



# **Multinational Time Use Study (MTUS)**

## **VII Reunion Internacional de Expertas y Expertos en Encuestas de Uso del Tiempo**

**6-7 Agosto 2009**

Almudena Sevilla Sanz

Centre for Time Use Research

Department of Economics

University of Oxford, United Kingdom



# Outline

- Brief history
- MTUS data processing
- Harmonisation process
- MTUS variables
- MTUS File structures
- Documentation and distribution
- User community & impact of MTUS



# Brief History of the MTUS

## Szalai Multinational Time Budget Research:

- First multinational harmonised time use data set
- 1965-66
- Belgium, Czechoslovakia, France, Germany (East + West), Hungary, Peru, Poland, Soviet Union, USA, Yugoslavia



# Brief History of the MTUS

- Professor Jonathan Gershuny, then at University of Bath (UK) in mid-1980s, created MTUS to:
  - **add UK**, Canada, Italy, Denmark to Szalai
  - add in 1970s/80s data to Szalai studies



# Brief History of the MTUS

- Presently includes time series from
  - Australia, Canada, Denmark, Finland, France, Germany, Italy, Norway, Slovenia, Sweden, United Kingdom, United States
- Will include time series from
  - Austria, Belgium, Bulgaria, Hungary, Poland (& hopefully Japan and New Zealand)



# MTUS Data Processing

- Use whole diary to code activities (treat diary as story rather than collection of separate parts, respondents may chose different strategies to tell their story)

Start Time	Activity	Secondary activity	Location/ mode travel	Who else present
18:15	got home/put shopping away	radio	home	alone
18:25		↓	↓	↓
18:40	make dinner	talk	↓	husband



# MTUS Data Processing

- Look at other columns when no main activity recorded
- Look at other diary information to break down some codes into more detail
  - Working at office vs work taken away from office to schedule around activities that happen at home
  - Commuting separate from travel
  - Eat out in restaurant vs eat at home
  - In some older surveys separate pet care from gardening



# MTUS Data Processing

Special imputed codes for:

- Unreported travel by unknown means
  - Gaps that must include travel
- Combination of personal and household care for gaps  $\leq 20$  minutes following sleep at home, before leaving home/after arriving home



# MTUS Data Processing

Special imputed codes for:

- Time at home with no specified activity but reported presence of non-household members or multiple household members as general in-home social



# MTUS Data Processing

- Identifying low quality diaries
  - Missing >90 minutes of main activity
  - Missing 2 or more of (a) food/drink; (b) sleep or rest; (c) personal care; (d) exercise or travel (except for cases of diarists caring for an infant or disabled adult on diary day)
  - Recording fewer than 7 changes of main or secondary or location
  - Missing age or sex or day of week
- Excluded by 0-weighting



# Harmonisation Process

- Limiting the Scope of Background Variables
- Anonymises data and increases comparability
  - Age capped at 80 for 80+
  - Occupation reduced to 14 codes
  - In couple – no, married, cohabitting
  - Urban / suburban vs rural / semi-rural
  - Household income – lowest 25%, middle 50%, highest 25%



# Harmonisation Process

- Adjustments to MTUS to accommodate Surveys from Developing Countries
- Vehicle (household access to private transport)
  - none, **animal only**, no-motor, 1-motor, 2+ motor



# Harmonisation Process

## 1) Data processing

- Limited imputation of sleep
- Combined personal and household care activities in the 20 minutes or less at home that follow or precede travel



# Harmonisation Process

- 2) Review data and documentation to check coding of MTUS categories
  - As time use variables can overlap and as diaries collect narratives, activities can be recorded in more than one way
  - Example – eating at home/someone else's home as opposed to eating out  
can use activity codes, location, did you or someone pay for this activity



# Harmonisation Process

- 2) Review data and documentation to check coding of MTUS categories:
  - All main activity assigned to 1 place in harmonised code, no double-coding of 1 activity
  - Test all harmonised activities sum to 1440 minutes / 24 hours per day



# Harmonisation Process

- 3) Internal consistency checks on harmonised variables (number of children in household less than household size; single person not reporting income from a spouse etc)
- 4) Identify and 0-weight poor quality diaries
- 5) Adjust weights to retain effect of survey weights and balance distribution of days of the week for age and sex groups in the quality diary sample



# Harmonisation Process

- 6) Check household-level information the same for all people in the same dwelling
- Not change diarists accounts, harmonise reporting of information. Some countries define families and households in different ways. A home with 6 people, a grandmother, her daughter and daughter's husband, the grandson and his wife, and a great-grandchild may count a 3 families in some cases and 1 in others. We make information consistent for all diarists living in the same dwelling.



