

# IPUMS Time Use Workshop WFRN 2018

Using Time Diary Data to Study
Work and Family Time & Well-Being
Sarah Flood & Liana Sayer



### Outline of Talk

- Time Diary Surveys
  - Features
  - Uses & Policy Significance
- IPUMS Time Use Project
  - Website overview
  - Data integration and documentation
  - Extract builder demonstration
    - Work & Family Measures
    - Well-being Measures
- Questions
- Link to online exercises





# What are time diary surveys?

- Structured narrative accounts of recent daily events
  - Usually 24 hour intervals
  - Episode level data on what people are doing, where, with whom
  - Recent expansion to how people feel about what they do (experiential wellbeing), use of smart devices
- Suited to large sample surveys but retain properties of qualitative narratives
- Flexibly capture largely accurate activity reports



# Structure of Time Diary Data

START	STOP	ACTIVITY	LOCATION	WITH WHOM				
4:00	6:00	Sleep	n/a	n/a				
6:00	6:10	Personal Care	n/a	n/a				
6:10	6:15	Dressing	Home	Alone				
6:15	6:30	Eating Breakfast	Home	Spouse				
6:30	6:45	Travel to Train Station	Car	Alone				
6:45	6:55	Waiting for the Train	Train Station	Alone				
6:55	7:30	Travel to Work	Train	Alone				
7:30	10:00	Working	Work	Alone				
10:00	11:00	Working	Work	Co-Workers				
11:00	11:05	Personal Care	Work	n/a				
11:05	12:00	Working	Work	Alone				
12:00	12:10	Traveling to Restaurant	Walking	Co-Workers				



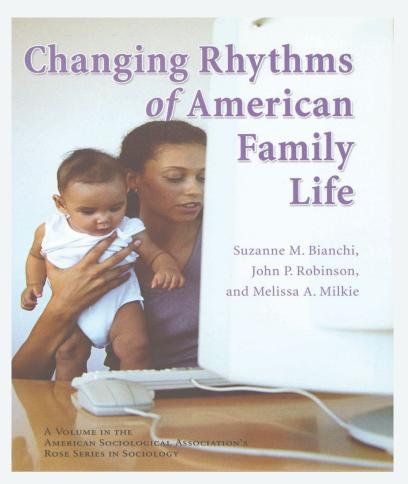
# **Potential Applications**

- Improved measurement of work and family activities
- Broader measures of national output and national well-being
- Improved understanding of economic and social behavior
- Richer policy analysis
- Better business decisions





# Groundbreaking Research Using Time Use Surveys to Study Work & Family Issues



Winner of the 2008 William T. Goode Award from the Family Section of the American Sociological Association

Winner of the 2007 Otis Dudley Duncan Award for Outstanding Scholarship in Social Demography



