TheDataWeb

TheDataWeb & DataFerrett

DataFerrett is a highly sophisticated web-based analytical tool developed by the U.S. Census Bureau designed to equip users with the ability to analyze large amounts of data and create customized reports to support decision-making. DataFerrett draws upon the DataWeb, a distributed data dissemination system of public and private databases providing a vast amount of statistical information that is constantly updated and expanded.

DataFerrett is used for purposes such as online data integration and web-based data driven visualizations, and provides a unique and effective tool to internal and external Census customers that allows users to point and click to extract data, and create custom tabulations. The datasets in DataFerrett come from many different sources and organizations, which are the providers of the data and subsequent supporting documentation.
There are two basic types of data that DataFerrett accesses:

1. **Microdata**, in which the data record represents a survey response or an administrative record,
2. **Aggregated data**, in which a variable contains an estimate of a characteristic (e.g., the number of factories in a county.)

DataFerrett is a highly efficient research tool, in use by both internal and external customers who work for a myriad of organizations, such as agencies of the Federal government, State and Local governments, universities, non-profit organizations, and divisions within the Bureau of the Census.

DataFerrett supports the Census Bureau's mission to serve as the leading source of quality data about the nation's people and economy by providing a mechanism for external customers to analyze many varied data sets such as the American Community Survey (ACS) data, County Business Patterns (CBP), and data variables from demographic variables to business variables.

You can watch a very useful seven minute video on the basics of using DataFerrett by visiting https://www.youtube.com/watch?v=STRn4XdTNo0 on the US Census Bureau YouTube channel. There is also a second part to the video at https://www.youtube.com/watch?v=ArWHkuh0CtU

The following pages contain a step-by-step introductory exercise using DataFerrett, providing a basic overview of selecting a dataset, variables and their values, and creating a table. It also illustrates several advanced and highly useful functions, including creating a recode, a table formula, and generating a thematic map.

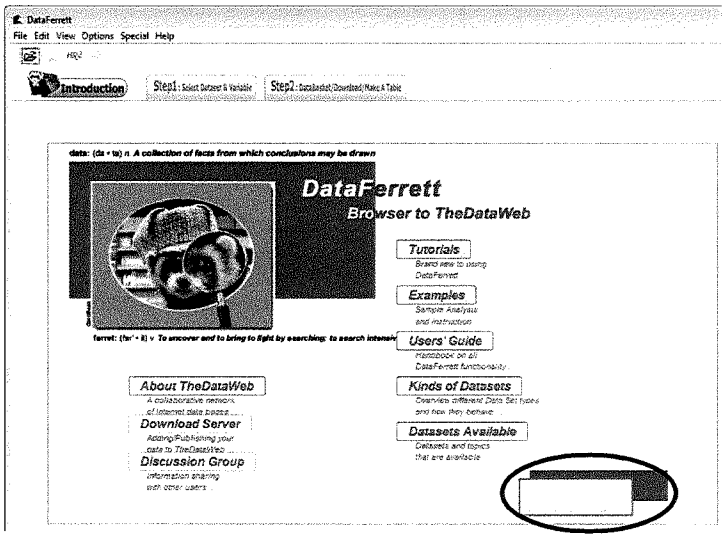
DataFerrett Help
http://dataferrett.census.gov/
1-866-437-0171 (toll free)
dsd.ferrett@census.gov

Task 1: ***Using the ACS PUMS data, produce a table breaking out the native born and foreign born populations by year of entry into the U.S., either before 2000 or in 2000 or later, for all states.***

START DATAFERRETT

1. Go to http://dataferrett.census.gov/, click on **Get Data ~ Run: DataFerrett**, and launch DataFerrett.
2. Enter your email address when prompted.

NOTE: *The DataFerrett Team only uses the email address when returning downloaded data or responding to help messages, and on occasion to send out an announcement regarding special notices. It does not give your email address out. Passwords are only necessary and issued to users to access their own data or private data.*



The Introduction Tab is the screen you arrive at after you log in. Step 1 and Step 2 are the data application tabs.

The Introduction Screen has the **Get Data Now** link to go straight into the DataFerrett application.

NOTE: *Select the links to access the user guide, tutorials, frequently asked questions, and other information about using DataFerrett.*

STEP1: SELECT DATASET & VARIABLE TAB

1. Select the **Step 1 Select Dataset & Variables** tab.
2. Click on the **plus sign** next to the **American Community Survey** folder.
3. Click on the **plus sign** next to the **Public Use Microdata Sample** folder.
4. Click the **2014** bullet.
5. A **Description / View Variables** fly-out will allow you to choose the Dataset Description or to View Variables.

View Variables will bring up the topics pertinent to your highlighted dataset.

6. Click on the **Select All Topics** button.
7. Click the **Search Variables** button.

You will need the following variables:

Nativity (NATIVITY), Year of entry (YOEP), and Geography(Geographic Items)=all states

8. Sort the NAME column (click the NAME column header).
9. Highlight the **NATIVITY** variable.
10. Scroll down to the bottom of the list, hold the Ctrl key, and highlight the **YOEP** variable.

Once you highlight a variable, the **Browse/Select Highlighted Variables** button becomes active.

