

- None

MAIN6 / SEC6 : Meals or snacks in other places

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 outside paid work time should be coded as MAIN / SEC 17.
- Farming as the main economic activity should be coded as MAIN / SEC 7.
- Unpaid *help* to a business/farm of another household 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, second or other 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 Paid work for a second, third, small hours job that does not take

activities as: place at home, including 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 or pilot operating vehicle as part of job. Travelling to a meeting or conference for work, or on the road as a sales representative, delivery driver, courier in transit.

Notes:

- Include 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, other activity not coded elsewhere while at work.

Notes:

- Voluntary or union activity at work goes into Main/Sec 33

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, also includes informal study related conversations and breaks at school.

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 course or 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 _____ Straightening, tidying, routine cleaning

activities as:

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, collecting fuel

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 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 a skill, 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 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 or organisational 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/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 service at a place of worship
Pray alone or with others, meditate, spiritual activity
Read sacred texts, 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 or funeral and 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:

- The activity does not take place at home

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/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 mode 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
Children playing outside in child diaries

- Notes:**
- None

MAIN46 / SEC46 : Gardening / forage, hunt/fish

Including such activities as:

Gardening (ornamental or to produce flowers/food for own 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:**
- If the activity code in the original survey is eat a meal at another

person's home, and no secondary activity is recorded, code main activity as 48, and secondary activity as 6.

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 : Games (social or solitary), other in-home social

Including such activities as: Games of skill (social or solitary)
Other social activities with household members or others

Notes:

- Conversation with household members goes into Main/Sec 49

MAIN51 / SEC51 : General indoor leisure

Including such activities as: Unspecified or general indoor leisure
Children playing inside in child diaries

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

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), including reading on a kindle or reading on-line

Notes:

- Do not include reading as a part of paid work or education and study. If reading on-line, include reading, general browsing or surfing goes into Main/Sec 61.

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, education or study

MAIN58 / SEC58 : Listen to radio

Including such activities as: Listen to radio

Notes:

- Include listening to radio over the internet or a mobile device
- If you cannot distinguish between listening to radio content or listening to other music or audio content, code this activity in main or sec 58

MAIN59 / SEC59 : Watch TV, DVD, including web streamed content

Including such activities as: Watch TV, video, DVD, video on demand, including television or film streamed from the internet

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, programming, 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, recorded travel mode or change of location

Including such activities as:

No activity recorded, but a mode of transport that is neither walking nor cycling; also no main activity but change of location between previous specified activity and subsequent specified activity

Notes:

- Do not impute travel for change of location if the gap with no recorded time exceeds 30 minutes.

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/from leisure, go for drive, other travel for fun of travel
Travel for other activities, travel not already coded elsewhere

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

SPPART – Time with spouse or partner (for diarists in couples)

In the Harmonised Aggregate File (HAF), this variable is the total minutes during the diary day respondents in couples reported being with their spouse or partner during any activity. In the Harmonised Episode File, Sppart is a marker variable (with values 0 or 1) marking whether the spouse was present during the episode. In the HAF, this variable should be set to -9 for surveys where who else is present or time with the spouse or partner is not available. If the diarist is not married and does not have a cohabiting partner, then this variable is coded as -7 in the HAF.

8. Core file 25 activity variables

The Harmonised Core File includes a more limited range of summary time in main activity codes as well as a more limited range of identifiers and background variables. The HCF includes 25 categories which sum to 1440 minutes, and which are a reduced version of the 69 category main activity list (shown in the table).

25 activities	Description	Includes categories
Sleep	sleep and naps	main2 + main3
Eatdrink	meals or snacks	main5 + main6
Selfcare	wash, dress, care for self	main1 + main4
Paidwork	paid work and related activities	Σ main7 to main14
Educate	schooling, education, homework	Σ main15 to main17
Foodprep	food preparation, cook, wash dishes	main18 + main19
Cleanetc	cleaning, laundry, regular housework	main20 + main21 + main23
Maintain	maintain home/vehicle, collect fuel	main22
Shopserv	purchase goods, consume services	Σ main24 to main26
Garden	gardening/pick mushrooms	main46
Petcare	pet care (including walk dogs)	main27 + main47
Eldcare	look after adults needing help or care	main32
Pkidcare	physical, medical, routine child care	main28 + main31
Ikidcare	play/sports with, read to, teach child	main29 + main30
Religion	worship and religion	main34
Volorgwk	voluntary, civic, organisational act	main33
Commute	travel to/from work or education	main63 + main64
Travel	other travel	main62 + Σ 65 to 68
Sportex	participate in sport or exercise	Σ main42 to main44
TVradio	watch television, listen to radio	Σ main57 to main59
Read	Read	main56
Compint	e-mail, web, program, computer games	main60 + main61
Goout	away from home leisure as spectator	Σ 35 to 41 + main45
Leisure	other free time leisure	Σ main48 to main55
Missing	no main activity reported	main69

Do not make this file if constructing the Harmonised Aggregate File

Code used by the Centre for Time Use Research to generate the full MTUS from the harmonised formats of the individual surveys generates the Harmonised Core

File from the Harmonised Aggregate File. If this document is used to create the HAF, there is no need to construct the HCF files as well.

Making the Core File on its own

If this document is being used only to construct the HCF, then the user should follow the guidelines for constructing only those identifiers, household-level variables and respondent-level variables included in the HCF. These variables are marked in Chapter 6 as belonging in this file.

