

Time Use Research, History and Current Archives

Kimberly Fisher

Centre for Time Use Research, University of Oxford

Secretary, International Association for Time Use
Research

29 June 2016

History and Archives Outline

- What are time use surveys
- Policy significance of time use surveys
- History of time use surveys
- Why time use surveys are under-used in research
- Why time use archives matter
- **American Time Use Survey Extract** project
- **American Heritage Time Use Study**
- **Multinational Time Use Study**
- Why you should cite archives in references

What Are Time Use Surveys

- Structured narrative accounts of recent events, usually over 24 hour intervals, of what people do in conjunction with what, where, with whom (and more recently how people feel about what they do and happens around them and when smart devices feature in activities)
- Suited to large sample surveys but retains properties of qualitative narratives
- **Flexibly** capture largely **accurate** activity reports

Example Time Diary 2014-15 UK ELS

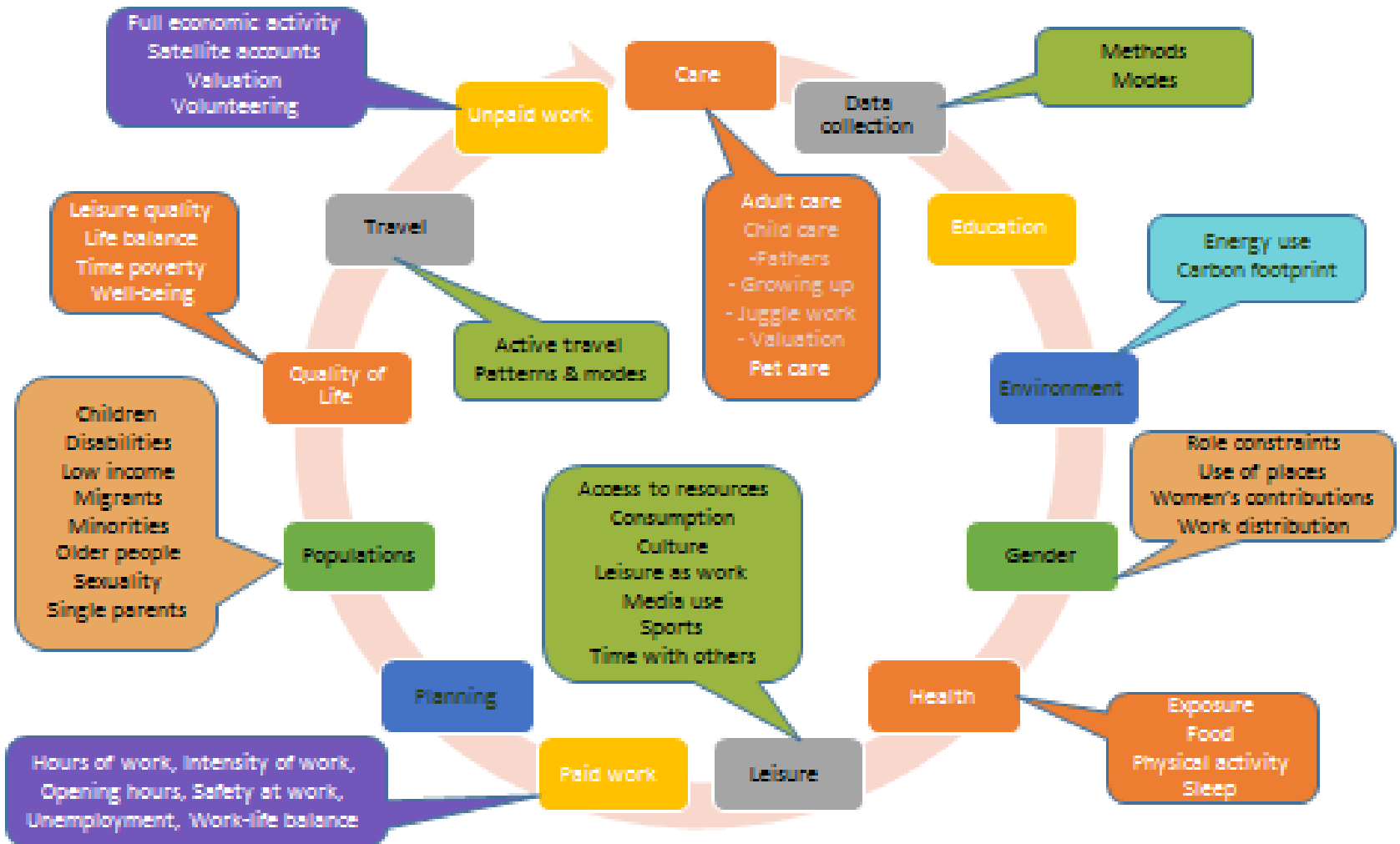
Day 1 Time: 7am - 10am Morning				Day 1 Time: 7am - 10am				Were you alone or with somebody you know? Mark all relevant boxes		How much did you enjoy this time? 1 =not at all 7 =very much		
Time: 7am-10am Morning (am)	What were you doing? Please write down one main activity.	If you did something else at the same time, what else did you do?	Did you use a smartphone tablet, or computer?	Where were you? Location, or mode of transport	People who live with you							
					Alone	Spouse / partner	Mother	Father	Child aged 0-7		Other person	Others you know
7am-7.10	Woke up the children		<input type="checkbox"/>	At home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
7.10-7.20	Had breakfast	checked emails	<input checked="" type="checkbox"/>	↓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
7.20-7.30	" "	Talked with my family	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
7.30-7.40	Cleared the table	Listened to the radio	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
7.40-7.50	↓	↓	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓
7.50-8am	Helped the children dressing	Talked with my children	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓
8am-8.10	" "	↓	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓
8.10-8.20	Went to the day care centre	↓	<input type="checkbox"/>		on foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1