11. Click the **Browse / Select Highlighted Variables** button.

NOTE: *You can also double click on a variable to pop-up the Browse Variable window.*

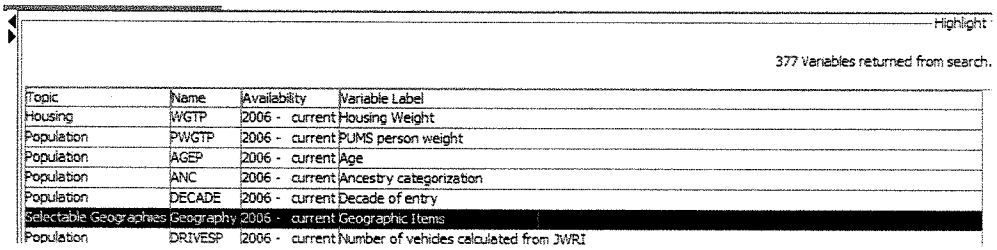
Selecting the **Browse/Select Highlighted Variables** button will open a new window that allows you to browse variable descriptions and values for all items that you selected in the **Select Dataset & Variables** tab. This is also called the Codebook. Additionally, this window allows you to select the variables and their values that you want to put into your DataBasket where you can recode, modify, or delete a variable.

12. Check the box marked **Select** ACS NATIVITY for the Nativity variable.
13. Select (highlight) the ACS YOEP.
14. Check the box marked **Select** ACS YOEP Year of Entry variable. This places boxes in front of all the values.
15. Uncheck the first value that says 1920) Not Eligible - Born in the US (This restricts the universe to only Foreign Born).
16. Click **OK** in the upper, right corner
17. Confirm the addition of 2 variables to your data basket by clicking **OK** in the pop-up window that appears.

You have added **NATIVITY and YOEP** variables, with a sub-selection to YOEP, to your data basket.

Next, choose your geography variable (Step 1):

1. Double Click the → **Selectable Geographies** Variable → from the variable list (**NOTE:** the name of the variable is **geography**).



2. Click on **State** in the **Types of geography available:** section on the left.
3. Highlight State in the **Hierarchies:** section and click on the **Use Hierarchy** button at the bottom of the screen.
4. The list of states appears in the left section. Drag the **Select All** from the left section to the far right **Selected Geographic Areas:** section.
5. Click the **Finish** button.

STEP 2: DATABASKET/DOWNLOAD/MAKE A TABLE

We will need to create a new variable (recode) to define just 2 categories of the year of entry – 1) before 2000 and 2) in 2000 or later.

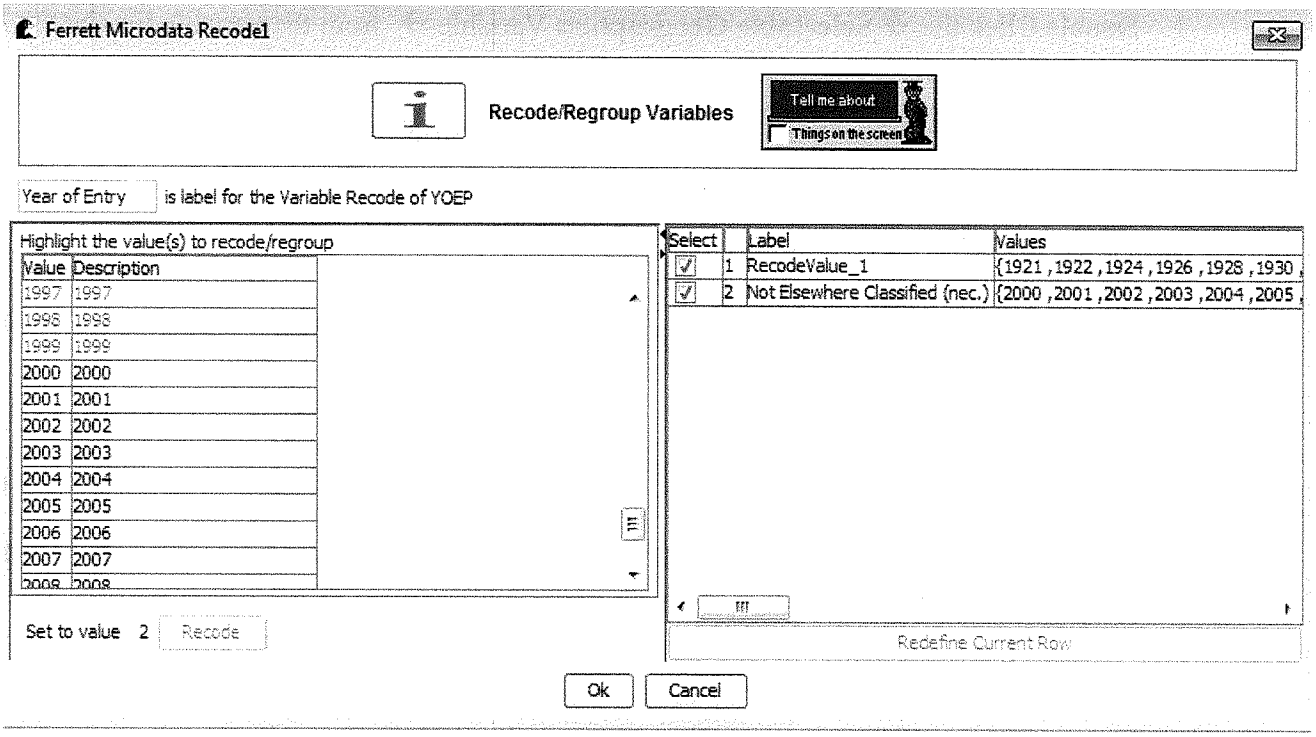
1. Click the **STEP 2: Data Basket / Download / Make A Table** tab
2. Highlight the **Year of entry variable - YOEP**

Selecting a variable from your list of Current Query Variables will activate the following options: Recode, Delete, and View/Modify the variables.