# Harmonisation Process

- 7) Data recovery (we have more cases of quality diaries than in other versions of some data)
  - Some diaries defined as bad diaries on old main activity definition are good diaries with the new definition
  - USA 1975 waves 2-4 recovered
  - USA 1985 child diaries being recovered



# Harmonisation Process

8) Check distributions (by sex/age) of household type, employment status, health status, education, as well as total minutes per day for all time use categories across time in the same country



# Harmonisation Process

- Activity variables sometimes need to be recoded for consistency:
  - Australia (some years, naps coded as sleep, but with short intervals; other years naps coded as do nothing/passive leisure); naps=short sleep some years, do nothing others
  - USA 1965 lumped pet care with gardening – used location plus timing to separate out



# Harmonisation Process

- 8) Distribution checking practice – dramatic change which can be readily explained by significant events (recession, war, major terrorist incident, major response to criminal incidents) is likely real, dramatic change which has no likely association with major national events likely to be a data harmonisation problem



# MTUS Variables

- **Diary, survey and case information (16)**
  - COUNTREG, COUNTRY, SURVEY, SWAVE, MSAMP,
  - HLDID, PERSID, ID, PARNTID1, PARNTID2, PARTID
  - DAY, MONTH, YEAR, DIARY, BADCASE
- **Basic person-level information (5)**
  - SEX, AGE, CIVSTAT, COHAB, CITIZEN
- **Household structure, presence of children, and marital status (9)**
  - (person) FAMSTAT, CPHOME, SINGPAR, RELREFP
  - (household level) HHTYPE, HHLDSIZE, NCHILD, AGEKID



# MTUS Variables

- **Employment, income, and education (14)**
  - EMPSTAT, EMP, UNEMP, STUDENT, RETIRED,
  - EMPSP, WORKHRS, INCORIG, INCOME, OCCUP,
  - SECTOR, EMPINCLM, EDUCA, EDTRY
  - INCORIG – original household income; EMPINCLM – original individual income from employment; and EDUCA – original education, enable users to recode variables for selected surveys to their own requirements
- **Other household information (4)**
  - OWNHOME, URBAN, COMPUTER, VEHICLE
- **Health (4)**
  - RUSHED, HEALTH, CARER, DISAB



# MTUS Time-Use Variables

- **Original 41 - 6 work & education codes**

AV1 main paid job                      AV2 paid work at home

AV3 paid work, 2nd job      AV4 school, classes

AV5 travel to/from work      AV33 study, homework

- **New 69 – 14 work & education codes**

7 main paid job                      8 paid work at home

9 paid work, 2<sup>nd</sup> job                      10 unpaid work for income

11 travel as part of job                      12 work breaks

13 other at workplace                      14 look for work

15 regular education                      16 homework

17 leisure, other education      5 meals at work/school

63 travel to/from work                      64 education-related travel



# MTUS Time-Use Variables

- **Original 41 - 6 unpaid domestic work codes**

AV6 cook, wash up      AV7 housework

AV8 odd jobs (inc DIY, adult care, pet care)

AV10 shopping      AV11 childcare

AV12 domestic travel

- **New 69 – 8 unpaid domestic work codes**

- **New 69 – 7 care codes**

27 pet care      28 physical/medical child care

29 teach/homework help      30 read to/play with child

31 supervise/accompany      32 adult care

66 child/adult care travel



# MTUS Time-Use Variables

- **Original 41 – 3 Personal care, not pay for service**

AV13 dress/self care

AV15 meals, snacks

AV16 sleep

- **New 69 – 5 Personal care, not pay for service**

1 imputed self/home care

2 sleep or naps

3 imputed sleep

4 wash, dress, self care

6 other meals, snacks



# MTUS Time-Use Variables

- **Original 41 – 3 Personal care, pay for service**
  - AV14 consume personal services
  - AV27 pubs
  - AV28 restaurants
- **New 69 – 3 Personal care, pay for service**
  - 25 consume personal care services
  - 26 consume other services
  - 39 restaurant, café, bar, pub



