

## Answers to Exercise 1

**1) View the system-defined time use variables.** Click on "Time Use Variables" from the home page.

Do any system-defined time use variables capture participation in sports, exercise, and recreation in the morning?

No, system-defined time use variables only specify activities. To analyze participation in sports, exercise, and recreation in the morning, a user would need to create a time use variable in the ATUS-X system. One approach would be to modify ACT SPORTS or BLS LEIS SPORT; another would be to build a new time use variable from scratch, selecting appropriate activities and applying a time filter.

**2) Learn more about time use variables.** Click on "About ATUS-X" from the home page. Jump down to "Creating and Selecting Time Use Variables." This section describes how to create time use variables in the ATUS-X system. For more information about what a time use variable is, let's look at another page (click on the link in the last sentence of the first paragraph in this section or go to [https://www.atusdata.org/atus/time\\_use\\_documentation.shtml](https://www.atusdata.org/atus/time_use_documentation.shtml))

### a) Activities

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

Sports, Exercise, and Recreation

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

What filters are available from the system?

Time of day, secondary activity (childcare, eating, drinking), location, with whom

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

Time of day

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.?

No, the ATUS diary day covers the period from 4 a.m. of the previous day to 4 a.m. of the reporting day. It would be necessary to create one time use variable that covers the midnight to 4 a.m. period and a second that covers the 4 a.m. to 6 a.m. period. These variables could then be added in a statistics package to represent participation in sports, exercise, and recreation from midnight to 6 a.m.

## Answers to Exercise 2

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

**View the demographic variables available from the ATUS-X site.** Click on "Demographic Variables" from the home page.

### 1) Weights

Which weight variable is appropriate for creating estimates of time use from 2003 to 2017?  
WT06

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

Which replicate weights should be used with WT06?  
RWT06

### 2) EMPSTAT vs. EMPSTAT\_CPS8

When is EMPSTAT collected?  
At the time of the ATUS interview.

What is the universe for EMPSTAT?  
ATUS respondents.

When is EMPSTAT\_CPS8 collected?  
At the time of the final CPS interview, 2-5 months before the ATUS interview.

What is the universe for EMPSTAT\_CPS8?  
Civilian CPS household members age 15+.

## Answers to Exercise 3

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

How many individuals are in the 2003 sample? 20720

How many individuals are in the 2017 sample? 10223

### 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 weekend during each sample year?

2003 10223                      2017 5079

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

2003 49.34                      2017 49.68

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

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

2003 28.49                      2017 28.64

## Answers to Exercise 4

### **4b. Get the mean number of minutes respondents spent in sports, exercise, or recreation by WEEKDAY.**

Using weights, what was the mean number of minutes in sports, exercise, or recreation on weekdays vs. weekends?

weekday 16.90                      weekend 25.35

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

Using weights, what was the mean number of minutes in sports, exercise, or recreation on weekdays vs. weekends among those who reported *any* sports, exercise, or recreation on their diary day?

weekday 87.83                      weekend 132.88

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

Using weights, what was the mean number of minutes in sports, exercise, or recreation by day of the week and sample among those who reported *any* sports, exercise, or recreation on their diary day?

2003:              weekday 93.75                      weekend 139.77  
2017:              weekday 82.97                      weekend 127.48

Answers to Exercise 5

**Exercise 5: Minutes per day spent exercising, by sex, day of week and time of day, 2006**

Sex, Day and Time of Day	Minutes per Day Spent Exercising		
	Total	Alone	With Others
<b>Men (age 25-64)</b>			
Total			
Morning (6 a.m. to noon)	5.25	2.93	2.32
Afternoon (noon to 6 p.m.)	6.52	2.35	4.17
Night (6 p.m. to 6 a.m.)	5.69	1.84	3.86
Monday-Friday			
Morning (6 a.m. to noon)	4.23	2.69	1.54
Afternoon (noon to 6 p.m.)	4.73	2.26	2.47
Night (6 p.m. to 6 a.m.)	6.03	2.14	3.89
Saturday			
Morning (6 a.m. to noon)	7.92	3.58	4.35
Afternoon (noon to 6 p.m.)	11.02	2.81	8.21
Night (6 p.m. to 6 a.m.)	7.04	1.54	5.50
Sunday			
Morning (6 a.m. to noon)	7.63	3.46	4.17
Afternoon (noon to 6 p.m.)	10.90	2.28	8.62
Night (6 p.m. to 6 a.m.)	2.63	0.60	2.02
<b>Women (age 25-64)</b>			
Total			
Morning (6 a.m. to noon)	3.77	1.77	1.99
Afternoon (noon to 6 p.m.)	3.61	0.97	2.64
Night (6 p.m. to 6 a.m.)	3.08	0.86	2.22
Monday-Friday			
Morning (6 a.m. to noon)	3.62	1.91	1.72
Afternoon (noon to 6 p.m.)	2.89	0.99	1.89
Night (6 p.m. to 6 a.m.)	3.42	1.04	2.38
Saturday			
Morning (6 a.m. to noon)	4.24	1.43	2.81
Afternoon (noon to 6 p.m.)	4.77	0.66	4.11
Night (6 p.m. to 6 a.m.)	2.46	0.23	2.23
Sunday			
Morning (6 a.m. to noon)	3.99	1.47	2.52
Afternoon (noon to 6 p.m.)	6.10	1.18	4.92
Night (6 p.m. to 6 a.m.)	1.99	0.62	1.37