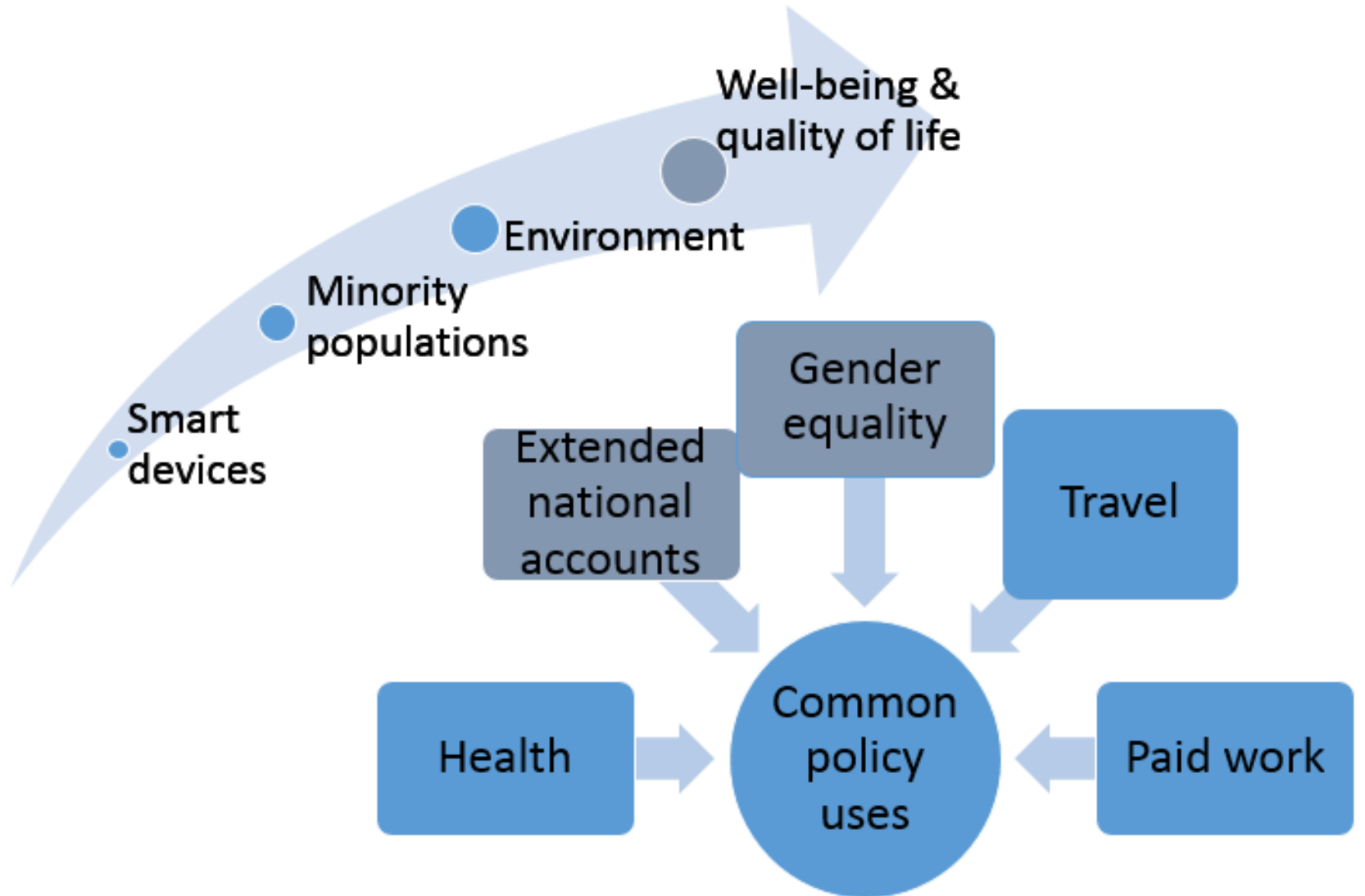
Policy Significance of Time Use

- Address a central behaviour policy dilemma
 - Any behaviour change has unforeseen knock-on consequences – as time diaries collect complete systems of behaviour, collect detail of these unintended consequences
 - Successful policies can yield undesired change
 - Unsuccessful policies can yield desired change

Policy Significance of Time Use

- Comprehensive overviews of behaviour matter increasingly in
 - Health risks (Ebola, Zika, Foot and Mouth, biological terrorist attack)
 - Energy use / energy supplies
 - Climate change and sustainability of lifestyles
- Daily routines are relevant to most policy areas





High Value for Money

- Time use surveys have comparatively high administration cost
 - Considering the range of policy applications per respondent contact, however, these are among the best value for money social surveys
- BUT**
- Achieving this value for money requires that many people use the data in research
 - Key value of **IPUMS Time Use** and CTUR archives matter

Early Time Use Surveys

- Survey style dates to dawn of 1900s
- Early designs may reflect parallel development of similar techniques
 - Radio (BBC, NHK – Japan) audience surveys
 - Social justice (Fabian Society UK concern with women in working poor families, unemployed men USA & Austria)
 - Peasant studies (Poland & USSR)

Early Time Use Surveys

- Survey style dates to dawn of 1900s
- Early designs may reflect parallel development of similar techniques
 - Explain dynamics of social change (Pitirim Sorokin – USSR then USA)
 - Document full economy, including measuring unpaid productive activity (Hildegard Kneeland at USDA, US economist Margaret Reid, related work in Germany and France)

USDA Surveys

- 1500 whole-week diary records kept by women ('homemakers')
- **1924–28** 808 records from farm (559, 69%) and town (<2500 people) (249, 31%) households
- **1930–31** 692 married alumnae of Bryn Mawr, Goucher, Mount Holyoke, Smith, Vassar and Wellesley Colleges from the classes of 1886 to 1929
- Only 77 of 1930-31 records located so far

Researcher-produced 'summary record' (individual time budget)

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF HOME ECONOMICS
WASHINGTON, D. C.

Page 1

SUMMARY OF WEEK'S TIME RECORD (NOT FOR PUBLICATION)

Name Wright, Louise H. Address 70 Exeter Street
Date of record May 8 to May 14, 1930 New Market, Rockingham Co., N. H.