# MTUS Time-Use Variables

- **Original 41 – 3 sport and exercise codes**

AV9 gardening

AV19 active sports

AV21 walking

- **New 69 – 6 sport and exercise codes**

42 general sport, exercise

43 walking

44 cycling

45 other outside recreation

46 gardening, forage    47 walk dogs



# MTUS Time Use Variables

- **Original 41 – 2 religious and civic codes**  
AV22 religious activities  
AV23 civic activities (includes complete diary)
- **New 69 – 3 religious and civic codes**  
33 voluntary work, civic acts, organisational acts  
34 worship, religious acts  
65 voluntary/organisational/religious act travel
- **Original 41 – 1 watch sports (AV20)**
- **New 69 – 1 attend sport event (36)**
- **Original 41 – 1 missing activity (AV41)**
- **New 69 – 1 missing activity (69)**



# MTUS Time Use Variables

- **Original 41 – 6 Out of home leisure codes**

AV17 Free time travel

AV18 excursions

AV24 cinema or theatre

AV25 dances or parties

AV26 social clubs

AV29 visit friends' homes

- **New 69 – 7 Out of home leisure codes**

35 general out-of-home

37 cinema, theatre, concert

38 other public event

40 party, reception

41 imputed time not home

62 travel, no recorded main

68 travel for other purposes



# MTUS Time Use Variables

- **Original 41 – 10 In-home leisure codes**

AV30 listen to radio

AV32 listen to records, cds

AV35 read paper/magazine

AV37 conversation

AV39 knit, sew

AV31 watch TV/video

AV34 read books

AV36 relax

AV38 see friends at home

AV40 other leisure

- **New 69 – 14 In-home leisure codes**

48 receive/visit friends

50 other in-home social

52 artistic or musical act

54 knit, craft, hobbies

56 read

58 listen to radio

60 computer games

49 conversation

51 general indoor leisure

53 written correspondence

55 relax, think, do nothing

57 listen to music, cd, ipod

59 watch TV, video, DVD

61 surf net, e-mail, internet



# MTUS Time Use Variables

- Key to think creatively about grouping of activities to measure a concept in analysis
- Some categories of codes may be re-ordered
  - walk dog counted as pet care rather than exercise
  - group all travel rather than associate travel with purpose
  - walking, cycling, walk dog could be grouped with travel rather than exercise



# MTUS Time Use Variables

- Some categories may be split into new categories by context of activity sequence
  - visiting other people at their home or party/reception may include eating at certain times of day and the diarist does not have a nearby eating episode
- Some categories of codes may be split into new categories by context variables
  - working or playing sports outside could count as potentially higher sun exposure during sunny periods of the day than shopping outside
  - presence of young children (especially if related) may imply some residual child care



# MTUS Variables

## Missing Values:

- No system missing cells in the MTUS files
- -7 – cases where the information is not relevant or the respondent is from a group not asked to provide this information
- -8 – the respondent should have given an answer and did not do so
- -9 – not available for the whole survey
- Activity codes AV41, MAIN77
- NOTE summary time use variable: 0 means diarist had option but did not record activity; -9 means diarists did not have option to record activity



# MTUS File Structures

- World 5.0 and earlier
  - Ages 18-59, missing 61+ minutes excluded
  - Summary time in 41 activities
  - 1 row per diary, except for 1-week diary surveys, where 1 row for weekly average
  - 1/3 or current variables, peculiar weights
- World 5.52
  - All ages, missing 61+ minutes excluded
  - Summary time in 41 activities
  - Mostly 1 row per diary (some week summaries)
  - 2/3rds of present background variables



# MTUS File Structures

- World 5.53
  - All ages, all diaries (non-diaries excluded)
  - Low quality diaries 0-weighted
  - Summary time in 41 activities
  - 1 row per diary
  - All surveys will be coded to this format
- World 5.8
  - Adults aged 18+ in separate file from children
  - Summary time in 41 activities + 69 activities
  - Most surveys coded to this format