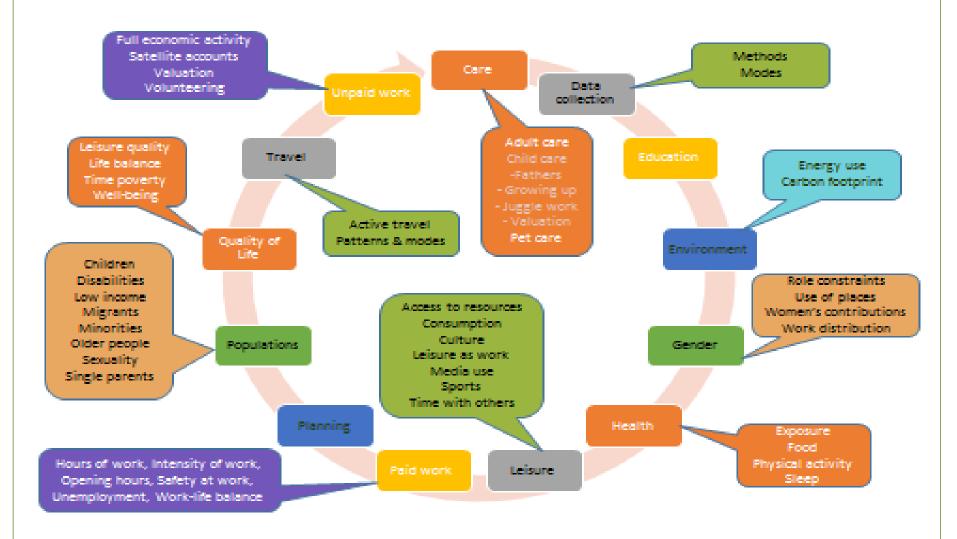


### Recent Publications Using IPUMS-Time Use

- Caregiving
  - Schneider, Hastings, LaBriola 2018
  - Pepin, Sayer, & Casper 2018
- Healthy Leisure
  - Flood & Moen 2015
  - Passias, Sayer, Pepin 2016
- Well-Being
  - Lee, Hofferth, Flood, Fisher 2016
  - Musick, Meier, Flood 2016



# **Policy Applications**







### **IPUMS Time Use Archives**

ATUS-X, AHTUS-X, MTUS-X

IPUMS provides census and survey data from around the world integrated across time and space. IPUMS integration and documentation makes it easy to study change, conduct comparative research, marge information across data towns individuals within family and comparative context. Data and services available free of change.



U.S. Census and American Community Survey microdata from 1850 to the present.

VISIT SITE



Current Population Survey microdate including basic monthly surveys and sugglements from 1902 to the present.

VISIT SITE



Census microdata covering 82 countries from 1980 to the present. <u>IPUMS NAPP</u> offers microdata from the 19th and early 20th centuries.

VISIT SITE

#### - RESEARCH AWARDS

Submissions for IPUMS Research Award are now closed.

ROWSE PREVIOUS AWARD
WINNERS

— SUPPORT IPUMS ——
Your financial support helps us bring research data to you.

DONATE TODAY

### **IPUMS**

Demographic and Health Surveys integrated for analysis across time and space from IRSD to the present.

VISIT SITE



Tabular U.S. Census data and GIS boundary files from 1790 to the present.

VISIT SITE



Integrated data on population and the environment from 1980 to the present.

VISIT SITE

#### CALENDAR

APRIL 27, 2017

Population Association of America

Hilton Chicago

JUNE 25-27, 2017

Academy Health

Hyatt Regency, New Orleans, LA

JULY 16-21, 2017

61st ISI World Statistics Congress (WSC)

Marrakech, Morocco

VIEW MORE EVENTS

IODE

#### IPUMS TIME USE

Historical and contemporary time use data from IRES to the present.

VISIT SITE



Health survey data from the National Health Interview Survey from the 1980s to the gresent.

VISIT SITE



Survey data on the science and engineering workforce in the U.S. from 1993 to the gresent.

VISIT SITE

http://www.ipums.org/



### **IPUMS Time Use**

- American Time Use Survey Extract Builder (ATUS-X)
  - 2003-2016 data on time use in the U.S.
- American Heritage Time Use Study Extract Builder (AHTUS-X)
  - 1965-2012 data on time use in the U.S.
- Multinational Time use Study Extract Builder (MTUS-X)
  - international data on time use available in partnership with the Centre for Time Use Research, University of Oxford, Oxford, UK.
- Key differences
  - Contents (countries, years of data)
  - Variable coding





#### IPUMS.ORG | ATUS | AHTUS | MTUS











#### THREE RESOURCES TO STUDY TIME USE.

These projects provide free individual-level time use data for research purposes. The data extract systems make it easy to create data sets containing time use and other variables a user needs.

#### ATUS

AMERICAN TIME USE SURVEY
EXTRACT BUILDER

Annual American Time Use Survey (ATUS) data from 2003 forward.

**GET DATA** 

#### **AHTUS**

AMERICAN HERITAGE TIME USE STUDY EXTRACT BUILDER

Historical American time use data since 1965 harmonized for comparison over time, including the ATUS samples.

**GET DATA** 

#### MTUS

MULTINATIONAL TIME USE STUDY EXTRACT BUILDER

MTUS is a project dedicated to making it easy for researchers to use data from around the world.