TIME SPENT IN ALL ACTIVITIES BY HOMEMAKER

ACTIVITIES	TOTAL FOR WEEK		DAILY AVERAGE	
	Hrs.	Min.	Hrs.	Min.
WORK	51	45	7	23
Homemaking (For details see page 2)	51	40	7	22
Farm work		05		01
Gardening (fruits and vegetables)		0		
Poultry		05		
Dairy work				
Livestock				
Farm management				
Other farm work				
Going and returning				
Other work				
Working				
Going and returning				
CARE OF SELF	76	15	10	54
Sleep and rest—Night	58	55	8	25
Day		50		07
Eating	8	40	1	14
Care of person	5	25		46
Other care of self				
Going and returning	2	25		
LEISURE	39	45	5	41
Reading	11	00		
Study				
Meetings and classes	3	30		
Work for organizations	2	25		
Care of persons not members of household				
Social life at home	5	20		
Social life away from home	8	00		
Entertainments	1	30		
Outings and sport	2	10		
Correspondence	1	30		
Other leisure		10		
Going and returning	4	10		
OTHER		15		02
TOTAL TIME	168	00	24	00

SUMMARY OF WEEK'S TIME RECORD

Page 2

Name Wright, Louise H. Address 70 Exeter Street
May 8 to May 14, 1930 Newmarket, Rockingham Co., N. H.
TIME SPENT IN HOMEMAKING ACTIVITIES BY HOMEMAKER AND HELP

ACTIVITIES	TOTAL FOR WEEK						DAILY AVERAGE			
	HOMEMAKER		HELP		HOMEMAKER AND HELP		HOMEMAKER		HOMEMAKER AND HELP	
	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.
FOOD	18	45			18	45	2	41	2	41
Preparing meals	11	00			11	00	1	34	1	34
Breakfast	2	15			2	15		19		19
Dinner	5	00			5	00		43		43
Supper or lunch	3	25			3	25		29		29
Other		20				20		03		03
Clearing away meals	7	40			7	40	1	06	1	06
Breakfast	3	00			3	00		26		26
Dinner	2	20			2	20		20		20
Supper or lunch	2	20			2	20		20		20
Other										
Other food		05				05		01		01
HOUSE	6	25	1	35	8	00				
Cleaning and straightening	4	15			4	15		35		35
Care of fires		15		35		50				
Making, installing, repairing										
Care of house surroundings	1	40	1	00	2	40				
Other house		15				15				
CLOTHING AND TEXTILES	7	20			7	20				
Laundering	5	40			5	40				
Regular washing	2	55			2	55				
Regular ironing	2	35			2	35				
Extra laundering										
Laundry sent out		10				10				
Mending		45				45				
Sewing and fancy work										
Other clothing and textiles		55				55				
CARE OF MEMBERS OF HOUSEHOLD	17	15	10	25	27	40	2	28	5	57
HOMEMAKING MANAGEMENT	1	05			1	05				
Food purchasing		20				20				
Other purchasing		40				40				
Planning and recording										
Supervising		05				05				
Other management										
OTHER HOMEMAKING	30				30					
GOING AND RETURNING	20				20					
TOTAL HOMEMAKING	51	40	12	00	63	40				



- Diaries stored in boxes at USDA stations, scanned & digitised by CTUR
- Only names, addresses & diaries
- Matched to census data & public records to recover household & personal details
- Also have cause of death for many cases

Assumptions of Time Use Surveys

- Human behaviour occurs in cycles aligned to both natural and cultural rhythms
- To understand behaviour, you must consider activity patterns in total – the focus on isolated elements distorts and obscures the picture
- Technology efficiently managing complex data recent
- Sequence statistics / analytic techniques new

Radical Assumptions of Time Use

- All activities by all groups of people are important research subjects
- Financial value is only one dimension of importance when measuring policy success and comparing societies
- The boundary between the paid and unpaid sectors are fluid, porous, and changing



**SO THE
HARDER
A WIFE
WORKS,
THE CUTER
SHE LOOKS!**

GOSH, HONEY, YOU SEEM TO THRIVE
ON COOKING, CLEANING AND DUSTING—
AND I'M ALL TUCKERED OUT BY
CLOSING TIME. WHAT'S
THE ANSWER?