The time use variable harmonisation process depends on the longer-term aim for creating this file. If the intention is to leave open the possibility of upgrading this file to the more detailed MTUS formats in future, then create a limited set of the episode file variables (described in Chapter 10):

```
nowght time clockst start end epnum main
```

From this reduced version of the episode file, create a reduced version of the aggregate file including the following variables:

```
country hldid persid id day month year hhldsize nchild agekidx sex age civstat  
empstat workhrs edcat main1 main2 main3 main4 main5 main6 main7 main8  
main9 main10 main11 main12 main13 main14 main15 main16 main17 main18  
main19 main20 main21 main22 main23 main24 main25 main26 main27 main28  
main29 main30 main31 main32 main33 main34 main35 main36 main37 main38  
main39 main40 main41 main42 main43 main44 main45 main46 main47 main48  
main49 main50 main51 main52 main53 main54 main55 main56 main57 main58  
main59 main60 main61 main62 main63 main64 main65 main66 main67 main68  
main69 propwt.
```

CTUR code can create the core file from the same programme that extracts this file from the full aggregate file.

If the intention is to make only the core MTUS version of the survey, then create the twenty five summary time use variables in their own right, using Chapter 7 and the table in this chapter as a guide. All time use variables have a default value of 0 if the diarist recorded no time in that activity. If the category is not available in the whole survey, code this variable as -9.

The same procedures outlined in Chapter 11 for the HAF and HEF also apply to the creation of the weight variable for the Harmonised Core File.

9. 41 activity variables (retained from older versions of MTUS)

Older versions of MTUS included this harmonised list of 41 aggregated activities. For consistency of research using the current and older versions of the MTUS, we retain these variables in the current version.

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

In the Harmonised Aggregate File, 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 in the HAF. 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 would have 0 values for the AV variable in all cases in the HAF. All categories on this original activity category list which cannot be created should be noted in the Readme file for that survey.

Some of these original 41 codes grouped categories where few minutes of time were recorded in the surveys harmonised into the earliest version of the MTUS, even though 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). The table below explains the relationship between these older codes and the updated 69 category activity list.

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 Main4	imputed personal and household care added to personal care
AV14	Main25	personal services – equivalent category except that personal medical care at home now is included in personal care
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	social clubs grouped with dances, receptions, parties
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 Main54 Main60 Main61	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 games, and email/internet/chat room distinguished home brewing, wine making moved from leisure to food preparation in new code
AV41	Main41 Main69	No main activity but diarist is not at home; as well as missing any account for episode

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 activities as:

Childminding
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

Food preparation

activities as:

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
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:

Notes:

Religious practices

- 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:

- If the survey lumps all listening to audio content (radio, music, audio books, podcasts), code this as AV30.

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

Older versions of the MTUS also included a condensed 22 activity code list which represents a collapsed version of the 41 categories. This collapsed version has been dropped, though the SPSS syntax to recreate these variables is available on the User Contributions page: <http://www.timeuse.org/mtus/contributions/>

10. Harmonised Episode File variables

In contrast to HAF and HCF files, where the row cases represent 24-hour diaries, in the Harmonised Sequence File, the row cases represent a change in episode (a change in the main activity, secondary activity, location, who else is present, or any other domain of the original diary, from the previous record in the diary).

As this file contains many more row cases and complex variables, this file is best treated as a database rather than an end use file. Users should note that a particular “activity” in which they have interest may be defined by a number of elements. For some research purposes, social activity using ICTs when the diarist is not physically with other people will need to be distinguished from social activity involving ICTs where other people are present, as well as from social activity where the other people present comprise all parties to the social interaction. Likewise, for some research purposes, activities that entail greater exposure to sunlight will need to be distinguished from activities with less exposure or no exposure, and making this identification will require the combination of the main and secondary activity codes, the inside or outside variable, and the time of day (matched with data on when sunrise and sunset took place in that location).

Consequently, the Harmonised Episode File is organised on two basic principles. We include a limited range of background variables, both for the convenience of the converters as they check their work and for the convenience of users, who may wish to test how well their extraction of a particular concept has worked. The majority of variables about the survey, diarist, and diarist’s household are available only in HAF version. Users of the episode file need to decide how to extract their concept, then match variables they make from the episode data back into the aggregate file to conduct analysis using the wider range of variables.

All the identifiers to allow this match appear in the episode file. These variables also should appear in the order shown below. As these variables already have been described in this document (Chapter 6), we do not elaborate more here.

- country – country of study
- survey – year the survey began
- swave – longitudinal study wave marker
- msamp – multiple samples using the same diary instrument
- hldid – household identifier
- persid – person / diarist identifier
- id – diary identifier

Likewise, we include the basic details of the diary and the diarist (we fully describe all but one of these variables in Chapter 6). This list of variables follows the identifiers in the following order:

- day – day of week diary kept
- cday – calendar day diary kept (this one variable in episode file only)
- month – month diary kept
- year – year diary kept
- diary – diary order (1 when 1 diary per participant)
- nowght – marker of low-quality cases
- sex – sex of diarist
- age – age of diarist

TIME VARIABLES

The episode file includes 14 episode-specific variables. The first five of these variables report the time of the episode.

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 the Harmonised Episode File 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 0, and the last episode in all diaries has an end value of 1440.

Some surveys report time in this format, and for these cases, we copy the start and end minutes into the MTUS variables. For cases where data presents time files in an episode format, but the only time variables are the calendar start and end time of the episode:

$$\begin{aligned} \text{start}(n+1) &= \text{start}(n) + \text{duration}(n) \\ \text{start}(n+1) &= \text{end}(n) \\ \text{end}(n+1) &= \text{start}(n+1) + \text{duration}(n+1) \end{aligned}$$

For surveys which collect activity information in fixed time slots, where:

sd = time slot duration in minutes (a constant in most cases)
es = number of time slots which elapse to next episode

$$\begin{aligned} \text{start}(n+1) &= \text{start}(n) + \text{sd} * \text{es}(n) \\ \text{start}(n+1) &= \text{end}(n) \\ \text{end}(n+1) &= \text{start}(n+1) + \text{sd} * \text{es}(n+1) \end{aligned}$$

Thus, is the case of Harmonised European Time Use Study surveys, if a person starts an episode of eating lunch at 12:00 and finishes eating at 12:40 (and the diary survey began at the recommended clock start time of 04:00):

$$\text{start}(n)=480$$

end(n)=520
start(n+1)=520
end(n+1)=520 + 10*es

The MTUS includes a compendium Excel file which offers greater detail of the process of making the time variables for the Harmonised Episode File from a time slot organised original file.