3. Click on the **Recode Variable(s)** button located at the top right side of the screen.
4. Assign a label to your recode variable in the box labeled **RECODE1** at the top left (ex. Year of Entry Recode).
6. Highlight all of the categories from **1921** up to and including **1999**. To do this, first click on the **1919** value, then scroll down until you can see **1999** – hold the **Shift** key and click on **1999**. This will highlight all of the values between.

7. Click the **Recode** button at the bottom left.

   1921-1999 have been assigned to value 1 of the new recode variable.



   Notice the right hand side of the screen now displays 2 categories for the new recoded variable:

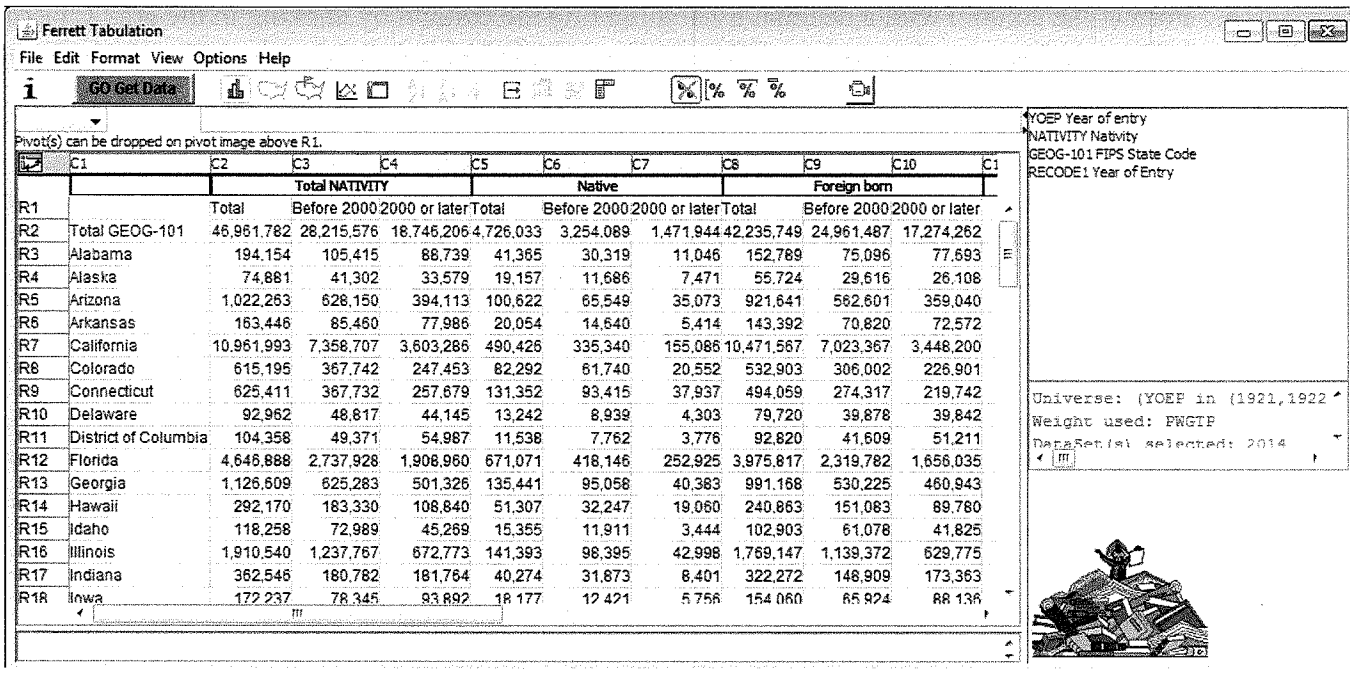
```
1       RecodeValue_1
2       Not Elsewhere Classified (nec.)
```

8. Type a new label by double clicking the label for the **RecodeValue_1**. Type the words **Before 2000** and ***make sure to hit the* Enter *key***.
9. Type a new label by double clicking the label for the **Not Elsewhere Classified (nec)**. Type the words **2000 or later** and ***make sure to hit the* Enter *key***.
10. Finish by clicking the **OK** button at the bottom of the window.

STEP 3: DOWNLOAD / MAKE A TABLE

Make a Nested Table

1. Click on the **Make A Table** button.
2. Drag the **Geog-FIPS State Code** variable to the **R2,C1** cell to define the rows.
3. Drag the **Nativity** variable to the **R1,C2** cell to define the columns.
4. Nest the **Year of Entry Recode** variable on the columns by dropping onto any of the Nativity labels.
5. Click the **Go Get Data** button on the menu bar.



