

Minnesota Population Center

Training and Development

IPUMS – Int.l Extraction and Analysis

Exercise 2

OBJECTIVE: Gain an understanding of how the IPUMS dataset is structured and how it can be leveraged to explore your research interests. This exercise will use the IPUMS to explore demographic and population characteristics of Cambodia, Ireland, and Uruguay.

Research Questions

What are the differences in water supply, internet access, car ownership, and age distribution among Cambodia, Uruguay, and Ireland?

Objectives

- Create and download an IPUMS data extract
- Decompress data file and read data into SPSS
- Analyze the data using sample code
- Validate data analysis work using answer key

IPUMS Variables

- WATSUP: Water supply
- SEX: Sex
- INTRNET: Internet Access
- AUTOS: Automobiles available
- EDATTAN: Educational Attainment
- AGE: Age
- WTHH: Household weight technical variable

SPSS Code to Review

Code	Purpose
compute	Creates a new variable
freq	Displays a simple tabulation and frequency of one variable
crosstabs	Displays a cross-tabulation for up to 2 variables and a control
~=	Not equal to

Review Answer Key (page 9)

Common Mistakes to Avoid

1 Excluding cases you don't mean to. Avoid this by turning off weights and select cases after use, otherwise they will apply to all subsequent analyses

2 Terminating commands prematurely or forgetting to end commands with a period (.) Avoid this by carefully noting the use of periods in this exercise

Registering with IPUMS

Go to <http://international.ipums.org>, click on User Registration and Login and Apply for access. On login screen, enter email address and password and submit it!

Step 1

Make an Extract

- Go back to homepage and go to Select Data
- Click the Select Samples box and check the box for the 2000 sample for Mexico and 2002 for Uganda
- Click the Submit sample selections box
- Using the drop down menu or search feature, select the following variables:

WATSUP: Water supply

SEX: Sex

INTRNET: Internet Access

AUTOS: Automobiles available

EDATTAN: Educational Attainment

AGE: Age

WTHH: Household weight technical variable

...

Step 2

Request the Data

- Click the green VIEW CART button under your data cart
- Review variable selection
- Click the green Create Data Extract button
- Review the 'Extract Request Summary' screen, describe your extract and click Submit Extract
- You will get an email when the data is available to download
- To get to page to download the data, follow the link in the email, or follow the Download and Revise Extracts link on the homepage

Getting the data into your statistics software

The following instructions are for SPSS. If you would like to use a different stats package, see: http://cps.ipums.org/cps/extract_instructions.shtml

Step 1

Download the Data

...

Step 2

Decompress the Data

...

Step 3

Read in the Data

- Go to <http://international.ipums.org> and click on Download or Revise Extracts
 - Right-click on the data link next to extract you created
 - 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 SPSS link next to the extract
- ...
- Find the "Documents" folder under the Start menu
 - Double-click on the ".dat" file
 - In the window that comes up, press the Extract button
 - Double-check that the Documents folder contains three files starting "ipumsi_000..."
 - Free decompression software is available at <http://www.irnis.net/soft/wingzip/>
- ...
- Double click on the ".sps" file, which should automatically have been named "ipumsi_000...."
 - The first two lines should read:

```
cd ".".  
data list file = 'ipumsi_000.../'
```
 - Change the first line to read: cd (location where you've been saving your files). For example:

```
cd "C:\Documents".
```
 - Change the second line to read:

```
data list file = "C:\Documents\ipumsi_000...dat"/
```
 - Under the "Run" menu, select "All" and an output viewer window will open
 - Use the Syntax Editor for the SPSS code below, highlight the code, and choose "Selection" under the Run menu

Analyze the Sample – Part I Variable Documentation

For each variable below, search through the tabbed sections of the variable description online to answer each question.