EPNUM: Episode number

This variable is the identifier of the episode. The first episode has a value of 1.

$\text{Episode}(n+1) = \text{epnum}(n)+1$.

This episode number should be generated after the activity and ancillary variables have been created. As the next page explains, some elements of the MTUS processing can produce different numbers of episodes compared to the original data. The MTUS variable EPNUM needs to reflect the number of episodes in the MTUS version of the file, while also retaining any changes in the activity or context codes in the original file. People converting MTUS files should consult the supporting Excel file on the creation of this variable.

ACTIVITY VARIABLES

MAIN: Main activity (69 category list)

SEC: Secondary activity (69 category list)

AV: Main activity (41 category list)

These three variables mirror the MAIN1 to MAIN69 and AV1 to AV41 variables in the Harmonised Aggregate File. MAIN covers the main activity codes in the 69 category list of categories. SEC covers secondary activity using the same 69 category list as MAIN. AV covers the main activity codes in the original 41 category list. 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 Chapters 7 and 9.

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).

In cases where diarists record only one activity, but where we also 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. Note the MTUS does not lose episodes in original data files. If the original survey includes multiple activity codes for a concept that are coded in single category in the MTUS (for instance, separating playing with children which involves an educational purpose from

playing with children with no educational purpose - both of which are coded as Main=30 in the MTUS), and consecutive episodes in the original file switch between these codes, which would in turn produce two lines in the MTUS file which are identical apart from the time stamping, then the MTUS file includes two consecutive episodes that otherwise appear identical.

LOCATION VARIABLES

INOUT: Inside or outside

ELOC: Location

Location variables	Description
INOUT = -8	location unknown
INOUT = 1	Inside
INOUT = 2	outside
INOUT = 3	in a vehicle
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

Location codes are drawn both from location codes as well as imbedded information in the activity code.

The INOUT variable is best coded by a process of elimination. First, any activity where there is a vehicle recorded as a mode of transport is coded as 3 (travelling). Next, use original location codes to identify locations that are outside (in the yard of own home, at the beach or countryside, children's play area, and the like). For remaining activities, use imbedded code information to code outside (for instance clean yard, outdoor cleaning, play with child outside). Walking and cycling for transport and most walking and cycling as sport takes place outside.

Users should note that the degree of specification about whether an activity is inside or outside is highly variable by survey, and caution should be used with this variable for cross-country and cross-time analysis.

Coders next need to look for clear-cut cases of activities that happen inside in the original location codes. Then look for explicit inside codes in the original code frame (indoor cleaning, indoor sports etc.). Finally, remaining activity most likely to have happened inside (sleep, personal care) should be coded as inside. Any remaining activity should be coded as location unknown.

Coding of ELOC should begin from original location codes. Once the potential of the original location codes is exhausted, the coder then should turn to imbedded locations in the original activity code frame (work at home, eat in restaurant, receive friends at home and the like) to fill in gaps. Any inconsistency between the original location codes and the locations imbedded activity codes should be checked, and a comment made in the conversion programme. Activity codes then can be used to break down “other” locations. As examples, if there is no code for school, but the activity is formal schooling and the location is away from home, it is reasonable to infer that the location is school. Similarly, if the activity is attend religious service and the location is other not at home, this location reasonably can be inferred to be at a place of worship. If the diarist was travelling (including on foot and by bicycle), then ELOC should have the value 8.

Note that coders should **use original, NOT MTUS** codes to construct the INOUT and ELOC variables.

OTHER VARIABLES

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 or the internet. 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 first round of 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 but not over the internet. 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 us sufficient information to know that the diarist used ICTs during this episode.

ICT variable	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 and report 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 5 (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 3 (walk / on foot). Where the activity is coded as cycling for sport and no mode of transport is recorded, we code MTRAV as 4 (cycle). Activities of horse riding, sledding, sailing or rowing a boat, skiing, roller skating/blading and the like are coded as 4 as well.

Mode of transport variable	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 information varies significantly across the surveys 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” similar 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. Likewise, in a couple-only household, the presence of another household member must be 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

11. Weights

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.

The Harmonised Aggregate File contains the following two 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 Harmonised Core File only contains PROPWT.

The Harmonised Episode 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 HAF or HCF versions 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 size of the population (and the inflation factor is the mean of the weight). 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, unless you need to make a complex, multi-stage weight, in which case you can set the population element of the weight construction process to OCOMBWT (but document this process in the Readme file). Researchers have to find official statistics describing the population by age and sex. We recommend national census information or 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) – this means if you have at least 75 cases of working and not-working for each sex and age group (when you divide cases by week day and weekend day or by each day of the week, you will need sufficient cases in each cell for the weight to be meaningful) – then also include employment status. Generally we do 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 (NOWGHT=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: ASERdayWT - a sum of weights for each age/sex (/employment status) group separately for each day of the week, and also: ASERdayCASE - 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- $PROPWT = (ESW / ASERdayWT) / (ASERdayCASE / ASERdayWT)$

- 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.

12. Variable ordering in final main files

All variables included in final MTUS files should be saved with lower case names. The variables should appear in the following order for the MTUS files.

