



**MPRC Health & Well-being Workshop Exercises**

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## Exercise 1: Time Use Variables

In this exercise, you will become familiar with time use variable documentation on the ATUS-X site and the pieces that you can use to make time use variables. You will gather the information you will need to later create time use variables that capture participation in sports, exercise, and recreation at different times of the day both alone and with someone else.

**1) Learn more about time use variables.** From the IPUMS Time Use home page, click on the ATUS-X archive and select “Get Data.” From the left ribbon, click on FAQ under Documentation and jump down to Jump down to “What are time use variables?” <https://www.atusdata.org/atus-action/faq#ques15>

**2) View the system-defined time use variables.** Click on “Time Use” from the “Select Data” page. Select “activity coding structure.”

Do any system-defined time use variables capture participation in sports, exercise, and recreation? Do any system-defined time use variables capture participation in sports, exercise, and recreation at specific times of day?

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**3) This section describes how to create custom time use variables in the ATUS-X system.** After selecting “Get Data” from ATUS-X home page, click on “Create Time Use Variable.”

### a) Activities

What major category includes participation in sports, exercise, and recreation? Hint: view the activity coding tree.

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### b) Filters (other activity-level characteristics)

What filters are available from the system?

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What time use variable filters do you need to use to capture participation in sports, exercise, and recreation in the morning?

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Can you create a single time use variable that captures the time spent in participation in sports, exercise, and recreation from midnight to 6 a.m.?

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## Exercise 2: Demographic Variables

In this exercise, you will become familiar with household- and person-level documentation on the ATUS-X site. You will learn which weights to use and when to use them and you will learn the difference between variables with and without the \_CPS8 suffix.

### 1) View the "weight" variables available from the "person" drop-down menu on the ATUS-X site.

Which weight variable is appropriate for creating estimates of time use from 2003 to 2017?

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Which weight variable is appropriate for creating estimates of time use for Eating and Health Module respondents?

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Which replicate weights should be used with WT06?

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### 2) View the "work status" variables from the "person" drop-down menu on the ATUS-X site.

#### EMPSTAT vs. EMPSTAT\_CPS8

When is EMPSTAT collected?

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What is the universe for EMPSTAT?

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When is EMPSTAT\_CPS8 collected?

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What is the universe for EMPSTAT\_CPS8?

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### Exercise 3: Understanding the Data

\*Create an extract including the following samples: 2003 and 2017 and the following variables: ACT\_SPORTS (TUV), DAY, YEAR.

#### 1) Distinguishing between data samples (years)

Your analyses will compare estimates of time spent in sports, exercise, and recreation in 2003. To determine the total number of cases in each year, run a frequency on the year of participation in the ATUS (YEAR).

How many individuals are in the 2003 sample? \_\_\_\_\_

How many individuals are in the 2017 sample? \_\_\_\_\_

#### 2) Create WEEKDAY to distinguish between weekdays and weekends.

#### 3) Weekdays vs. Weekends and the Importance of Weights

##### 3a. Get frequencies of the newly created WEEKDAY variable by sample.

How many survey respondents completed the survey on a weekday during each sample year?

2003 \_\_\_\_\_ 2017 \_\_\_\_\_

What percentage of individuals completed the survey on a weekend during each sample year?

2003 \_\_\_\_\_ 2017 \_\_\_\_\_

##### 3b. Redo the analysis with the weight variable (WT06) to get accurate estimates.

You will want to modify the commands in 3a. Because the ATUS has a complex survey design, you need to use the survey commands in Stata.

Using weights, what percentage of individuals completed the survey on a weekend during each sample year?

2003 \_\_\_\_\_ 2017 \_\_\_\_\_

#### Exercise 4: Time Spent in Sports, Exercise and Recreation on Weekdays vs. Weekends in 2003 & 2017

**4a. Click on the ACT\_SPORTS variable name (Build an extract→Time Use→Activity coding structure→ACT\_SPORTS) so you know what types of activities are included in this time use variable.**

**4b. Get the mean number of minutes respondents spent in sport, exercise and recreation by WEEKDAY.**

Using weights, what was the mean number of minutes on weekdays vs. weekends?

weekday\_\_\_\_\_ weekend\_\_\_\_\_

**4c. Redo the analysis, excluding those who did not report doing any sport, exercise, or recreation on their diary day.**

Using weights, what was the mean number of minutes on weekdays vs. weekends?

weekday\_\_\_\_\_ weekend\_\_\_\_\_

**4d. See how time spent in sport, exercise, and recreation varies by day of the week and sample.**

Using weights, what was the mean number of minutes in sport, exercise, and recreation by Weekday vs. Weekend and sample among those who reported *any* sport, exercise, and recreation on their diary day?