**GET DATA** 

SUPPORTED BY















## **IPUMS Time Use Advantages**

- Online documentation
- Consistently-coded variables
- Custom extracts
  - Sociodemographic characteristics of individuals & household
  - Time use variables





### **ATUS Details**

- ATUS data 2003-2016
  - https://www.bls.gov/tus/
- Ongoing data collection by US Census Bureau for Bureau of Labor Statistics
- One day, one diary per household
  - Includes information about household members
  - Weekends are oversampled (50/50)
- Cross sectional





# **ATUS Sampling Frame**

- Respondents selected from outgoing CPS rotation
  - What is the CPS?
    - https://www.census.gov/programs-surveys/cps.html
    - https://cps.ipums.org/cps/
- Invited to participate 2 to 5 months after finishing CPS
- Households are in the CPS up to 8 times
  - Information about respondents and household members is rich
  - ATUS-X linking to CPS





### **ATUS & CPS Variables**

- ATUS public use files provide the following information:
  - ATUS respondent time use (and who data)
  - ATUS respondent household and individual level data
  - ATUS respondent and non-respondent household member from last month of participation in CPS
  - NOTE: not only time use, but two time points for a large number of variables!





# **ATUS Sample Allocation**

- Sample evenly split between weekdays and weekend days
- 10 percent of sample allocated to each weekday
- 25 percent of sample allocated to each weekend day





## **ATUS** Response Rates

- Consistently 50% to 60%
- Research about bias and nonresponse (Abraham, Maitland, & Bianchi, 2006)
  - Little evidence that ATUS nonrespondents are busier than respondents
  - Evidence that ATUS respondents are more connected to their communities than nonrespondents
  - Evidence that ATUS respondents are more likely to be volunteers than nonrespondents





### **ATUS Interview**

- Data collected by computer-assisted telephone interviews
  - Over 150,000 conducted to date
- One-time interview
- Contents:
  - 24-hour time diary about yesterday
  - Updates of demographic and labor force information from CPS
  - Household roster
  - Module information





# **ATUS Time Diary Details**

- 24 hour time diary (4am-4am)
- 6 digit activity coding scheme (400+ activities identified)
- Co-presence of others
  - Who data not collected for work and personal activities
- Location
  - Where data not collected for personal (self-care) activities
- Transportation mode
- Limited "Secondary" activities
  - Child "in your care": all years
  - Eldercare: 2011+
  - Eating: 2006-2008, 2014-2016
  - Drinking: 2006-2008





# **ATUS Secondary Activities**

### Secondary childcare

- During any part of the day yesterday was a child who is 12 years or younger in your care?
- Secondary eating and drinking (2006-2008, 2014-2016)
  - Yesterday you reported eating or drinking between [fill times].
     Were there any other times you were eating yesterday—for example while you were doing something else? About how long would you say you were eating while you were [fill activity]?
  - Not including plain water, were there any other times yesterday when you were drinking any beverages? About how long were you drinking while you were [fill activity]?
- Secondary eldercare (2011+)
  - Did you provide any eldercare assistance yesterday? At which times or during which activities?





### **ATUS Modules**

- Eating and Health
  - 2006-2008, 2014-2016
  - Shopping/meal preparation variables, poverty, food program participation
- Well-Being
  - 2010, 2012, 2013
  - Life satisfaction, momentary well-being
- Leave
  - 2011 & 2018 (2018 in field now)
  - Access to and use of paid/unpaid leave





# **ATUS Original Data**

- Multiple data files per year
  - Requires analysts to merge within years and across years
  - Requires analysts to perform complex data manipulations (e.g., aggregating time)
- Codes change across years
  - Requires analysts to recode data and make them consistent across samples
  - Documentation on changes not always clear or available





# Strengths of IPUMS Time Use

- Documentation
- Web-based extract system
  - Select only the years of data, sample members, and variables you want
  - Choose a data format
  - Build your own time use variables
  - Revise extract
  - Custom Stata, SAS, SPSS, and CSV (Excel) syntax
- Understand & analyze data more quickly!
- Email helpline: ipums@umn.edu





HOME | SELECT DATA | MY DATA | FAQ | HELP













#### PROJECT

ABOUT ATUS X

ABOUT ATUS

PARTNERS

REGISTRATION

#### DATA

BUILD AN EXTRACT

DOWNLOAD/REVISE EXTRACTS

TIME USE VARIABLES

#### DOCUMENTATION

#### MARKET

WARRANTS:

LINK CPS

FAQ

REVISIONS

#### RESEARCH

CITATION AND USE

BBUOGRAPHY CT

PUBLICATIONS.