## Answers to Exercise 6

### 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'? 11,957

In how many *activities* do respondents report being 'very stressed'? 1,397

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

The subjective well-being reports are collected from *only (up to) three* randomly selected activities for each respondent. Thus, most of the activities that the respondent reports during the diary day are not selected for the well-being module and are therefore coded as NIU. For activities to be eligible for selection, they must be at least five minutes in duration and be activities *other than* sleeping, grooming, personal activities, refusal, or don't know.

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

38,160

### 3) See populated tables in Excel.

Question 3							
Activity-level Subjective Well-Being Means for All Activities							
	Happiness	Meaningfulness	Sad	Stress	Fatigue	Pain	
	4.25	4.31	0.66	1.55	2.27	0.93	

### 4) Interpret the mean for happiness.

The average happiness score of all types of activities across all of the well-being module respondents is 4.25 on a scale of 0 to 6.

### 5) See populated tables in Excel.

Question 5							
Activity-level Means of Subjective Well-Being in Sports and Paid Work							
	Happiness	Meaningfulness	Sad	Stress	Fatigue	Pain	
Sports, Exercise, & Recreation	4.71	4.77	0.41	0.94	2.13	1.26	
N	647	646	648	648	648	648	
Working & Working-related Activities	3.89	4.47	0.74	2.45	2.41	0.86	
N	2,552	2,552	2,556	2,557	2,556	2,556	
*N: Number of Activities							

### 6) See populated tables in Excel.

Question 6							
Person-level Means of Subjective Well-Being in Paid Work by Gender							
	Happiness	Meaningfulness	Sad	Stress	Fatigue	Pain	
Men	3.91	4.46	0.7	2.19	2.21	0.79	
N	1,060	1,060	1,060	1,061	1,061	1,061	
Women	3.85	4.41	0.78	2.62	2.52	0.97	
N	845	843	846	846	846	845	
*N: Number of Activities							

### 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 MET values 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 14. 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 data

**Exercise 8. Historical trends in Paid and Unpaid Work and Childcare**

Paid Work				
	Full Sample	Employed Sample		
1965	263	362		
1975	195	318		
1985	183	302		
1995	239	305		
2005	209	310		
2012	203	320		
Unpaid Work				
Entire Population				
	Men	Women	Gender Gap	
1965	65	265	-200	
1975	83	207	-124	
1985	92	179	-87	
1995	101	175	-74	
2005	83	159	-76	
2012	79	147	-68	
For those in a union				
	Men	Women	Gender Gap	
1965	65	294	-229	
1975	84	235	-151	
1985	102	224	-122	
1995	108	200	-92	
2005	90	188	-98	
2012	85	172	-87	
Childcare				
Primary Childcare			Secondary Childcare	
	Fathers	Mothers	Fathers	Mothers
1965	16	73	--	--
1975	15	54	--	--
1985	10	43	--	--
1995	35	74	--	--
2005	43	88	194	305
2012	51	88	192	278



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

**Exercise 13. Cross-country differences in paid work schedules and meals**

Paid Work by Day of Week						
	Full Sample			Employed Persons		
	Total	Weekdays	Weekends	Total	Weekdays	Weekends
Netherlands	160	207	42	330	438	62
Spain	145	180	54	354	447	128
UK	171	215	62	322	406	108
USA	209	263	73	347	441	112

  

Paid Work by Time of Day						
	Full Sample			Employed Persons		
	Morning	Afternoon	Evening	Morning	Afternoon	Evening
Netherlands	95	60	5	197	124	9
Spain	85	52	7	206	129	18
UK	99	64	8	185	122	16
USA	122	75	12	205	123	19

  

Meals by Time of Day					
	Total	11am-1pm	1pm-3pm	5pm-8pm	8pm-11pm
Netherlands	76	13	6	26	5
Spain	100	3	26	6	31
UK	64	6	7	21	6
USA	54	10	5	16	4