Harmonised Aggregate File (HAF)

country survey swave msamp hldid persid id parntid1 parntid2 partid day month
year diary nowght hhtype hhldsize nchild agekidx agekid2 incorig income
ownhome urban computer vehicle sex age famstat singpar relrefp civstat cohab
citizen empstat emp unemp student retired empsp workhrs empinclm occupo
isco1 sector educa edcat rushed health carer disab main1 main2 main3 main4
main5 main6 main7 main8 main9 main10 main11 main12 main13 main14
main15 main16 main17 main18 main19 main20 main21 main22 main23 main24
main25 main26 main27 main28 main29 main30 main31 main32 main33 main34
main35 main36 main37 main38 main39 main40 main41 main42 main43 main44
main45 main46 main47 main48 main49 main50 main51 main52 main53 main54
main55 main56 main57 main58 main59 main60 main61 main62 main63 main64
main65 main66 main67 main68 main69 av1 av2 av3 av4 av5 av6 av7 av8 av9
av10 av11 av12 av13 av14 av15 av16 av17 av18 av19 av20 av21 av22 av23
av24 av25 av26 av27 av28 av29 av30 av31 av32 av33 av34 av35 av36 av37
av38 av39 av40 av41 sppart ocombwt propwt

Harmonised Episode File (HEF)

country survey swave msamp hldid persid id day cday month year diary nowght
sex age time clockst start end epnum main sec av inout eloc ict mtrav alone child
sppart oad

Harmonised Core File (HCF)

country hldid persid id day month year hhldsize nchild agekidx sex age civstat
empstat workhrs edcat sleep eatdrink selfcare paidwork educatn foodprep
cleanetc maintain shopserv garden petcare eldcare pkidcare ikidcare religion
volorgwk commute travel sportex tvradio read compint goout leisure missing
main1 main2 main3 main4 main5 main6 main7 main8 main9 main10 main11
main12 main13 main14 main15 main16 main17 main18 main19 main20 main21
main22 main23 main24 main25 main26 main27 main28 main29 main30 main31
main32 main33 main34 main35 main36 main37 main38 main39 main40 main41
main42 main43 main44 main45 main46 main47 main48 main49 main50 main51
main52 main53 main54 main55 main56 main57 main58 main59 main60 main61
main62 main63 main64 main65 main66 main67 main68 main69 sppart propwt

Region, Ethnicity, Original Values Supplement File (SUP)

country survey swave msamp hldid persid [relevant region variables, vary by country] [relevant ethnicity variables, vary by country] incorig empincim occupo educa [or if needed, collection of incoyyyy empiyyyy occuyyyy educyyyy].

Animal Supplement File (EPSUP)

country survey swave msamp hldid persid id epnum animal.

Variables included in older versions of the MTUS (detailed in the User Guide Chapter 2) but have since been dropped should not be saved in these files.

SPSS, STATA, and SAS programmes which produce the MTUS files from original files, and separate programmes adding variable and value labels are included on the convert files to MTUS format page of the MTUS website.

13. Supplementary files

The MTUS offers survey and country-specific supplementary files offering additional useful information for a limited selection of the surveys included in the MTUS Aggregate and Episode files (do not make the supplements if you are making a core for now or a core only version file). Additionally, the Centre for Time Use Research also maintains the American Heritage Time Use Study (AHTUS)⁴, which offers more detail from the original surveys collected in the United States, that includes the variables included in other MTUS supplements.

The MTUS supplementary files include two different file levels. The first file is a person (and if relevant, wave) level file with region, ethnicity and original value labels. Region information applies to the whole household, and only applies to a specific country. The MTUS aims to harmonise region information to the extent that we can within one country. The ethnicity information also varies considerably by country, and is person level information. Once again, we aim to harmonise the ethnicity information within each country where we include supplements. These files are cross-time for each country. People converting this supplement for the MTUS should use the separate documentation⁵ files when making the supplement categories.

The first file also includes the fully labelled set of original variables: `incorig`, `empinclm`, `occupo`, and `educa`. For the UK, this supplement additionally covers the age the diarist left regular schooling. If multiple variables might be relevant for one of these concepts for another survey, include any other relevant variables, preferencing only those variables available across time. Also, aim for only a small number of key variables, not all possible relevant variables. If the labels of the original variables used for `incorig`, `empinclm`, `occupo`, and `educa` differ across the survey years, add a 4-digit year to the end of the variable name (but keeping the variable name length within the maximum of 8 characters proscribed by MTUS format). Use the value of the variable survey for the 4-digit year, not the value of the variable year (if this differs from survey), making:

`incoyyyy` `empiyyy` `occuyyyy` and `educyyyy`

These files include separate documentation which also should be completed with the conversion process.

Note that there is no fixed set of labels for the region, ethnicity or original income, occupation or education variables, and hence there is no harmonised MTUS

⁴ <http://www.timeuse.org/ahtus>

⁵ <http://www.timeuse.org/mtus/supplementary-files>

programme to add labels. As a result, the person writing the conversion file should add the labels to the person-level supplement file.

The second file is an episode-level file. This file includes the identifiers and additionally cover one additional concept using the 0=no, 1=yes format used with the ICT and who else is present in the main episode files.

ANIMAL – A pet, service or domestic animal was present during the activity

The episode occurred in the presence of an animal, marked with who else is present information for a limited number of surveys, and activity codes for time with pets, time with domestic animals, or any other indication of time with an animal.

14. Quality checks

Before submitting surveys, coders are asked to carry out a series of quality checks. If these quality checks unravel coding errors, these should be corrected. Inconsistencies in the original data should be reconciled where possible, but any manipulation of the original data should be documented in the Readme document and conversion programme files. All surveys submitted to the MTUS team will be checked and tested before release.

PLEASE SUBMIT FILES FOR CHECKING AS FLAT TEXT (.csv) files or as an older version (not ancient, but not the most recent) of the programme to ensure that people using other programmes can open and check the file.

If you created the file in STATA, the process for making a CSV file is as follows:

- 1) file -> export ->
- 2) when the pop-up window comes up:
 - a. check "Save variable names to first row in Excel file"
 - b. **ok** on "Output numeric values (not labels) of labelled variables"

Please note that prior to getting to this check phase, the person undertaking the conversion should check that all available information has been used to the most full extent to create as many of the MTUS variables as possible. Sometimes creative procedures can be used to break apart highly grouped categories or to construct some variables. The absence of a simple solution does not mean the absence of a solution to create some variables. Variables should be set to -9 (missing from the survey) only if there is no possibility of meaningfully creating the variable for any significant proportion of the diary cases.

