

ATUS Extraction and Analysis

Exercise 1

OBJECTIVE: Gain an understanding of how the ATUS dataset is structured and how it can be leveraged to explore your research interests. This exercise will use the ATUS dataset to explore patterns in time use of Americans in 2011.

Research Questions

Is educational attainment associated with participation in religious or government service activities? Does time spent participating in sports differ by employment status or by day of the week?

Objectives

- Create and download a ATUS data extract
- Decompress data file and read data into SAS
- Analyze the data using sample code
- Validate data analysis work using answer key

ATUS Variables

- ACT_SPORTS: Sports, exercise, and recreation
- BLS_SOCIAL_RELIG: Religious and spiritual activities
- EDUC: Highest level of education attained
- DAY: Day of the week of interview
- SEX: Sex
- EMPSTAT: Employment status

SAS Code to Review

Code	Purpose
proc freq;	Begins a frequency procedure
proc means;	Begins a means procedure, returns the mean value of a variable
tables	Required syntax to display frequencies
where	Selects only specified cases to include in a procedure

Review Answer Key (page 7)

Common Mistakes to Avoid

- 1 Not fully decompressing the data
- 2 Giving the wrong filepath to indicate the dataset
- 3 Forget to close a procedure with "run;"
- 4 Forget to terminate a command with a semicolon ";"

Registering with ATUS

Go to <http://www.ATUSdata.org/>, click on Login at the top, and apply for access. On login screen, enter email address and password and submit it!

Step 1

Make an Extract

- On the homepage, go to Build an Extract (on the left column)
- Click on Select Samples, select the year 2011, keep the default "ATUS respondents" and click Submit sample selections.
- Click on the "Time Use" dropdown menu, and select "Activity coding structure". Click on the plus sign next to ACT_SPORTS to select the variable and add it to the cart.
- Click again on the "Time Use" dropdown menu, and select "BLS published tables". Select the variable BLS_SOCIAL_RELIG (close to the bottom of the page) to add to our data cart by clicking the plus sign next to the variable.
- Select the Person dropdown menu, click on Technical Person, and select the DAY variable.
- Select the variables SEX (under Person → core demographic), EDUC (Person → Education) and EMPSTAT (Person → Work status).

...

Step 2

Request the Data

- Click on the green "View Cart" button at the top right.
- Choose "Create data extract".
- Describe your extract , and click on "Submit extract"
(If you are not signed in, you will be asked to sign in at this point)
- You will get an email when the data is available to download
- To get to the page to download the data, follow the link in the email, or follow the Download/Revise Extracts link on the homepage.

Getting the data into your statistics software

The following instructions are for SAS.

Step 1

Download the Data



Step 2

Read in the Data

- Go to <http://www.ATUSdata.org/> and click on Download/Revise Extracts
 - Right-click on the "data" link next to extract you created, under "files"
 - Choose "Save Target As..." (or "Save Link As...")
 - Save into "Documents" (that should pop up as the default location)
 - Do the same thing for the SAS link next to the extract
-
- Open the "atus_000##.sas" file
 - In the do file window, change the first line from "libname IPUMS '.'" to "libname IPUMS '\\Documents...;" using the file directory where you saved your data files
 - After "filename ASCIIDAT", enter the full file location, ending with " atus_000##.dat";
 - Choose Submit under the Run file menu

Section 1

Create a Variable

Analyze the Sample – Part I Generate a New Variable

- A) On the website, go to Build an Extract, which you'll find on the left hand side of the homepage. Click on Education in the Person dropdown menu under Select Variables. Click on EDUC and find the codes for educational attainment
- B) Create a variable that combines the codes into four categories.

```
data ipums.atus_000##;
    set ipums.atus_000##;
    neweduc = 0;
    if educ >= 10 & educ <= 17 then neweduc = 1;
    if educ = 20 | educ = 21 then neweduc = 2;
    if educ >= 30 & educ <= 32 then neweduc = 3;
    if educ >= 40 & educ <= 43 then neweduc = 4;
run;
```

- C) Is there a difference in the average number of minutes spent doing religious activities reported by individuals of different education levels in this sample? _____

```
proc means;
    var bls_social_relig;
    class neweduc;
run;
```

Section 2

Note on Weights

Analyze the Sample – Part I Using weights (WT06)

The ATUS sample design requires use of weights to provide an accurate representation at the national level. Half of the interview days in the sample are weekdays, while the other half are weekends. The weight WT06 adjusts for the disproportional number of weekend days, and should be used to weight time use variables. More specifically, WT06 gives the number of person-days in the calendar quarter represented by each survey response. Also keep in mind that the "Eating and Health", "Well-Being", and "Employee Leave" Modules have weights unique to them.

D) Now answer question C using weights. _____

```
proc means;
    var bls_social_relig;
    class neweduc;
    weight wt06;
run;
```

Section 1

Analyze the Data

Part II – Relationships in the Data

A)) Go to the homepage and choose " Time Use Variables" on the left column under Data. Click ACT_SPORTS and then the link to the description. Is physical exercise the only thing that falls under this category? _____

B) What is the average number of minutes spent doing activities under the ACT_SPORTS category for each day of the week?

```
proc means;
    var act_sports;
    weight wt06;
    class day;
run;
```

Section 2

Analyze the Data

Analyze the Sample – Part II – Relationships in the Data

C) What is the average number of minutes spent on these activities for each day of the week if the time was more than zero? Do you have a theory why weekends might differ generally from weekdays? Do these averages seem reasonable?

```
proc means;
  where act_sports > 0;
  var act_sports;
  weight wt06;
  class day;
run;
```

D) How many people reported exercise or watching sports on the day of their interview? *Note: See the output from question C and sum the N of each day.* _____

E) How many observations does this year's sample have for ACT_SPORTS? What percentage of people reported time spent doing ACT_SPORTS activities? _____

```
proc univariate;
  var act_sports;
run;
```

Analyze the Sample – Part III Relationships in the Data

Section 2

Analyze the Data

...