VITAMINS,
DARLING!
I ALWAYS
GET MY
VITAMINS

**Kellogg's
PEP
WHEAT FLAKES
WITH BUTTER**

Vitamins for pep! PEP for vitamins!®

Transformation of Time Use

- Main past modes phone interviews; paper self-completion, & paper or CAPI personal interview
- Tension between diary formats
 - “Full” (more detail, more respondent burden & processing costs)
 - “Lite” (less detail, less respondent burden & processing costs)
 - Full and Lite formats produce different estimates of some activities

Transformation of Time Use

- Shift to mixed-mode surveys
 - Happiness Research Organisation (app & on-line diaries)
 - Denmark HETUS 2008-09 (paper and web)
 - Canadian 2015 General Social Survey time use module (CATI and on-line instruments)
 - 2014-15 Age 14 wave of the UK Millennium Cohort Survey (paper, on-line and app)

New Comparability Issues

- New domains (particularly smart device / internet use) produce more episodes
- Detail collected by supplementary devices (activity monitors, GPS tracking, environmental condition monitors)
 - Produce more episodes overall
 - Collect previously unreported brief activities
 - Collect detail people do not think to record

Why Time Use Archives Matter

- Behaviour trends gradual, need very long term sequences to model drivers of activity change
- Lack of widespread historic interest in this data means many older surveys which can answer big theoretical sociological, economic, and other social theory questions in danger of being lost
- Provides base for learning to use diary data – to stand on the shoulders of giants need to know where to find them

IPUMS Time Use Archives

- **ATUS-X** American Time Use Survey Extract System
- **AHTUS-X** American Heritage Time Use Study Extract System
- **MTUS-X** Multinational Time Use Study Extract System

American Time Use Survey Extract

- Idea of Katharine Abraham, University of Maryland, formerly Bureau of Labor Statistics
- 2003 - American Time Use Survey established as a 9th wave of a sub-sample of the Current Population Survey (**1st continuous/annual Time Use Survey**)
- Collaborators: Sandra Hofferth (University of Maryland), Sarah Flood and Matt Sobek (Minnesota Population Center)
- ATUS more complex than other CPS datasets
- Aim to reduce barriers to accessing this data

IPUMS Time Use Archives

- **ATUS-X** Original Survey Data
- **AHTUS-X** Harmonised Survey Data
- **MTUS-X** Harmonised Survey Data

Combines data analysis expertise of University of Maryland, data archiving and delivery expertise of Minnesota Population Center, and data collection and harmonisation expertise of Centre for Time Use Research at the University of Oxford

Harmonisation Process

- Make most of narrative properties of diaries - unreported main activity not always missing
- Reading activity in sequences

4:00-8:30	sleep	home
8:30-8:40		home
8:40-8:50	commute	walk
8:50-9:20	commute	train
9:20-12:30	paid work, main job	office

Harmonisation Process

- Data cleaning and correction
 - Techniques to fix errors not available in past
 - Sequencing techniques relatively new, can enhance data as well as analyse data
- Create variables possible for a large number of national sample time use surveys
- Enhance files by moving information recorded by respondents to all relevant elements of diaries (can involve grouping as well as breaking down of original codes)

Harmonisation Documentation

- Main file creation process
- Survey-specific variable comments
- Survey specific code maps
- Survey metadata summary
- Annotated code files that start with original data files and end saving final MTUS files

American Heritage Time Use Study

- Initiated by Yale University as a part of a Program on Non-Market Accounts funded by the Glaser Progress Foundation in 2006
- CTUR commissioned to harmonise major USA time use surveys from the 1960s, the 1970s, the 1980s and the 1990s with the 2003 initial American Time Use Survey, now covers through 2015 ATUS, adding 1920s & 1930s data
- Served as a trial run to make the episode files in the Multinational Time Use Study