TRAINING MATERIALS

#### SAMPLE-LEVEL INFORMATION

ATUS - Sample Documentation						
Sample	Sample Size	User Guide	ATU5 Questionnaires	Module Data	Module Questionnaires	Module Data Dictionary
2016	10,493	User	Questionnaire	Eatleg and	Eating and Health.	Eating and Health.
2015	10.905	Golde (2001:) d	2011: 6	Health C	2014-2016	2016-2016
2014	11.592					
2013	11,385			Well-Being CS	Well-Being 2012:	Wolf-Being 2012:
2012	12,443				2013	2013 @
2011	12,479			Labor CS	Laine. 2011 d	Luive 2011 d
2010	13.260		Quistionnaice	Wel-Berry C	Well-Being, 2010	Well-Being 2010 d
2009	13,133		2003-2010 🖪	1 377		
2008	12.723			Eatherg and	Eating and Health	Uner's Guide 2005:
2007	12,248			Health C	2006-2008	2008 @
2006	12.943					
2005	13.038				-	



### Variable Harmonization

Code	Label	AT03 0209	AT04 0220
10	Self	18 = Self {16368}	18 = Self {11116}
10	п	19 = Self {4352}	19 = Self {2857}
20	Spouse	20 = Spouse {11170}	20 = Spouse {7764}
21	Unmarried Partner	21 = Unmarried partner {749}	21 = Unmarried partner {433}
22	Own household child	22 = Own household child {16532}	22 = Own household child {10987}





### ATUS | AHTUS | MTUS AMERICAN TIME USE SURVEY EXTRACT BUILDER

DATA CART

YOUR DATA EXTRACT

- O VARIABLES
- O TIME USE VARIABLES O SAMPLES

IPUMS.ORG | SELECT DATA | FAQ | HELP | LOGIN

RELATE

ADD TO CART

SELECT SAMPLES

Relationship to ATUS respondent

Group: Core Demographic - PERSON

CODES

DESCRIPTION

COMPARABILITY

UNIVERSE

**AVAILABILITY** 

**QUESTIONNAIRE TEXT** 

FLAG

#### Description

RELATE reports the relationship of each household member to the ATUS respondent.

In addition to all persons who live in the household, the household roster includes any of the respondent's own children (biological, step, or adopted) under the age of 18 who live in the respondent's household less than 50% of the time.

"Own child" refers to the respondent's biological child, adopted child, or step child.

"Other related person" may include the respondent's an aunt, cousin, nephew, mother-in-law, etc.

SUPPORTED BY: EUNICE KENNEDY SHRIVER NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT, UNITED STATES DEPARTMENT OF AGRICULTURE ECONOMIC RESEAL STAT/TRANSFER, MARYLAND POPULATION RESEARCH CENTER, AND UNIVERSITY OF MINNESOTA.