Also, if you are upgrading an old conversion of a dataset into an older version of the MTUS, please double-check that all original conversion work was done accurately. With such extensive details as is included in this process, mistakes are inevitable, and the reworking process can help identify and rectify past errors. If you find such an error, please make a documentation note in the conversion programme.

STEP 1: People converting data should examine basic unweighted distributions (frequencies for all categoric variables; the separately means, minimums, maximums, and number of cases for continuous variables).

- Attention should be paid to the percentage of cases coded as -7 or -8. If this percentage is large, the Readme file should explain why this is the case.

- It is useful to compare the results with those of other surveys. Large discrepancies with other surveys or sources of statistics may suggest errors, and at the least need explanation in the Readme file.
- All variables should have the same number of cases. No variable should have any system missing cases or any cases without labels in cases where labels are relevant.
- The only string variable is country. All other variables should be numeric.
- All variables should have realistic distributions. If 70% of households are coded as “other household type”, or a high percentage of child diarists do not appear to live with their parents, as examples, you should seek an explanation which likely is an error in the conversion problem.
- All variables should have realistic ranges – for instance, no time use variables in the Harmonised Aggregate File should have maximum values greater than 1440 or minimum values less than 0 (unless impossible to code in the survey, in which case they should be coded as -9).
- Means for activities which almost all people engage on a daily basis, such as eating and sleep, should be higher than for activities in which most people do not engage on a daily basis, such as volunteering and civic activity.
- The propwt should sum to the total number of diary cases (all good + bad diaries), and the mean of propwt should be 1.

STEP 2: A limited range of weighted frequencies also should be checked. When weighted by PROPWT:

- all cases of the variable NOWGHT should equal 0 (good quality diary)
- each day of the week should appear in equal proportion (14.286%)
- sex and age group distributions should match official statistics of these distributions for this country in the relevant year.

STEP 3: The next step entails examination of combinations of variables to ensure that expected combinations appear. Unexpected combinations generally indicate harmonisation errors. Any discrepancies which cannot be reconciled should be explained in the documentation of the Readme and conversion programme files.

Means of age, hhldsize and nchild by categories of famstat

- Right age minimums and maximums for categories
- No child in categories with no child, at least 1 child in categories with children
- household size generally higher for households with children
- very young children not in single person households

Means of age hhldsize by nchild and retired

- Number of children should be less than household size (except in a limited number of cases of single 17-year-olds)
- Median age of retired should be higher than median age of non-retired

Cross-tabs of famstat by nchild, hhtype, agekidx and civstat

- famstat=1,2,4 should not be in single person households (hhtype=1)
- famstat=1 and 4 should not be in couple-only households (hhtype=2); famstat=2 can map to hhtype=2 only when the diarist is aged >18, the spouse is aged <18, and no other people live in the household
- famstat=0,3 should match to agekidx=-7 or 4 & nchild=0, other famstat values should have no agekidx=-7 or 4 or nchild=0 values
- famstat=1 should match to agekidx=1 cases only
- famstat=2 should match to agekidx=2 and 3 cases only
- famstat=4, 5 should match to agekidx=1, 2 or 3

Cross-tab agekidx by nchild

- nchild=0 should match to all cases agekidx=-7 or agekidx=4, no positive cases of nchild should have agekidx=-7 or agekidx=4 and no cases of agekidx>-7 and <4 should match to nchild=0

Cross-tabs empstat by emp, unemp, student, retired disab

- emp=1 should correspond only with empstat=1,2,3
- Most people coded as unemployed should not be working, more students and retired should be empstat=4 but some students, retired people and disabled people should be coded as working

Check workhrs=-7 (not asked or not working) corresponds to empstat=4 but also with valid values for isco1 and occupo (these will be people for whom previous occupation applies). If occupation is available, all people with 0 or positive workhrs should have valid occupation values (or -8 for missing) and should have empstat=1, 2, or 3.

Cross-tabs with empsp and partid by civstat and relrefp

- People not in couples should have values of -7 for empsp and partid.
- relrefp=2 (spouse of reference person) and civstat=1 should not match with empsp or partid=-7

Cross-tab civstat by hhtype relrefp partid cohab

- No hhtype=2 should match with civstat=2
- Few civstat=1 should match to hhtype=1 (single person household)
- Diarists with relrefp values of 2 (spouse of reference person) should have a civstat value of 1 (in couple)
- All people with cohab=1 or cohab=0 should have a civstat=1

Cross-tab hhtype by relrefp

- hhtype=1 only should correspond with relrefp=1
- hhtype=2 should correspond with relrefp values of 1 and 2
- hhtype=3 can correspond with all relrefp values
- hhtype=4 can correspond with all relrefp values except 2 (there should be no spouses)

Cross-tab cro hhtype by hhldsize

- hhtype=2 should correspond with hhldsize=2

Cross-tab parntid1 by parntid2

- Except when parents are not present (-7) or both unknown (-8), the two parent identifiers should never have the same value. No person is capable of asexual reproduction. If people live with only 1 parent, the id of the second parent should be -7.

Check empsp in couples for consistency

- For people in couples only in surveys where both partners completed diaries, generate a new empsp2=empstat.
- Match the empsp2 variable to the row case of their respective partners and run a cross-tab of empsp2 by empsp. These values should be identical.

Compute a summary of the total minutes recorded in the diary, first by

- summing the total time by adding up all AV variables that can be computed for the survey
- summing the total time by adding up all MAIN variables that can be computed for the survey
- summing the total time by adding up all time variables for each diary in the World 6 file.

ALL SUMMARIES SHOULD EQUAL 1440 – there is a problem in all cases where the total is not 1440.