	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
		Total NATIVITY			Native			Foreign born		
R1		Total	Before 2000	2000 or later	Total	Before 2000	2000 or later	Total	Before 2000	2000 or later
R2	Total GEOG-101	46,961,782	28,215,576	18,746,206	4,726,033	3,254,089	1,471,944	42,235,749	24,961,487	17,274,262
R3	Alabama	194,154	105,415	88,739	41,365	30,319	11,046	152,789	75,096	77,693
R4	Alaska	74,881	41,302	33,579	19,157	11,686	7,471	55,724	29,616	26,108
R5	Arizona	1,022,263	628,150	394,113	100,622	65,549	35,073	921,641	562,601	359,040
R6	Arkansas	163,446	85,460	77,986	20,054	14,640	5,414	143,392	70,820	72,572
R7	California	10,961,993	7,358,707	3,603,286	490,426	335,340	155,086	10,471,567	7,023,367	3,448,200
R8	Colorado	615,195	367,742	247,453	82,292	61,740	20,552	532,903	306,002	226,901
R9	Connecticut	625,411	367,732	257,679	131,352	93,415	37,937	494,059	274,317	219,742
R10	Delaware	92,962	48,617	44,145	13,242	8,939	4,303	79,720	39,878	39,842
R11	District of Columbia	104,358	49,371	54,987	11,538	7,762	3,776	92,820	41,609	51,211
R12	Florida	4,646,888	2,737,928	1,908,960	671,071	418,146	252,925	3,975,817	2,319,782	1,656,035
R13	Georgia	1,126,609	625,283	501,326	135,441	95,058	40,383	991,168	530,225	460,943
R14	Hawaii	292,170	183,330	108,840	51,307	32,247	19,060	240,863	151,083	89,780
R15	Idaho	118,258	72,989	45,269	15,355	11,911	3,444	102,903	61,078	41,825
R16	Illinois	1,910,540	1,237,767	672,773	141,393	98,395	42,998	1,769,147	1,139,372	629,775
R17	Indiana	362,546	180,782	181,764	40,274	31,873	8,401	322,272	148,909	173,363
R18	Iowa	172,237	78,345	93,892	18,177	12,421	5,756	154,060	65,924	88,136

NOTE: *No need to do anything about a weight variable; it is automatically applied for ACS PUMS data files. Notice the blue text on the right side of the table and you can see that this table is weighted using the PWGTP variable (person's weight). You can get unweighted counts by going to the Options menu, then select Weighting- Unweighted, and then hit the Go Get Data button.*

Create a Formula

To create a formula to calculate the percentage of the foreign born who have entered the country since 2000, do the following:

1. Click in the gray column header of the next empty column – in this table it is column **C11**.
2. Click in the Formula bar directly below the **Go Get Data** button to enter your formula and type:

   =comp(c10/c8*100)

3. Hit the **Enter** key and your formula should calculate in column **C11**.
4. Format the column with a decimal by highlighting the column by clicking in the gray C11 column header. In the menu bar, choose **FORMAT > DECIMALS** and then select **One decimal place** from the dialog box and hit **OK**.
5. Click in the **R1,C11** cell to enter a heading for our calculated column – **Pct Entered Since 2000**
6. To save the table, click **FILE > SAVE AS** on the menu bar.
7. Save the table as **acs_foreign_born.ftf**. This is the default format and is the table shell (or layout) for re-use within DataFerrett only.

Create a Map

1. To create a map, with a geographic variable in column **C1**, highlight a single column containing data (not the row labels). In our example, highlight the data cells in our calculated column 11 – **Pct Entered Since 2000**. **NOTE:** You cannot highlight the entire column by clicking in the header, you must select the data cells.
2. Click the **Map Button** in the toolbar (it is the button with the yellow US shape).
3. A separate map window will open with your map.

Close your Map window and your Table window.

In the **Step 2: DataBasket/Download/Make a Table** tab, click on the **Empty DataBasket** button (looks like a shopping cart being dumped).

Task 2: ***Change our table from showing all states to show all the PUMAs in a single state.***

STEP 4: CHANGE TABLE DISPLAY

1. Open the DataFerrett table shell you saved in the first part of the example. Use **FILE > OPEN** and select the **acs_foreign_born.ftf** file. This will open the **DataFerrett Tabulation** window with your saved table layout.

   The **DataFerrett Tabulation** screen is a separate window that can be left open or closed. If you wish to add variables from Step 1, they will show up in your variable list on your tabulation window.

2. Do not close the Tabulation window, but use your Windows task bar to navigate back to the main DataFerrett window and go to the **Step 1: Select Dataset &Variables** tab.
3. Select the **ACS –PUMS** – 2014 dataset, and select the View Variables option.
4. Choose the Selectable Geographies topic and hit the Search Variables button located at the bottom left of the screen.
5. Double-click on the Geography variable in the **Name** column.
6. Highlight **Public Use Microdata Area** in the left section.
7. Highlight **State > Public use microdata area code (PUMA)** in the **Hierarchies:** section and click on the Use Hierarchy button at the bottom of the screen.
8. The list of states will appear in the left section. Drag Maryland to the center section and click the Next Level button.
9. Now you will see all the PUMAs for the state listed by their PUMA number in the left section. Drag the **Select All** from the left section to the far right **Selected Geographic Areas:** section.
10. Click the Finish button.
11. Using your Windows task bar, navigate back to your Ferrett Tabulation window. You should now see the PUMA geography variable listed at the bottom of your variable list on the right side of the window.