### ATUS | AHTUS | MTUS AMERICAN TIME USE SURVEY EXTRACT BUILDER

#### IPUMS.ORG | SELECT DATA | FAQ | HELP | LOGIN

**DATA CART** 

YOUR DATA EXTRACT

- O VARIABLES
- O TIME USE VARIABLES
- O SAMPLES

**RELATE** 

ADD TO CART

SELECT SAMPLES

Relationship to ATUS respondent

Group: Core Demographic - PERSON

CODES

DESCRIPTION

COMPARABILITY

UNIVERSE

AVAILABILITY

QUESTIONNAIRE TEXT

**FLAGS** 

#### Codes and Frequencies

- Category availability view
- Case-count view

- Respondents
- Respondents and Household

Members

- Respondents and Non-respondents
- Respondents and Non-respondents

plus Household Members

#### An 'X' indicates the category is available for that sample

Code	Label	03	04	05	06	07	80	09	10	11	12	13	14	15	16
010	Self	Х	Х	Х	Х	Χ	Х	Х	Χ	Χ	Χ	Χ	Χ	Χ	Χ
020	Spouse														
021	Unmarried Partner														
022	Own household child														
023	Grandchild														
024	Parent														
025	Brother/Sister														
026	Other relative														
027	Foster child														
028	Housemate/roommate														
029	Roomer/boarder														
030	Other nonrelative														
040	Own non-household child lt 18														
996	Refused														
997	Don't know														
999	NIU (Not in universe)	٠	٠	٠	٠	٠	٠	٠	٠	٠	٠	٠	٠	٠	٠





### **ATUS-X demo**



### ATUS-X Time Use Variables

- Properties of time use variables
  - Values between 0 and 1440 minutes
  - Quantity that sums number of minutes in specific activities
- ATUS-X Time Use Variables
  - User-defined
  - Selected from list of existing time use variables





# Time Use Variable Options

- Activities
- Filters
  - Time of Day
  - Secondary Activity
    - Childcare
    - Eldercare
    - Eating & Drinking
  - Location
  - With Whom





# Things to Keep in Mind about TUVs

- More restrictions=fewer people who will have done the activity given the constraints
  - For example, the number of people working on a boat or ferry from 4-7 a.m. will be small
- Values should always range between 0 & 1440 for each ATUS respondent
- Values are not defined for ATUS nonrespondents and household members
- Previously created TUVs can be deleted





### Work Time Use Measures

- You define what work is
  - Paid work
    - Employment
    - Job commute?
    - Education?
  - Unpaid Work
    - Housework
    - Care Work
    - Volunteering?
- Hours worked per day
- When and where people work
- Timing, sequencing & fragmentation of work activities





# **Experiential Well-Being**

- 3 randomly selected activities from the diary day, excluding
  - Sleep & grooming
  - Paid Work

Measures

WELL-BEING MODULE VARIABLES ACTIVITY [TOP]							
Add to cart	Variable	Variable Label					
0	<u>SCPAIN</u>	Pain scale					
0	<u>SCHAPPY</u>	Happiness scale					
0	SCSAD	Sadness scale					
0	SCTIRED	Fatigue scale					
0	<u>SCSTRESS</u>	Stress scale					
0	INTERACT	Interacting during activity					
0	<u>MEANING</u>	Meaningfulness scale					





### Online Demo

- Viewing documentation
- Making an extract
- Downloading data





# **Extract Builder Questions?**

### ATUS | AHTUS | MTUS AMERICAN TIME USE SURVEY EXTRACT BUILDER

#### IPUMS.ORG ☐ | SELECT DATA | FAQ | HELP | LOG IN











#### **PROJECT**

ABOUT ATUS-X

ABOUT ATUS

PARTNERS

REGISTRATION

#### DATA

BUILD AN EXTRACT

DOWNLOAD/REVISE EXTRACTS

TIME USE VARIABLES

#### DOCUMENTATION

SAMPLES

VARIABLES

LINK CPS

FAQ

REVISIONS

#### RESEARCH

CITATION AND USE

BIBLIOGRAPHY [7]

PLIRLICATIONS

TRAINING MATERIALS

#### AMERICAN TIME USE SURVEY EXTRACT BUILDER

The ATUS is a nationally representative U.S. time diary survey for period since 2003. IPUMS Time Use harmonizes these data and provides a data extract builder that allows users to create custom time use variables and data extracts for analysis. ATUS-X is a collaboration of the Minnesota Population Center and the Maryland Population Research Center.

#### TIME IS OUR SCARCEST RESOURCE... USE IT WISELY!

#### **CREATE AN EXTRACT**

Get Data

OTHER TIME USE EXTRACT BUILDERS

AHTUS

MTHS

#### WHAT IS IPUMS?

MEW HEEDE

IPUMS provides census and survey data from around the world integrated across time and space. IPUMS integration and documentation makes it easy to study change, conduct comparative research, merge information across data types, and analyze individuals within family and community context. Data and services available free of charge.

#### CONTACT US