- Questionnaire file – 1 row per person per wave
 - Person-level variables
 - Household and region level variables
- Summary file – 1 row per diary
 - Summary time in 10 main activity categories (sum 1440 minutes)
 - Summary time in 92 main activities (sum 1440 minutes)
 - Summary time in 92 main activities where diarist also reported secondary child care
- Episode file – 1 row per episode
 - Row = change in dimension of diary

Multinational Time Use Study

- Jonathan Gershuny discovered minimally used time use surveys – stored in collections of uncatalogued floppy disks, box files, and paper diaries stored in bags in 1970s
 - BBC Audience Research Unit
 - Szalai materials
 - Young & Wilmott symmetrical family
 - Mass Observation (1930s UK data)
- www.timeuse.org/MTUS

Multinational Time Use Study

- Most comprehensive harmonised time use data
- Cross-time, some 1920/30s; 1960s to 2010s
- Cross-national – 30 countries
- Created by Jonathan Gershuny with help of Sally Jones in early 1980s
- Started as summary time over 24 hours in main activities (20 and 41 categories) for time budget analysis, covering ages 18-60 only, now all collected diaries included

Multinational Time Use Study

- Activity sequence files with context variables (developed by Kimberly Fisher)
 - Specified locations & mode of transport
 - Indoors, in a vehicle, or outside
 - With spouse, a child, another person, animal
 - Using smart device or internet
- 25 and 69 activity categories
- Core file – summary time but more countries (Jooyeoun Suh & Ewa Jarosz current managers)

- Separate country supplement files
- Harmonised core file (HCF)
 - Summary time in 25 main activities (row=diary)
 - Most surveys, fewest variables
 - 1 file with all surveys (some not upgraded)
- Harmonised aggregate file (HAF)
 - Summary time in 69 main activities (row=diary)
 - More detailed survey & demographic variables
 - Separate adult & child files
- Harmonised episode file (HEF)
 - Row = change in dimension of diary
 - Separate adult & child files

- Austria 1992 (1981, 2008-09 coming)
- Australia 1974 (1987, 1992, 1997, 2006 coming)
- Finland (1979, 1987, 1999, 2010 coming)
- France 1998-99, 2009-10 (1966, 1974-75, 1986 coming)
- Germany 1991-92, 2000-01
- Italy 1989 (2002-03, 2010 coming) / Israel 1991-92
- Netherlands 1975, 1980, 1985, 1990, 1995, 2000, 2005
- Republic of Korea 2004, 2009 (1999, 2015 coming)
- South Africa 2000 (2010 we hope to negotiate access)
- Spain 02-03, 09-10 (Basque region 92-3 98-9 02-3 08-9)
- UK 1974-75, 1983-87, 1995, 2000-01, 2005 (1961+2014-15)
- USA 1965-66, 1975-76, 1985, 1992-95, 1998-01, 2003-15

- Both include same USA surveys
- **AHTUS** 92 category USA-specific harmonised activity codes, and 4 distinct demographic variables not in MTUS
- **MTUS** more demographic & diary context variables than AHTUS
- Both archives have separate supplements & files, and include many common diary & demographic details but with different variable names & presentation formats

