IPUMS Data Training Exercise

An Introduction to IPUMS Time Use

(Exercise 1 for SAS)

Learning goals

- Create and download a ATUS data extract
- Decompress data file and read data into SAS
- Analyze the data using sample code

Summary

In this exercise, you will gain an understanding of how the Time Use dataset is structured and how it can be leveraged to explore your research interests. This exercise will use the Time Use dataset to explore basic frequencies of income, purchases, caring for children and time spent preparing food. You will create data extracts that include the variables ACT_SPORTS, BLS_SOCIAL_RELIG, EDUC, and EMPSTAT; then, you will use a sample code to analyze these data.

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

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.

Step 2: Request the Data

- 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
  - 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

Review and submit your extract

- Choose the green "View Cart" at the top.
- Click on the green "Create data extract".
- 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. If you would like to use a different stats package, see: https://ipums.org/support/exercises

Download the Data

- Follow the link in the email notifying you that your extract is ready, or by clicking on the "Download and Revise Extracts" link on the left-hand side of the IPUMS Time Use homepage.
- Right-click on the data link next to the extract you created.
- Choose "Save Target As…" or "Save Link As…"

- Save into your preferred working directory. This tutorial assumes you will save the file into "Documents" (which should pop up as the default location).
- Do the same thing to save the SAS command file.

Decompress the data

- All IPUMS extracts are compressed. We recommend 7zip for Windows users. Macs can open these types of files without additional software.
- Find the "Documents" folder under the Start menu.
- Double click on the ".dat" file.
- In the window that pops up, press the "Extract" button.
- After the extract has completed, confirm that the Documents folder contains three files that begin with "atus_000##".

Read the data

- Open the "atus_000##.sas" file.
- In the syntax editing 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_###.dat;
- Choose "Submit" under the Run file menu.

Analyze the Sample

Part I: Generate a New Variable

1. 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
    a. 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;
```

2. 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;
```

Part II: Using Weights (WT06)

Note on Weights

The ATUS sample design requires use of weights to provide and 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.

3. Now answer question 2 using weights. _____

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

Part III: Relationships in the Data

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.

4. Is physical exercise the only thing that falls under this category? _____

5. 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;
```

6. 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;
```

7. How many people reported exercise or watching sports on the day of their interview? *Note: See the output from question 3 and sum the N of each day.* _____

8. 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;
```

9. What is the percent of people employed in the sample? _____

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

10. 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;
```

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

_____

_____

_____

Answers

Part I: Generate a New Variable

1. On the website, go to "Build an Extract"...
2. 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

Part II: Using Weights (WT06)

Note on Weights

3. Now answer question **2** using weights. Less than HS diploma: 12.26 min; HS Diploma: 9.35; Some College: 8.58; Graduate 8.08

Part III: Relationships in the Data

4. 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.

5. 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

6. 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.

7. How many people reported exercise or watching sports on the day of their interview? *Note: See the output from question 3 and sum the N of each day.* 2319 People

8. How many observations does this year's sample have for ACT_SPORTS? What percentage of people reported time spent doing ACT_SPORTS activities? 12,479 people; 2,319/12,479 = 18.6%

9. What is the percent of people employed in the sample? 57.62%

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

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

11. 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.