    Now, we want to replace the States in Column C1 from our saved table with the PUMAs that we just selected.

12. Go to the **Edit** menu option and select **Clear > All Rows.** This removes the states from the rows.
13. Drag the **GEOG-Public Use Microdata Area (PUMA)** variable into the spreadsheet and drop in **C1,R1** to define the rows with the PUMAs.
14. Hit the Go Get Data button. The table now displays data for all PUMAs in the state of Maryland.

TheDataWeb

Hands-on Exercise Using DataFerrett
Current Population Survey –
Annual Social and Economic (ASEC) Supplement

U.S. Census Bureau

DataFerrett Help
http://dataferrett.census.gov/
1-866-437-0171 (toll free)
dsd.ferrett@census.gov

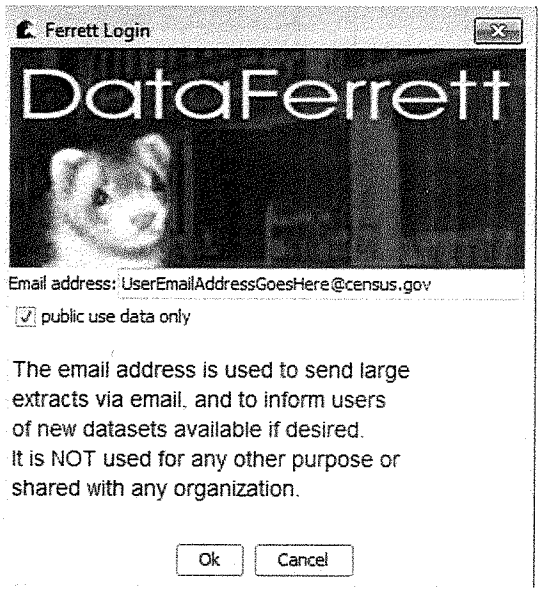
Question: ***What are the rates of health care coverage for children by sex and race?***

START DATAFERRETT

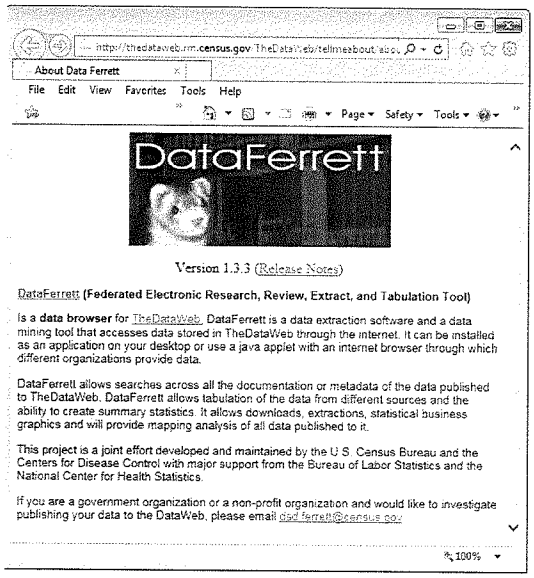
1. CLICK LAUNCH DATAFERRETT ON THE WEBSITE:

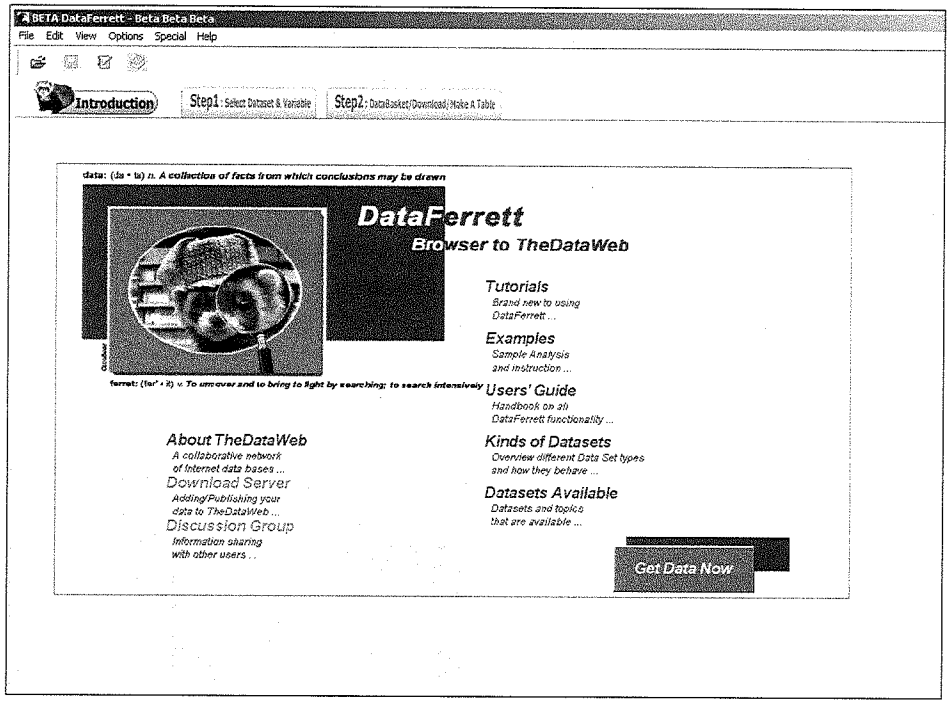
2. ENTER YOUR EMAIL ADDRESS AND SELECT OK.