# MTUS File Structures

- World 6.0
  - Episode files
  - Adults aged 18+ in separate file from children
  - Only selected surveys coded to this format (we start with those for which we have long time series) AHTUS



# MTUS File Structures

- Each row is an episode (change of main activity, secondary activity or location)
- Calendar day of completion (not in other MTUS files)
- Identifiers, diary variables, age & sex (must match back to W5.8 for other variables) + episode number
- Minutes duration, clock start, diary start/end (1-1440)
- Main activity (separate columns for old AV41 + new main codes), secondary activity, location (inside/outside + home, work etc), who else is present, mode of transport




# Documentation

MTUS User Guide (left hand menu bar)

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

The screenshot shows a web browser window displaying the Centre for Time Use Research website. The page title is "Centre for Time Use Research - information gateway". The main content area is titled "MTUS User Guide" and contains a table with the following information:

Summary:	This User's Guide explains the development and potential for use of the MTUS. Information on other time use surveys not included in the harmonized dataset can be found elsewhere on this site.  This User Guide is publicly available. Access to the main data requires <b>registration</b> , and access to some included datasets is restricted and requires <b>authorisation</b> .
Authors:	Anne H. Gauthier, Jonathan Gershuny, Kimberly Fisher with Alyssa Borkosky, Anita Bortnik, Donna Dosman, Cara Fedick, Tyler Frederick, Sally Jones, Tingting Lu, Fiona Lui, Leslie MacRae, Berenice Monna, Monica Pauls, Cori Pawlak, Nuno Torres, Charlemaigne Victorino
Contents:	<b>Front matter and acknowledgements</b> <b>Disclaimer</b> <b>Introduction</b> <b>Overview of the MTUS dataset</b> <b>Time use variables</b> <b>Diarist and household variables</b> <b>Weights in the MTUS</b> <b>Analysis of time use data</b> <b>Survey notes and conversion files - only available online</b> <b>Bibliography</b>
Notes:	This User Guide pertains to Release 2 of the World 5.5 dataset updated in February 2006, and replaces previous versions
Download:	 Full version of documentation (excluding survey notes and conversion files, which are only available online)

The left-hand menu bar contains the following links: CTUR Home, Our Research, Multinational Time Use Study, MTUS History, Database Co-Ordinators, Interpreting Results from MTUS, Depositing Data, Converting to MTUS Format, Revisions and Updates, Accessing the Data, Register as an MTUS User, Downloading Files, MTUS User Guide, and Reference Format. The footer of the page includes the copyright notice "© 2007" and the text "website designed by Wizzard Solutions Limited".



# Documentation Surveys Included Table

Country	Years	Versions
UK	1961 (SPSS)	5.52 only
	1974-75 (SPSS)	5.53 5.8 6.0
	1985 (SAS)	5.52 only
	1987 (STATA)	5.52 only
	2000-01 (SPSS)	5.53 5.8 6.0
	2005	Hope to include in future



# ***DESCRIPTION OF THE SURVEY***

<b>Age range</b>	8+
<b>Response rate</b>	45%
<b>Number of diary days</b>	2 days, 1 weekend and 1 weekday
<b>Survey period</b>	June 2000 - August 2001
<b>Multi-member household survey</b>	Yes, all persons aged 8+
<b>Type of diary</b>	Same day as activities
<b>Mode of data collection</b>	Self-completed in own-words with pen and paper
<b>Time interval in the diary</b>	10 minutes
<b>Data on secondary activities</b>	Yes
<b>Data on where the activity was carried out</b>	Yes
<b>Data on who else was present</b>	Yes
<b>Number of activity codes</b>	265 original codes, + 2 imputed codes (imputed sleep, imputed travel)
<b>Number of cases in the original file</b>	20,980 (+ 1 non-diary/24 hours no activity)
<b>Number of 'good' diaries in the World5.5 file</b>	19400



# Maps of MTUS to original activity codes

<b>MTUS Variable</b>	<b>Variable Label</b>	<b>UK 2000</b>
AV1	Formal work	The following not at home 1000 Unspecified employment 1110 Working time in main job 1120 Coffee and other breaks in main job 1300 Unspecified activities related to employment 1310 Lunch break 1390 Unspecified activities related to employment 1391 job seeking 1399 Other specified activity related to employment
AV2	Paid work at home	The following at home 1000 Unspecified employment 1110 Working time in main job 1120 Coffee and other breaks in main job 1300 Unspecified activities related to employment 1310 Lunch break 1390 Unspecified activities related to employment 1391 job seeking 1399 Other specified activity related to employment
AV3	Second job	1210 Working time in main job 1220 Coffee and other breaks in second job