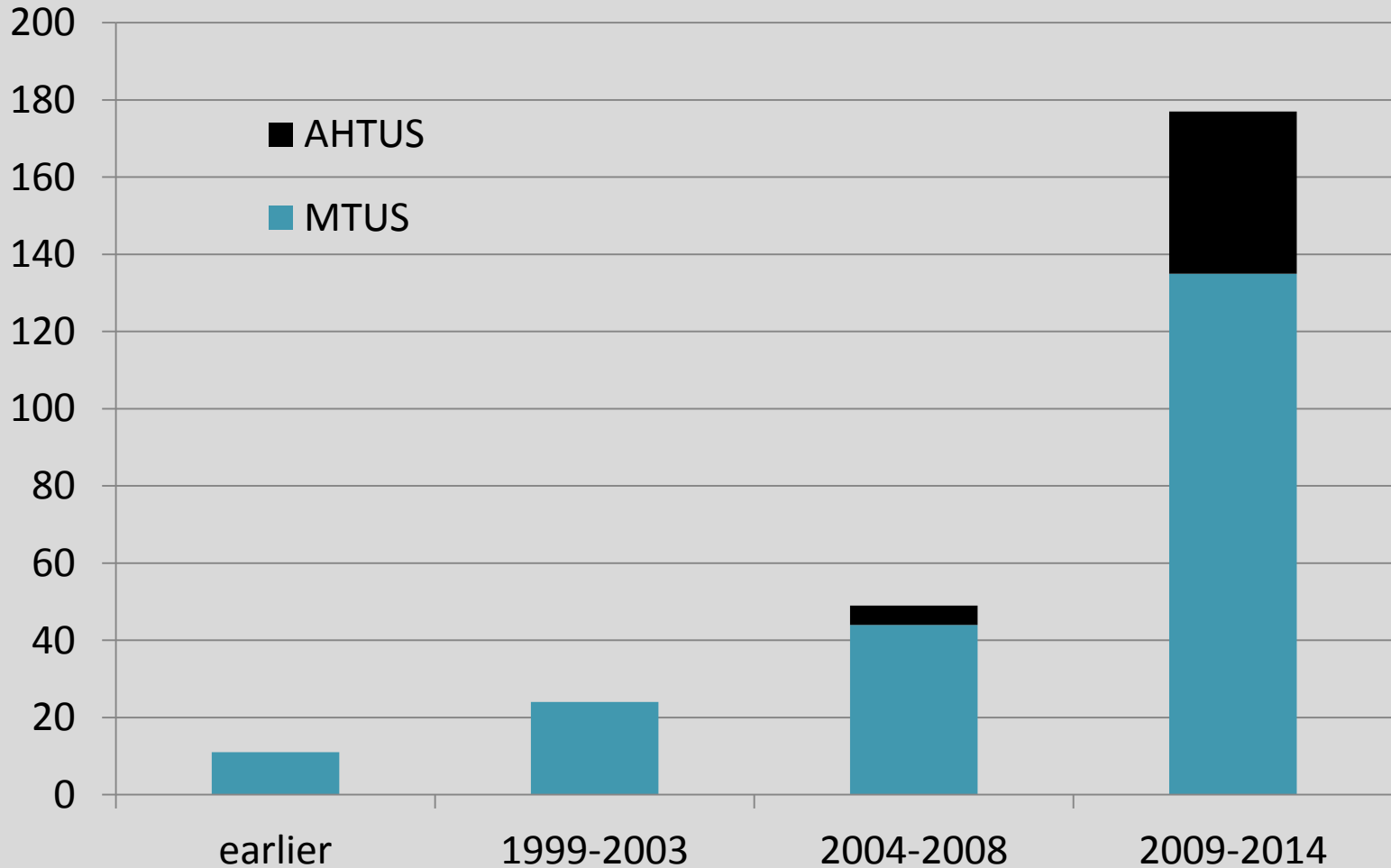
- All CTUR **AHTUS** files are in the **AHTUS-X**
- USA 1965-66, 1975-76, 1985, 1992-94; 1994-95; 1998-01; 2003-15
- Surveys from a limited range of countries included in the **MTUS** now are in the **MTUS-X**
- This group gets to give the pre-launch of the **MTUS-X** a good workout to help us improve the system before the full launch

- By June 2017, MTUS-X will include 8 countries:
- In addition to the same USA surveys
 - Austria 1992
 - Canada 2010
 - Finland 1979, 2009-10
 - France 1985-86, 1998-99, 2009-10
 - Netherlands 1975, 1980, 1985, 1990, 1995, 2000, 2005
 - Spain 2002-03, 2009-10
 - UK 1974-85, 1983-84, 1987, 1995, 2000-01, 2005, 2014-15

- At present, MTUS-X & AHTUS-X combine all CTUR files in one system – easier to access
- Future AHTUS-X
 - Will just have USA unique variables, other variables in common with MTUS-X
 - Original survey variables added, including
 - Additional diary and demographic information
 - Diarists own words accounts for 1924-28; 1930-31, 1985, 1992-94, 1994-95, 1998-01
 - Current AHTUS-X variable names will change – easier use in conjunction with MTUS-X