NOTE: The DataFerrett Team only uses the email address when returning downloaded data or responding to help messages and on occasion to send out an announcement regarding special notices. It does not give your email address out.



3. ABOUT FERRETT can be found under the HELP drop-down menu at the top of the Introduction, Step 1 and Step 2 screens.





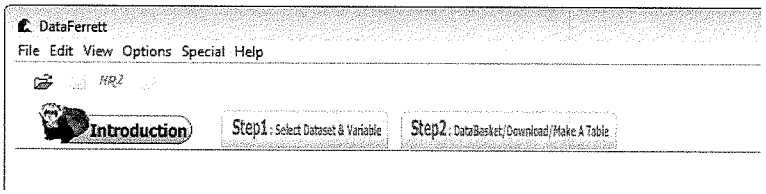
THE INTRODUCTION Tab is the screen that appears when you log in. Step 1 and Step 2 are the other two tabs.

The INTRODUCTION Screen has the Get Data Now link to go straight into the DataFerrett application.

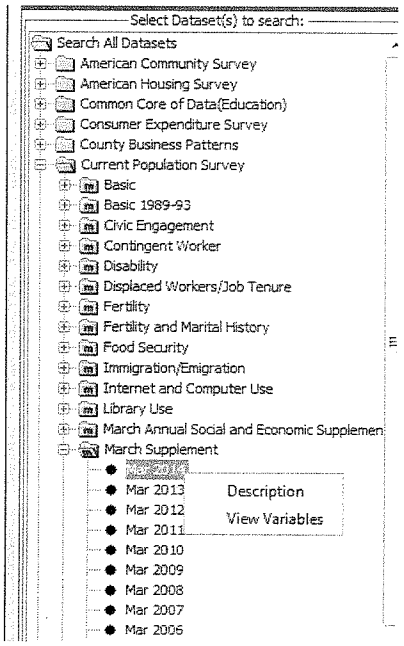
Note: Select the links to access the users' guide, tutorials, frequently asked questions and other information about using DataFerrett.

STEP1: SELECT DATASET & VARIABLE TAB

1. SELECT THE **STEP 1 SELECT DATASET & VARIABLES** TAB.

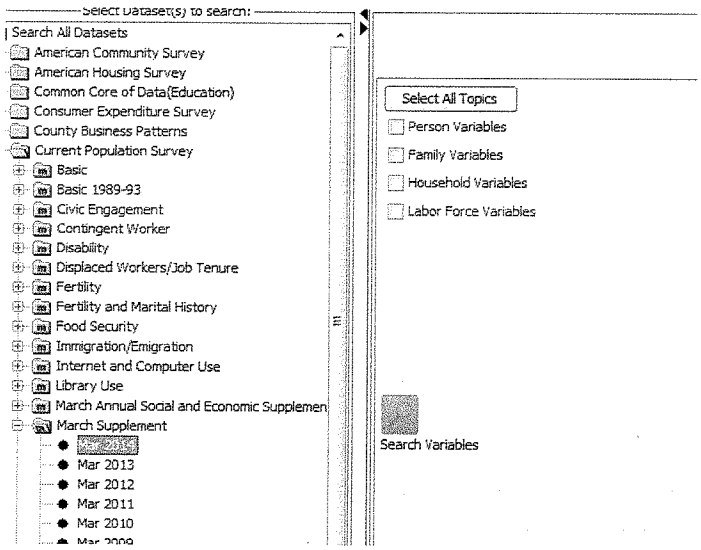


2. CLICK ON THE **PLUS SIGN** NEXT TO THE **CURRENT POPULATION SURVEY** FOLDER.CLICK ON THE **PLUS SIGN** NEXT TO THE **MARCH SUPPLEMENT** FOLDER.
3. CLICK THE **MAR 2014** BULLET.
4. A DESCRIPTION / VIEW VARIABLES FLY-OUT WILL ALLOW YOU TO CHOOSE THE DATASET DESCRIPTION OR TO VIEW VARIABLES.



View Variables will bring up the topics pertinent to your highlighted dataset.

1. CLICK ON THE **SELECT ALL TOPICS** BUTTON.
2. CLICK THE **SEARCH VARIABLES** BUTTON.



Variables will be listed on the right as seen below.

A variable list appears which includes the follow columns:

Topic - type of variable.

Name - of the variable.