Complete!
Check
your
Answers!

A) What is the percent of people employed in the sample?

```
proc freq;
    tables empstat;
run;
```

B) Find the average amount of time participating in sports according to employment status for women. _____

```
proc sort;
    by sex;
proc means;
    var act_sports
    weight wt06;
    class empstat;
    by sex;
run;
```

C) Find the average amount of time participating in sports according to employment status for men. What differences do you see? _____

Section 1

Create a Variable

ANSWERS: Analyze the Sample – Part I Generate a New Variable

A) On the website, go to Build an Extract, which you'll find on the left hand side of the homepage. Click on Education in the Person dropdown menu under Select Variables. Click on EDUC and find the codes for educational attainment.

B) Create a variable that combines the codes into four categories.

```
data ipums.atu000##;
    set ipums.atu000##;
    neweduc = 0;
    if educ >= 10 & educ <= 17 then neweduc = 1;
    if educ = 20 | educ = 21 then neweduc = 2;
    if educ >= 30 & educ <= 32 then neweduc = 3;
    if educ >= 40 & educ <= 43 then neweduc = 4;

run;
```

C) Is there a difference in the average number of minutes spent doing religious activities reported by individuals of different education levels in this sample? **Less than HS diploma: 17.16 min; HS Diploma: 14.69; Some College: 12.73; College Degree +: 12.17**

```
proc means;
    var bls_social_relig;
    class neweduc;

run;
```

Section 2

Note on Weights

ANSWERS: Analyze the Sample – Part I Using weights

The ATUS sample design requires use of weights to provide an accurate representation at the national level. Half of the interview days in the sample are weekdays, while the other half are weekends. The weight WT06 adjusts for the disproportional number of weekend days, and should be used to weight time use variables. More specifically, WT06 gives the number of person-days in the calendar quarter represented by each survey response. Also keep in mind that the "Eating and Health", "Well-Being", and "Employee Leave" Modules have weights unique to them.

D) Now answer question C using weights. **Less than HS diploma: 12.26 min; HS Diploma: 9.35; Some College: 8.58; Graduate: 8.08**

```
proc means;
    var bls_social_relig;
    class neweduc;
    weight wt06;
run;
```

Section 1

Analyze the Data

Part II – Relationships in the Data

A) Go to the homepage and choose "Time Use Variables" on the left column under Data. Click ACT_SPORTS and then the link to the description. Is physical exercise the only thing that falls under this category? **No, ACT SPORTS includes physical exercise, sports recreation, and watching sports. To find only time spent on physical exercise, you would need to Create your own time variable. See Exercise 2 for instructions for creating new variables in the extract builder.**

B) What is the average number of minutes spent doing activities under the ACT_SPORTS category for each day of the week? **Sunday 22; Monday 18; Tuesday 19; Wednesday 20; Thursday 17; Friday 17; Saturday 28**

```
proc means;
    var act_sports;
    weight wt06;
    class day;
run;
```

ANSWERS: Analyze the Sample – Part II – Relationships in the Data

Section 2

Analyze the Data

C) What is the average number of minutes spent on these activities for each day of the week if the time was more than zero? Do you have a theory why weekends might differ generally from weekdays? Do these averages seem reasonable? **Sunday 128; Monday 89; Tuesday 93; Wednesday 99; Thursday 84; Friday 104; Saturday 136; Weekend days might have greater time spent exercising because the person does not have work, or watching professional sports games that are traditionally held on weekends.**

```
proc means;
    where act_sports > 0;
    var act_sports;
    weight wt06;
    class day;
run;
```

D) How many people reported exercise or watching sports on the day of their interview? *Note: See the output from question C and sum the N of each day.* **2319 people**

E) How many observations does this year's sample have for ACT_SPORTS? What percentage of people reported time spent doing ACT_SPORTS activities? **12479 people; 2319/12479 = 18.6%**

```
proc univariate;
    var act_sports;
run;
```

ANSWERS: Analyze the Sample – Part III Relationships in the Data

Section 2

Analyze the Data

A) What is the percent of people employed in the sample? **57.62%**

```
proc freq;
    tables empstat;
run;
```

B) Find the average amount of time participating in sports according to employment status for women. **See table below.**

```
proc sort;
by sex;
proc means;
    var act_sports;
    weight wt06;
    class empstat;
    by sex;
run;
```

C) Find the average amount of time participating in sports according to employment status for men. What differences do you see? **The average time spent participating in sports doesn't seem to differ across employment status for women, but it does for men.**

Average number of minutes in sports participation		
	Women	Men
Employed - at work	15.03	21.66
Employed - absent	19.68	19.65
Unemployed - on layoff	19.26	24.36
Unemployed - looking	19.00	49.24
Not in labor force	13.76	31.13