All Respondents:

2003: weekday\_\_\_\_\_ weekend\_\_\_\_\_

2017: weekday\_\_\_\_\_ weekend\_\_\_\_\_

Respondents Reporting Sport, Exercise, Recreation:

2003: weekday\_\_\_\_\_ weekend\_\_\_\_\_

2017: weekday\_\_\_\_\_ weekend\_\_\_\_\_

## Exercise 5: Estimates of Time Spent Exercising

For this exercise, your objective is to create estimates of average time per day spent exercising for men and women aged 25 to 64 during 2006, broken out by time of day and by whether the person was alone or in the company of others while exercising, as specified in the Excel table shell for exercise 5. For this purpose, exercise includes any activity in the activity category of "Participating in Sports, Exercise, or Recreation" (second tier activity category 130100).

Select the 2006 sample and the rectangular data option in ATUS-X. You will need to use both the time-of-day and the with-whom filters to create the appropriate time use variables. Note that the ATUS-X time-of-day filter is not designed to produce time use variables that include time both at the beginning and at the end of the diary day. In other words, it is not designed to define time use variables for time periods that begin before 4 a.m. and end after 4 a.m. To produce estimates of time spent exercising at night, where night is defined to include the hours between 6 p.m. and 6 a.m., you must create two separate time use variables and sum them. The time use variables you should create include

- Morning exercise (6 a.m. to noon)
- Afternoon exercise (noon to 6 p.m.)
- Night exercise (6 p.m. to 6 a.m.) (note that two time use variables must be created and summed)
  - exercise between 6 p.m. and 4 a.m.
  - exercise between 4 a.m. and 6 a.m.

A data set containing as few as 8 time use variables would be sufficient to fill in the rows and columns of Table 5. You could, for example, create time use variables for time spent exercising alone and time spent exercising in the company of others for each of four time intervals, and use those to calculate the other values needed to complete the table. Because more generally it is a good idea to calculate sums directly as a check on more disaggregated calculations, we suggest that you also create variables that include all time spent exercising during the day and variables that include all time spent exercising regardless of whether alone or in the company of others. If you do this, you will need to create a total of 15 time use variables.

In addition to the 15 time use variables, your data set should include the sex and age of each respondent and the day of the week for which time use information was collected. You also will need to include WT06, the estimation weight variable, on your data set. WT06 is included by default when you create an extract.

Once you have created a suitable extract, you will write a program to create the estimates needed to populate Table 5. Solutions to the exercise, including sample programs, are available in the answers packet so that you can check your work.

## Exercise 6: Understanding the Well-being Module

In this exercise, you will become familiar with the data from the well-being module. You will also compare estimates of well-being during sports (activity codes 130101 - 139999) and paid work and work-related activities (activity codes 050101 - 059999) and you will examine age and gender differences in affect during paid work activities.

Create a hierarchical extract including the 2010 sample, activity-level well-being data, and AWBWT, the activity-level well-being module estimation weight, as well as person-level characteristics to make gender comparisons and WBWT, the person-level well-being module estimation weight.

### 1) Examine frequencies of the six subjective well-being items.

#### 1a. Understanding subjective well-being coding: HAPPINESS and STRESS.

In how many *activities* do respondents report being 'very happy'? \_\_\_\_\_

In how many *activities* do respondents report being 'very stressed'? \_\_\_\_\_

#### 1b. Why are so many records coded as 'NIU (Not in universe)'?

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#### 1c. How many activity records have subjective well-being data available?

\_\_\_\_\_

### 2) Recode NIU as missing.

3) Generate weighted means for the six subjective well-being items using AWBWT. Solutions to the exercise, including sample programs, are available in the answer packet so that you can check your work.

### 4) Interpret the mean for happiness.

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5) Generate weighted means and unweighted N's for each subjective well-being measure during sports, exercise, and recreation and during work and work-related activities. Using the extract you used to answer the previous questions in this exercise, write a program to create the estimates needed to populate Table 9. Solutions to the exercise, including sample programs, are available in the answers packet so that you can check your work.