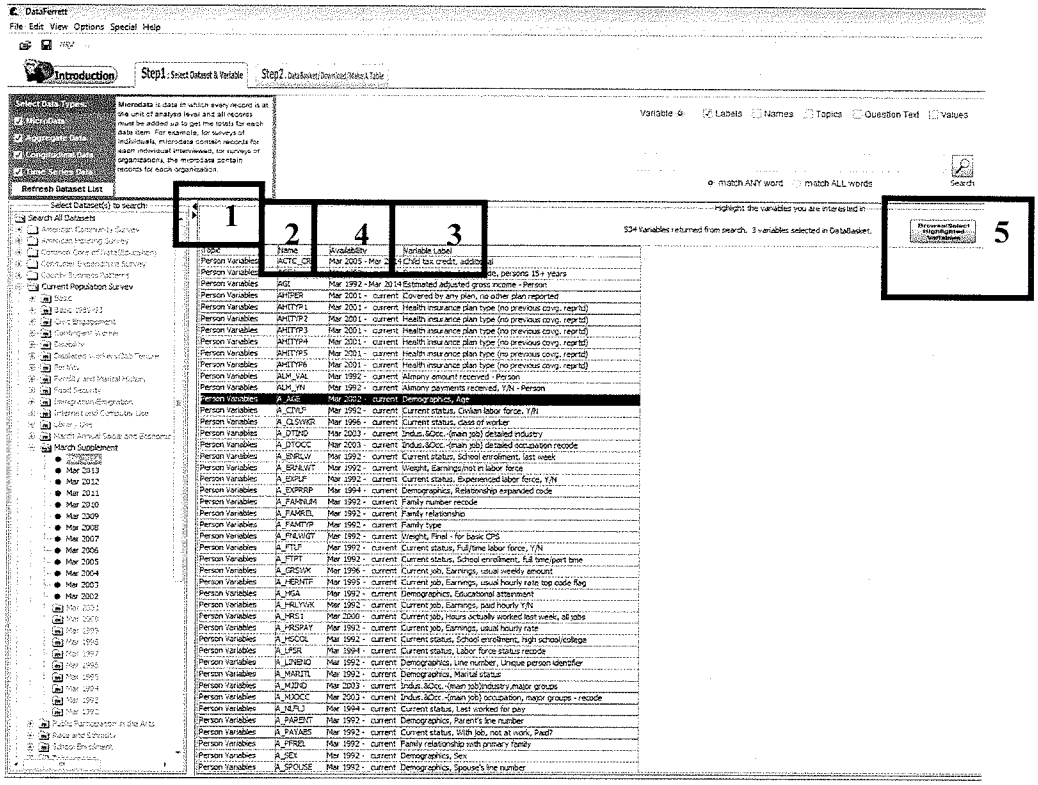
Availability - the period of time for when the variable is valid.

Variable Label - short description of the variable.

MANAGING THE VARIABLE WINDOW

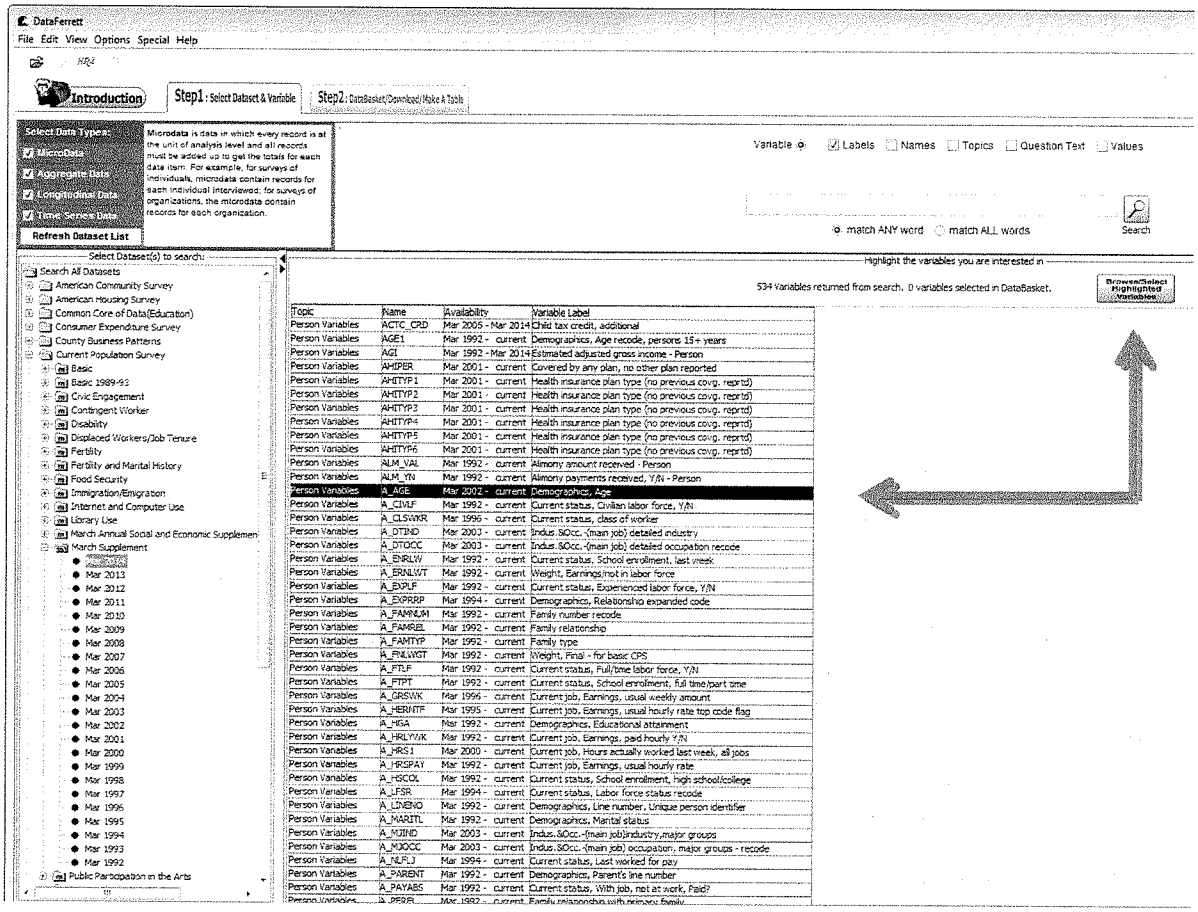
- By clicking on the **arrows (1)** indicated below, you can open up the list of Datasets pane or click the other arrow and see the full description of the variables.
- Clicking in the **gray header box (2),** you can drag "columns" into view or any order you choose.
- Also, by clicking in the **gray header box of each "column" (3)** you can alphabetize by that column.
- The **"Availability" column (4)** shows a year and a hyphen. If there is another year after the hyphen it means that the variable was available ONLY during those years. If there is no year after the hyphen then the variable is still being asked exactly the same way today.
- Selecting the **Browse/Select Highlighted Variables (5)** button will open a new window that allows you to browse variable descriptions and values for all items that you selected in the Select Dataset & Variables tab.