Section 1

Analyze the Variables

A) Find the codes page for the SAMPLE variable and write down the code values for:

i. Cambodia 2008? _____

ii. Ireland 2006? _____

iii. Uruguay 2006? _____

B) Are there any differences in the universe of WATSUP among the three samples? _____

C) What is the universe for EMPSTAT:

i. Cambodia 2008? _____

ii. Ireland 2006? _____

iii. Uruguay 2006? _____

Analyze the Sample – Part II Frequencies

Section 1

Analyze the Data

...

Section 2

Weight the Data

A) How many individuals are in each of the sample extracts?

freq sample.

When to use the person weights (WTPER)

To get a more accurate estimation of demographic patterns within a county from the sample, you will have to turn on the person weight.

B) Using weights, what is the total population of each country?

Cambodia 2008 _____

Ireland 2006 _____

Uruguay 2006 _____

weight by wtper.

freq sample.

C) Using weights, what proportion of individuals in each country did not have access to piped water?

Cambodia 2008 _____

Ireland 2006 _____

Uruguay 2006 _____

crosstabs

/tables=watsup by sample

/cells = count column.

Analyze the Sample - Part II Frequencies (WTHH)

Suppose you were interested not in the number of people with or without water supply, but in the number of households – you will need to use the household weight.

Section 3

Weight the Data

In order to use household weight, you should be careful to select only one person from each household to represent that household's characteristics. You will need to apply the household weight (WTHH). To identify only one person from each household, under the Data menu, click "Select Cases", choose "If condition is satisfied", and click "If". In the top box type "PERNUM = 1" and select Continue and then Ok. You'll have to return to change the filter each time you shift between household and individual frequencies.

D) What proportion of households in each country did not have access to piped water?

Cambodia 2008 _____

Ireland 2006 _____

Uruguay 2006 _____

```
weight by wthh.  
crosstabs  
/tables=watsup by sample  
/cells = count column.
```

E) In which country do individuals have the most access to the internet? _____

```
weight by wtper.  
crosstabs  
/tables=intrnet by sample.  
/cells = count column.
```

Section Continues below...

Analyze the Sample - Part II Frequencies (WTHH)

Section 1

Analyze the Data

F) In that country, what proportion of households have both access to internet and at least one car? _____

Note: First you'll have to generate a dummy variable that is 1 when the household has at least one car and internet, and zero in all other cases.

```
weight by wthh.  
compute autoint = 0.  
if (intrnet = 2 and autos >=1 and autos < 8) autoint = 1.  
crosstabs  
/tables=autoint by sample  
/cells = count column.
```

G) In which country is educational attainment (Secondary and University in particular) between men and women most equal? Least equal?

Most equal completion rates: _____

Least equal completion rates: _____

```
weight by wtper.  
crosstabs  
/tables=edattan by sex by sample  
/cells = count column.
```

Analyze the Sample – Part III Graphical Analysis

Suppose you want to compare age distribution across countries.

Section 1

Graph the Data

- A) Approximately what percent of Uruguay's population is around 50 years old? _____
- B) Compare the age distributions of Cambodia and Ireland. Is this a pattern that could be observed in other developed and developing nations? _____
- C) Can the shape of the histogram of Ireland compared to the other countries indicate anything about the differences in data collection? _____

```
graph
/bar(grouped)=pct by age.
```

Note: SPSS graph procedures do not allow for WEIGHT options, so graph analyses are at the sample level.

- D) What (approximately) are the median ages for men and women in each of these countries?

Women:

Cambodia 2008 _____ Ireland 2006 _____ Uruguay 2006 _____

Men:

Cambodia 2008 _____ Ireland 2006 _____ Uruguay 2006 _____

```
graph
/bar(grouped)=MEDIAN(age) by sex.
```

...

Complete!

Validate
Your
Answers

ANSWERS: Analyze the Sample – Part I Variable Documentation

For each variable below, search through the tabbed sections of the variable description online to answer each question.