Run a frequency of nowght where propwt=0 - all cases of nowght should be greater than 0.

Run a frequency of nowght where propwt>0 - all cases of nowght should = 0.

STEP 4: Check basic mean time distributions of main1 to main69 by days of week for men & women by age groups

<18
18-29

30-49
50-65
66+

Some activities feature more prominently on some days than on others. In Christian countries, more religious activity should take place on Sundays than other days; in Jewish and Muslim countries, more religious activity should be recorded on Fridays. More paid work and education takes place on week days, while people generally sleep longer on weekends. Converters should check distributions of mean times for men and for women for performing some basic activities as paid work, education, sleep, and religious activity by days of the week to ensure that expected patterns emerge.

STEP 5: Minimum and maximum values for the following ten variables:

AGEKIDX	HHSIZE	NCHILD	VEHICLE
AGEKID2	HHTYPE	OWNHOME	
COMPUTER	INCOME	URBAN	

should be aggregated to the household level - the maximum and minimum values should have the same value for all household members. Any discrepancies represent harmonisation errors.

STEP 6: Check that only one person in the household has the status of spouse of the reference person on the variable relrefp (relationship to household reference person).

STEP 7: Where surveys collect more than one diary per person, check that the diary identifiers reflect the date order of the diary completion - if the date of completion order differs from the diary identifiers, use the variable diary to mark the order of completion of the diaries.

STEP 8: Check that all episodes in the episode file have at least 1 minute of time, and that no episode has 0 minutes of time.

STEP 9: Finally, where a sequence of surveys are available for a country across time, harmonisers should check the weighted mean time for the whole sample and for participants in each activity. Any large jumps or dips in the sequence across time should be investigated and amended. In some circumstances, such variations may represent a changed decision in relation to coding a particular activity (naps, coded in sleep, and doing nothing sometimes are interchanged for example). Weighed distributions of demographic variables also should be checked across time. These distributions include: sex by hhtype, empstat, edcat. Also, the weighted percentage of women and men who are single parents, in



couples, students, retired, disabled, and live in a rural home should be compared across time. In such circumstances, some amendments may be necessary in the coded to create a realistic distribution of change in activity across time.

15. Documentation

The following documentation and files should be provided to the MTUS development team:

- SPSS syntax, STATA do or SAS or R programme file. This programme should cover the full process, starting with opening the original file and ending with testing and saving the MTUS version of the file.
- Either (a) the HEF and HAF data files; or (b) the HAF file; or (c) HCF (in SPSS, STATA, SAS or R)
- Readme file (as a Word document).

README FILES

These documentation files should be saved in Word (.doc), and present the user with basic details of the survey as well as all specific information about which the user should be aware when using this dataset for analysis. These Readme files should be saved with the following naming convention:

Readme_CCyear.doc

CC corresponds to the 2 letter country code (see Chapter 2). Year means the start year of the survey.

When you create or modify a Readme file, please make a record of the file history in the file properties. Click on the Windows symbol, then select “prepare” then “properties”. Make sure you enter yourself in the author section. If there are previous authors, please note then in the notes section, and note the date that you updated the file. Also please make sure the file name states that this is the Readme file for the right country and year.

These files should have a title section with the following appearance:

README FILE FOR COUNTRY YEAR(S)

(Harmonised Episode File and Harmonised Aggregate File Release -1)
Date File Created or Updated (ie 15 March 2014)

Please use the prepare / properties feature of Word when producing these files. Please write your name and institution in the **author** field, and “Readme file for

Country Year” in the **title** field. If you are updating an existing Readme file, please copy the name of the previous authors and the date of the previous versions of the documentation into the **notes** field. Please leave all other properties fields blank.

The file should be saved using English (UK).

CONTENTS:

- **Technical description of the survey**
- **Information on the original files**
- **Time-use variables**
- **Variable-specific information**

The technical description section follows a fixed format, which appears below. These files should be saved with the default language of English – UK. This example is drawn from the Readme file for the UK 2005 survey.

The web link should take the user to the more detailed description of the survey on the table of time use studies in the information section of the Centre for Time Use Research web site: <http://www.timeuse.org/information/studies/>

If the more detailed description in the table of time use studies contains errors, needs additional information added, or needs an entry created, please alter CTUR staff to this problem.

The table covers basic information about the survey.

- **Age range** means the age range of diarists, not households or participants in wider elements of a survey
- **Response rate** may be for the whole survey, or reported separately for different elements of the sample – use discretion as to which report would be most helpful to users of the data
- **Number of diary days** means the number of 24 hour diaries each participant was asked to complete (if some elements of the sample were asked to complete 1 diary but others to complete more than one diary, please note this here)
- **Survey period** means the period when the data was collected. If the survey collected data over a continuous period from the 1st of one month to the 31st of another, you can write 1 May 2000 to 31 December 2001, or the whole of 2005. If the survey collected data in waves rather than in a continuous period (as shown below), then please note the months and years when data were collected.
- **Multi-member household survey** means whether the survey collected diaries from one person per household, from one person identified by

selection from a national register, other survey or list of phone numbers where it was possible in rare cases for more than one person in the same household to participate but intra-household behaviour analysis is not possible for the sample as a whole, from one person and that person's spouse or partner if the participant is in a couple, or from multiple household members (meaning that analysis of intra-household behaviour is meaningful for this survey).