**6) Generate weighted person-level estimates using WBWT of average subjective well-being (for each of the six well-being measures) for men and women aged 25 to 64 during paid work and work-related activities.**

The well-being module respondent reports his or her subjective well-being for (up to) three randomly selected *activities*. The number of work activities that also have subjective well-being reports will range from zero to three. This occurs because the well-being module data are on activity records rather than person records. For each subjective well-being variable, you will need to create a *person-level average* assessment of well-being during paid work.

You may pursue one of two strategies to accomplish this work. You may either work with the activity-level data and create summary measures which you then merge with the person-level data or you may rectangularize/transpose/reshape the data so it is at the person level.

Solutions to the exercise, including sample programs, are available in the answer packet so that you can check your work.

## Exercise 7: Estimates of Time Spent in Physical Activity in ATUS Well-being Module

With time use data, physical activity can be defined in several ways. We will create different measures of physical activity and see how sensitive the measurement is to the patterns we observe in the data. Your objective in this exercise is to create time use variables from the ATUS activity-level data, to consider different ways to measure physical activity in the ATUS, and to explore associations between BMI, health, and physical activity.

The **first step** in the process is to create a dataset that contains only the respondents who participated in the Eating and Health Module of the ATUS (*hint*: use the module selection on the samples page to identify the years (6) in which the module was fielded). Make sure to include in your extract the BMI and general health status variables along with the appropriate weight to use when analyzing Eating and Health Module data (EHWT). Because we're going to create time use variables from the activity-level data, make sure your extract is hierarchical and you choose the necessary variables to construct time use variables based on mode of transportation, activity, and metvalues associated with activities. The time use variables you should create are:

1. Time spent in exercise (ACTIVITY=130100)
2. Time spent walking or biking as a mode of transportation (WHERE=232 or 235)
3. Time spent in walking or biking as exercise
4. Time spent in moderate activities (METVALUE $\geq$ 3 & METVALUE $<$ 6)
5. Time spent in vigorous activities (METVALUE $\geq$ 6 & METVALUE $<$ 999)
6. Time spent in moderate or vigorous activities

The **second step** is to create a person-level file. First, recode the BMI and general health status variables. BMI should be coded into five categories (underweight [low-18], normal [19-24], overweight [25-29], obese [30-39], extreme obesity [40+]) and don't forget to set the missing data to missing. For general health status, set the missing data to missing. Second, create the time use variables and merge the time use variables from the activity-level file with the person-level data.

The **third step** is to generate mean minutes of each type of physical activity by BMI and general health status and populate Table 7. Don't forget to use EHWT rather than WT06 since you're using variables collected as part of the Eating and Health Module.

### **Exercise 8: Historical trends in US time use**

Using information from the American Heritage Time Use Survey (AHTUS), you will analyze trends in time use in the US during the last five decades. In AHTUS-X, create an extract including 1965, 1975, 1985, 1995, 2005 and 2012 samples. Include the following variables in the extract: SEX, AGE, CIVSTAT, EMPSTAT, UNDER18, and RECWGHT. Also include time use variables for paid work, unpaid domestic work, primary childcare, secondary (but not primary) childcare.

- 1) Estimate minutes in paid work by year from 1965-2012 for the full sample and the employed respondents only.
- 2) Estimate the gender gap in unpaid work by year from 1965-2012 for the full sample and the respondents who are in a union.
- 3) Estimate the time spent in each of primary childcare and secondary childcare for mothers and fathers by year from 1965-2012. Note that secondary childcare is limited in the historical samples.

### **Exercise 9: Cross-country differences in paid work schedule and meals**

Using information from MTUS-X, you will analyze patterns of paid work and meals in four countries. Create an extract with the 2005 samples for US, UK and Netherlands and 2009 for Spain. Create and include in your extract the following TUVs:

- Total time spent in paid work (predefined)
- Time spent in paid work between 6am and 2pm
- Time spent in paid work between 2pm and 10pm
- Time spent in paid work between 10pm and 6am
- Total time spent in meals during the day
- Time spent in meals between 11am and 1pm
- Time spent in meals between 1pm and 3pm
- Time spent in meals between 5 pm and 8pm
- Time spent in meals between 8pm and 11pm

Select also the day of the week and the employment status of the respondent.

1. Compute the average minutes spent in paid work for each country and by weekend/weekday diary for the entire sample and full-time employees only.
2. Compute the average minutes spent in paid work during the morning, afternoon, and night for each country for the entire sample and full-time employees only.
3. Calculate the average time spent in meals for each country and document differences in the timing of meals during the day across countries.