Section 1

Analyze the Variables

A) Find the codes page for the SAMPLE variable and write down the code values for:

i. Cambodia 2008? 1162

ii. Ireland 2006? 3728

iii. Uruguay 2006? 8585

B) Are there any differences in the universe of WATSUP among the three samples? Cambodia 2008: Regular households, Ireland 2006: Private households in non-temporary dwellings, Uruguay 2006: All households. All have technical differences, Uruguay being most inclusive, and Ireland being the most precise.

C) What is the universe for EMPSTAT:

i. Cambodia 2008? All persons.

ii. Ireland 2006? Non-absent persons age 15+.

iii. Uruguay 2006? Persons age 14+.

ANSWERS: Analyze the Sample – Part II Frequencies

Section 1

Analyze the Data

...

Section 2

Weight the Data

A) How many individuals are in each of the sample extracts?
Cambodia 2008 1,340,121; Ireland 2006 440,314;
Uruguay 2006 256,866

freq sample.

When to use the person weights (WTPER)

To get a more accurate estimation of demographic patterns within a county from the sample, you will have to turn on the person weight.

B) Using weights, what is the total population of each country?
Cambodia 2008 13,401,210
Ireland 2006 4,403,140
Uruguay 2006 3,065,604

weight by wtper.
freq sample.

C) Using weights, what proportion of individuals in each country did not have access to piped water?

Cambodia 2008 84.12%
Ireland 2006 14.25%
Uruguay 2006 3.22%

crosstabs
/tables=watsup by sample
/cells = count column.

ANSWERS: Analyze the Sample - Part II Frequencies (WTHH)

Suppose you were interested not in the number of people with or without water supply, but in the number of households – you will need to use the household weight.

Section 3

Weight the Data

In order to use household weight, you should be careful to select only one person from each household to represent that household's characteristics. You will need to apply the household weight (WTHH). To identify only one person from each household, under the Data menu, click "Select Cases", choose "If condition is satisfied", and click "If". In the top box type "PERNUM = 1" and select Continue and then Ok. You'll have to return to change the filter each time you shift between household and individual frequencies.

D) What proportion of households in each country did not have access to piped water?

Cambodia 2008 83.91%

Ireland 2006 12.59%

Uruguay 2006 3.28%

```
weight by wthh.  
crosstabs  
/tables=watsup by sample  
/cells = count column.
```

E) In which country do individuals have the most access to the internet? Ireland (53.1% Yes)

```
weight by wtper.  
crosstabs  
/tables=intrnet by sample.  
/cells = count column.
```

Section Continues below...

ANSWERS: Analyze the Sample - Part II Frequencies (WTHH)

Section 1

Analyze the Data

F) In that country, what proportion of households have both access to internet and at least one car? 52.8%

Note: First you'll have to generate a dummy variable that is 1 when the household has at least one car and internet, and zero in all other cases.

```
weight by wthh.  
compute autoint = 0.  
if (intrnet = 2 and autos >=1 and autos < 8) autoint = 1.  
crosstabs  
/tables=autoint by sample  
/cells = count column.
```

G) In which country is educational attainment (Secondary and University in particular) between men and women most equal? Least equal?

Most equal completion rates: Uruguay (18.68/19.76%; 3.99/4.23%)

Least equal completion rates: Cambodia (4.76/2.44%; 1.36%/0.6%)

```
weight by wtper.  
crosstabs  
/tables=edattan by sex by sample  
/cells = count column.
```