- **Type of diary** means when the data were collected (on the same day as the activities took place) or the previous day (recall)
- **Mode of data collection** means how the diary was completed (pen and paper, over the internet, with a CATI or CAPI system) and by whom (the diarist or an interviewer – or the diarist but checked by an interviewer)
- **Time interval** means the diarist entered the start and stop times of activities or the diarist had a grid of fixed time intervals, and if the intervals are fixed, then the row should note the duration of intervals. Some surveys have only one interval through the whole 24 hours (usually 5, 10 or 15 minutes), but some have multiple intervals (for instance 30 minutes from midnight to 6:00, and 10 minute intervals from 6:00 to midnight).
- **Data on secondary activities / where the activity was carried out / who else was present** Generally these three rows can be answered with yes or no, though if the answer is a qualified yes (meaning very limited information) then give more detail. If the same list of activities or a somewhat less detailed but still extensive list of activities is used to code secondary activity, then you can just write yes to secondary activity. If the survey only collects main activity, but also collects whether a child was in the diarist's care during the activity or if the activity involved the use of a computer or the internet, then limited information on secondary activity is available, and you should say no but xxx is recorded.
- **Number of activity codes** means the number of original activity codes in the diary. If some additional information would allow more distinction among some codes, please also note this in this cell of the table.
- **Number of cases in the original file** means the total number of diary cases (if the original file also included non-diaries from people who did not complete a diary, do not count such cases, only include the total number of diaries – including good quality and low quality diaries). Please provide a total for the whole survey. If the survey collected diaries from people aged 18+ as well as from people aged <18, please also provide separate total diary numbers for child and adult diarists.
- **Number of good diaries** means the number of quality diaries (nowght=0). Please provide a total of good diaries for the whole survey. If the survey collected diaries from people aged 18+ as well as from people aged <18, please also provide separate total for good diaries for child and adult diarists.

TECHNICAL DESCRIPTION OF THE SURVEY

Age range	16+
Response rate	59% across the four waves
Number of diary days	1 day
Survey period	March-April, June-July, September-October, November-December 2005
Multi-member household survey	No, 1 person per household
Type of diary	Previous day (with some diaries covering up to three days previously)
Mode of data collection	Interviewer completed during face-to-face interview
Time interval in the diary	10 minutes
Data on secondary activities	Yes
Data on where the activity was carried out	Yes (home or elsewhere + mode of transport and purpose of transport)
Data on who else was present	No
Number of activity codes	30 pre-coded activity categories for main and secondary activity, 6 categories of mode of transport and 5 categories of reason for transport
Number of cases in the original file	4941 total diaries 87 diaries from people aged 16-17 4854 diaries from diarists aged 18+
Number of 'good' diaries	4834 good quality diaries 86 diaries from people aged 16-17 4748 diaries from diarists aged 18+

INFORMATION ON THE ORIGINAL FILE

This section should name of the original public use data file or files and give a brief explanation of their content to let the user know if the original data appear as a single massive file where each row case represents a diarist, or a series of files, including an activity episode file, a household level file and an individual diarist file, or another structure.

TIME-USE VARIABLES

The next section of the Readme file includes tables mapping the MTUS time use variable codes with the original activity codes. If you needed to use more than one element of the diary to make some codes, you should state this. For instances, you may need to use location (loc=1 at home) and the range of paid work codes to code paid work at home separately from paid work elsewhere.

Likewise, you might use location to distinguish eating out (in a café or restaurant) from eating at home or at someone else's home. You might use mode of transport (ie walking) to distinguish walking the dog from other pet care. Any other such instance where multiple elements of the diary are needed to achieve a conversion into the MTUS categories should be noted. If it is not possible to create a category, note this in the relevant cell.

Activity Variable Documentation for CCC YEAR

AV 41 Variables	Activity	CCC YEAR original activity codes
AV1	Formal work	
AV2	Paid work at home	
AV3	Second job	
AV4	School/classes	
AV5	Travel to/from work or education	
AV6	Cooking/washing up	
AV7	Housework	
AV8	Other domestic work	
AV9	Gardening	
AV10	Shopping	
AV11	Child care	
AV12	Domestic travel	
AV13	Dressing/toilet	
AV14	Receive personal services	
AV15	Meals/snacks	
AV16	Sleep/naps	
AV17	Leisure travel	
AV18	Excursions, trips	
AV19	Playing sport	
AV20	Watching sport	
AV21	Walks	
AV22	At church	
AV23	Civic organizations	
AV24	Cinema/theatre	
AV25	Dance/party, etc.	
AV26	Social clubs	
AV27	Pubs	
AV28	Restaurants	
AV29	Visiting friends	
AV30	Listening to radio	
AV31	Watching T.V.	

AV32	Listening to music, etc.	
AV33	Study	
AV34	Reading books	
AV35	Reading papers/magazines	
AV36	Relaxing	
AV37	Conversation	
AV38	Entertaining friends	
AV39	Knitting/sewing	
AV40	Pastimes/hobbies	
AV41	Unknown activity	

MAIN/SEC 69 Variables	Activity	CCC YEAR original activity codes
Main/Sec1	Imputed personal and household care	
Main/Sec2	Sleep or nap	
Main/Sec3	Imputed sleep	
Main/Sec4	Wash/dress/care for self	
Main/Sec5	Meals at work or school	
Main/Sec6	Other meals	
Main/Sec7	Paid work, main job (not at home)	
Main/Sec8	Paid work at home	
Main/Sec9	Second or other job not at home	
Main/Sec10	Unpaid work to generate household income	
Main/Sec11	Travel as a part of work	
Main/Sec12	Work breaks	
Main/Sec13	Other time at workplace	
Main/Sec14	Look for work	
Main/Sec15	Regular schooling, education	
Main/Sec16	Homework	
Main/Sec17	Leisure/other education of training	
Main/Sec18	Food preparation/cooking	
Main/Sec19	Set table, wash or put away dishes	
Main/Sec20	Cleaning	
Main/Sec21	Laundry, ironing, clothing repair	