- MTUS-X variable and value labels available in English and in Spanish
- AHTUS-X unique variables and values will be translated into Spanish in future releases
- Current documentation in static files
- Development of extended metadata for both the MTUS-X and AHTUS-X will make documentation more easily searched, customised, and accessible
- New metadata also will allow extract of survey characteristics variables with other data

- Over 260 publications using these archives



Publication topics

- Adult care (valuation, time cost, who performs care but does not identify as a carer)
- Child care (valuation, trends, participation of fathers, balance of physical/interactive care)
- Education (homework, parental involvement)
- Environment (transport modes, time at home/inside)
- Leisure (trends, physical activity, quality)
- Paid work (hours of work, scheduling)
- Sleep (hours per week, deprivation, trends)
- Unpaid work (women's total economic contribution, hours, trends, sharing in households)
- Volunteering (valuation, trends)
- Work-life Balance

- Over 1200 registered users of these archives

- 60 countries, most from

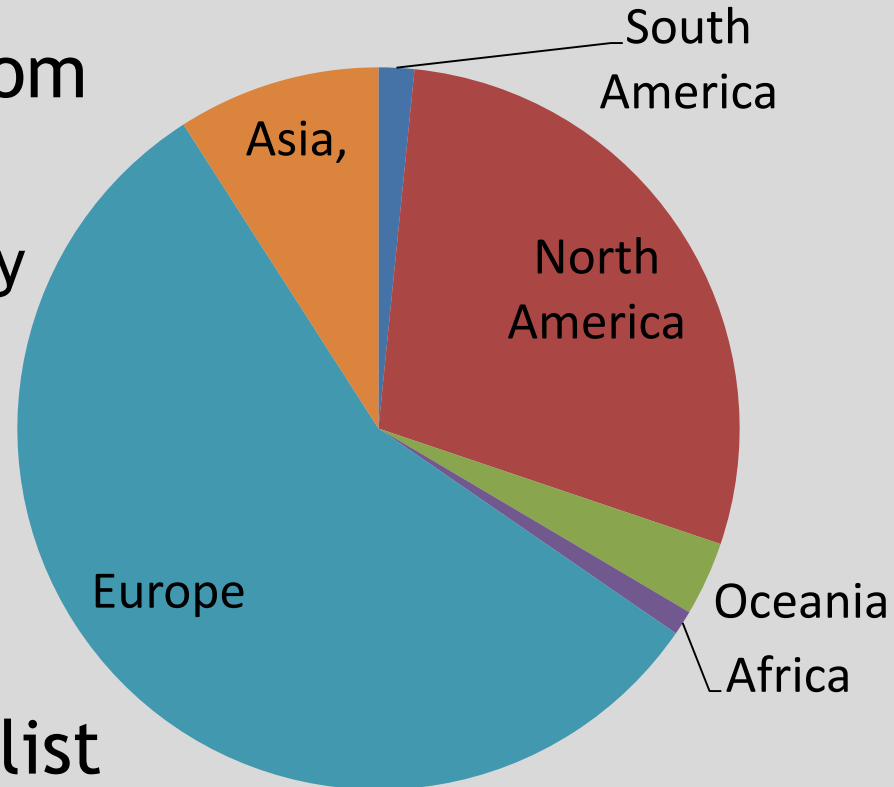
- USA, UK, Canada
- Australia, France, Italy
- Germany, Finland
- Republic of Korea
- Spain, Sweden

- Gender balance

- Half on IATUR e-mail list

- 44% academics, 40% postgraduates

- 6% government & NGO; rest others



IPUMS Time Use Archives

- These files are released free to researchers (through there is a registration process to access the MTUS and MTUS-X)
- Archives require considerable effort & aftercare
- Acknowledge this work by citing these archives and the articles describing these archives in your reference lists
- If you participate in collecting a national sample time use data, please lobby for the inclusion of this data in the MTUS & IPUMS Time Use

Thank you

Comments & feedback welcome

kimberly.fisher@timeuse.org