ANSWERS: Analyze the Sample – Part III Graphical Analysis

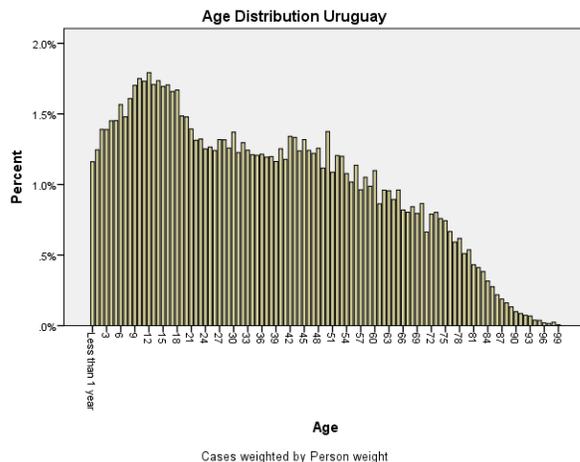
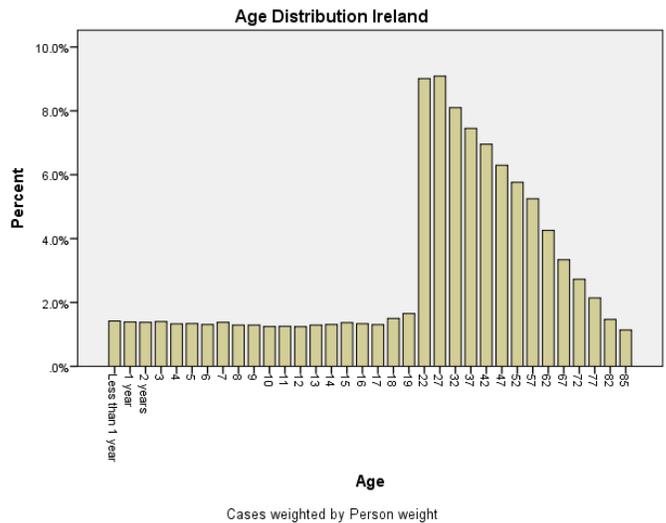
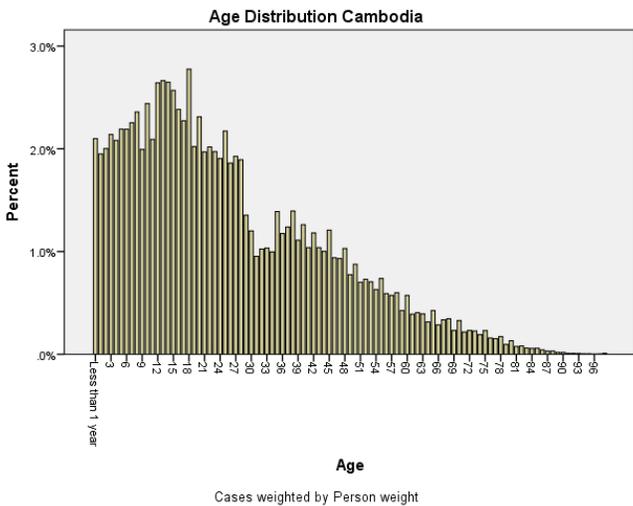
Suppose you want to compare age distribution across countries.

Section 1

Graph the Data

- A) Approximately what percent of Uruguay’s population is around 50 years old? ~2.4%
- B) Compare the age distributions of Cambodia and Ireland. Is this a pattern that could be observed in other developed and developing nations? A large proportion of Cambodia’s population is 25 or younger, while the mean age of Ireland’s population seems a bit older.
- C) Can the shape of the histogram of Ireland compared to the other countries indicate anything about the differences in data collection? “All Ireland samples provide single years of age through 19 and 5-year age intervals thereafter, top-coded at 85+”
From the Comparability Tab on the website.

graph
/bar(grouped)=pct by age.



ANSWERS: Analyze the Sample – Part III Graphical Analysis

Section 1

Graph the Data

D) What (approximately) are the median ages for men and women in each of these countries? *Note: You'll have to make a separate graph for each country using Select Cases. In the "If" statement, enter "CNTRY = " and then the country code for each sample.*

Women:

Cambodia 2008 23 Ireland 2006 32 Uruguay 2006 35

Men:

Cambodia 2008 20 Ireland 2006 32 Uruguay 2006 32

```
graph  
/bar(grouped)=MEDIAN(age) by sex.
```