Main/Sec22	Home/vehicle maintenance or improvement	
Main/Sec23	Other domestic work	
Main/Sec24	Purchase goods and general consumption activities	
Main/Sec25	Consume personal services	
Main/Sec26	Consume other services	
Main/Sec27	Pet care (not walk dog)	
Main/Sec28	Physical, medical child care	
Main/Sec29	Teach, help with homework	
Main/Sec30	Read to, talk or play with child	
Main/Sec31	Supervise, accompany, other child care	
Main/Sec32	Adult care	
Main/Sec33	Voluntary, civic, organisational activity	
Main/Sec34	Worship and religion	
Main/Sec35	General out-of-home leisure	
Main/Sec36	Attend sporting event	
Main/Sec37	Cinema, theatre, opera, concert	
Main/Sec38	Other public event, venue	
Main/Sec39	Restaurant, café, bar, pub	
Main/Sec40	Party, reception, social event, gambling	
Main/Sec41	Imputed time away from home	
Main/Sec42	General sport or exercise	
Main/Sec43	Walking	
Main/Sec44	Cycling	
Main/Sec45	Other out-of-doors recreation	
Main/Sec46	Garden, forage (pick mushrooms), hunt/fish	
Main/Sec47	Walk dogs	
Main/Sec48	Receive or visit friends	

Main/Sec49	Conversation (in person, phone)	
Main/Sec50	Other in-home social, games	
Main/Sec51	General indoor leisure	
Main/Sec52	Artistic or musical act	
Main/Sec53	Written correspondence	
Main/Sec54	Knit, crafts, hobbies	
Main/Sec55	Relax, think, do nothing	
Main/Sec56	Read	
Main/Sec57	Listen to music, Ipod, CD	
Main/Sec58	Listen to radio	
Main/Sec59	Watch TV, DVD, video	
Main/Sec60	Play computer games	
Main/Sec61	Send e-mail, surf internet, computing	
Main/Sec62	No activity but recorded mode of travel	
Main/Sec63	Travel to or from work	
Main/Sec64	Education-related travel	
Main/Sec65	Voluntary, civic, religious travel	
Main/Sec66	Child & adult care travel	
Main/Sec67	Shopping, personal & household care travel	
Main/Sec68	Other travel	
Main/Sec69	No recorded activity	

Context Variables	Value labels	CCC YEAR original activity and location codes
Inout = 1	Inside	
Inout = 2	Outside	
Inout = 3	In a vehicle	
Eloc = 1	Own home	
Eloc = 2	Another's home	
Eloc = 3	Workplace	
Eloc = 4	School	
Eloc = 5	Service or shop	
Eloc = 6	Restaurant, café	
Eloc = 7	Place of worship	
Eloc = 8	Travelling	
Eloc = 9	Other locations	
Mtrav = 1	Car, motorcycle, taxi	
Mtrav = 2	Public transport	

Mtrav = 3	Walk	
Mtrav = 4	Cycle or other active transport	
Mtrav=5	Other & unspecified	
ICT = 1	Reported using computer, ICT or internet	
Alone	No one else reported present	
Child	Child present	
Sppart	Partner present	
Oad	Other adult present	

BACKGROUND VARIABLE NOTES

The final section should list all survey, household, and individual variables which cannot be created for that survey, and highlight issues related to other variables.

- Three variables always have listings in this section unless they are not possible to create: educa, empincm, and incorig. These are the variables where we keep the original value labels, and these values and value labels should be listed in this document.
- Any time special procedures are required to construct a variable, you should highlight that point here. For instance, if the whole family completed diaries, but adults completed a more detailed individual questionnaire than children, and the parents' citizenship replies were used to create the citizenship status of the children, then this should be noted. Similarly, if the categories in the original variables differ from MTUS conventions, such as presenting age in age bands rather than as a continuous variable, these differences should be noted here.
- Other complications also should be noted in this section. For instance, if an original public release file displayed some household information only on the row cases of the diarist identified as the household reference person but not for other household members even though these other diarists would have the same value as members of the same household and the converter distributed the information to other household diarists, then this procedure should be noted here. There have been cases where some elements of the original sample were not assigned weights or where original weights required adjustment to balance the distribution of days of the week or to deflate to the sample size rather than the national population size, and these matters similarly should be noted here.

- The survey, household and individual-level variable issues section should be arranged in alphabetical order.
- If there is only one background variable which cannot be created, please include this variable in alphabetical order with the list of other variables requiring comment. If there are multiple background variables that cannot be created, please make a list of all of these variables at the beginning of this section of the Readme file before then listing the other variables and comments in alphabetical order.

Examples of the Readme files appear in the appendix of the MTUS documentation: <http://www.timeuse.org/mtus/documentation/surveys/>

CONVERSION PROGRAMMES

As the process of converting a time use data file into MTUS format is complex, we advise that you use the statistical package with which you are most familiar. The MTUS includes files converted in SAS, SPSS and STATA, and examples using each of these packages appears on the surveys included page of the MTUS web site: <http://www.timeuse.org/mtus/documentation/surveys/>

The file naming convention for the conversion programmes is:

create_CCyearHxF

CC corresponds to the 2 letter country code (see Chapter 2). Year means the start year of the survey in four digits. HxF should be the version of the MTUS file created by this programme:

- HEF means Harmonised Episode and Harmonised Aggregate Files;
- HAF means the Harmonised Aggregate File only (an interim measure released if the MTUS team intends to upgrade the file to the HEF version as well in future);
- HCF means the file is created in the core file version only.

The final extension (.sps, .do etc.) will depend on which package is used in the conversion.

The top of the conversion programme should contain documentation lines, noting which time use survey data is being converted into MTUS format, who did the original conversion and when (date), and if the file is updated, who updated the file and when (date) the update took place.

Conversion programmes should begin by opening an original public release version of the data and end with saving into the MTUS format. All steps required to move from the original data to the end product should appear and be documented whenever comment would might be helpful to future users. Any complex manipulations should be explained in a comment line. If the person

doing the conversion runs a frequency or simple procedure to look for a specific outcome, a comment line should explain what was looked for and what that outcome means.

If possible, please also send us the original data files (in SPSS, STATA, R or SAS) with their corresponding codebook (in plain text format).