# MTUS Data Distribution

- All users sign an agreement regarding appropriate use of the data
- Signing the form allows access to public use file (most countries, many of which make data freely available)
- Get password to download files from restricted web site
- Files presently available in SPSS and STATA
- In future available in more formats



# MTUS Data Distribution

- Some data from national statistical offices in Australia, Canada, Finland, Slovenia and Sweden are restricted
- Canada and Slovenia allow open access only to the MTUS version
- Australian Bureau of Statistics and Statistics Finland requires separate permission for access
- Statistics Sweden only grant access to EU residents



# MTUS Data Distribution

- Restricted files posted on CD or e-mailed separately to people receiving extra permission for their use
- Working with former staff of Statistics Sweden who developed an on-line table generator from HETUS to produce similar results for the MTUS



# MTUS User Community

- Most popular research topics include:
  - Child care, parent's time with children
  - Consumption, cross-national general trends, modelling daily behaviour
  - Distribution of paid and unpaid labour, trends in paid work time
  - Sex roles and labour bargaining within households and between couples

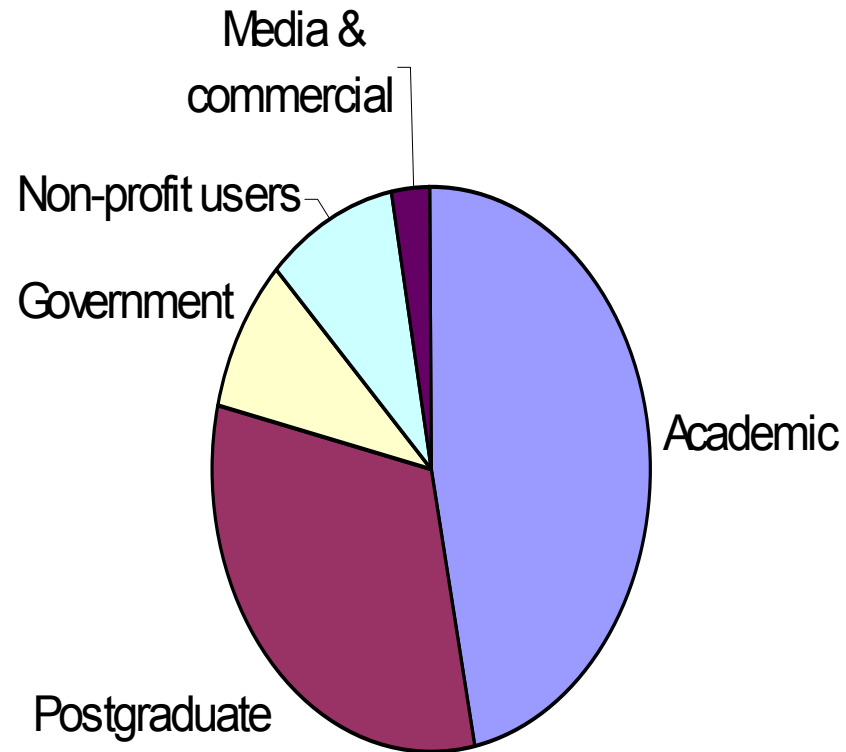


# MTUS User Community

- Over 400 current MTUS users
- People from 35 countries presently use the MTUS:
  - 1/3 of users from UK and USA
  - 1/3 of users from Australia, Canada, Germany, Italy, the Netherlands, Spain or Sweden
  - 1/3 of users from other countries



## Categories of MTUS users





# Influence of the MTUS

- MTUS was one inspiration for Harmonised European Time Use Studies (HETUS)
- Used in development of diaries for Growing Up in Australia
- Remains largest and most comprehensive time use data set, and also one of the largest academic cross-national cross-time comparative datasets



# Gracias!

- MTUS and many other time use resources maintained by the Centre for Time Use Research at the University of Oxford in the United Kingdom

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