1.



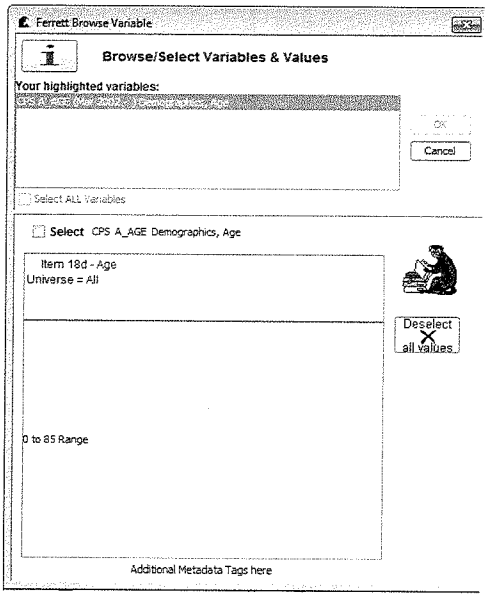
SORT THE **NAME** COLUMN (CLICK THE NAME COLUMN HEADER)

2. HIGHLIGHT THE **A_AGE** VARIABLE



Once you highlight a variable the Browse / Select Highlighted Variables button becomes active.

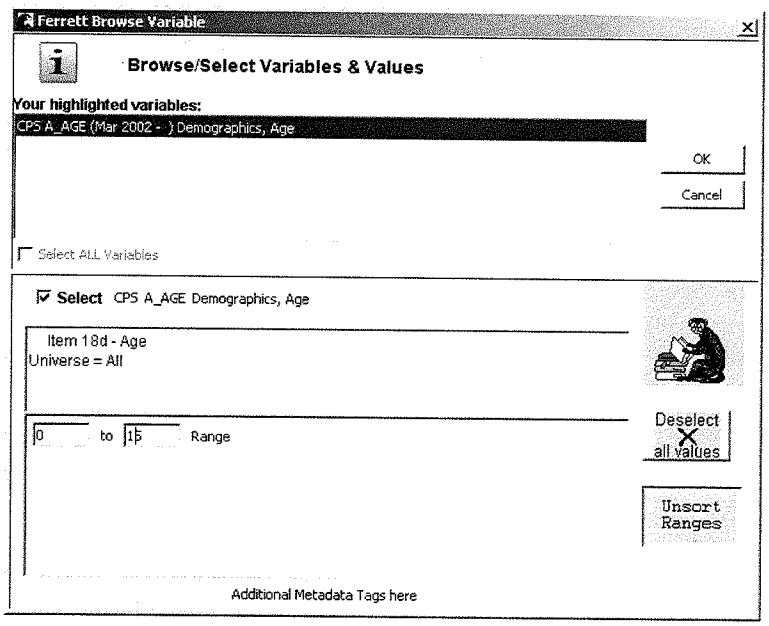
3. CLICK THE **BROWSE / SELECT HIGHLIGHTED VARIABLES** BUTTON AS SHOWN ABOVE.



Note: You can also double click on a variable to pop up the Browse Variable window.

This is also called the Codebook. This window also allows you to select the variables (and their values) that you want to be put into your Data Basket where you can recode, modify, or delete a variable.

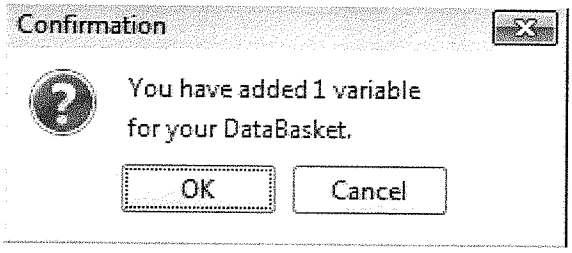
1. CLICK THE BOX MARKED **SELECT CPS A_AGE DEMOGRAPHICS, AGE**



2. CHANGE THE AGE RANGE TO **0 TO 15**

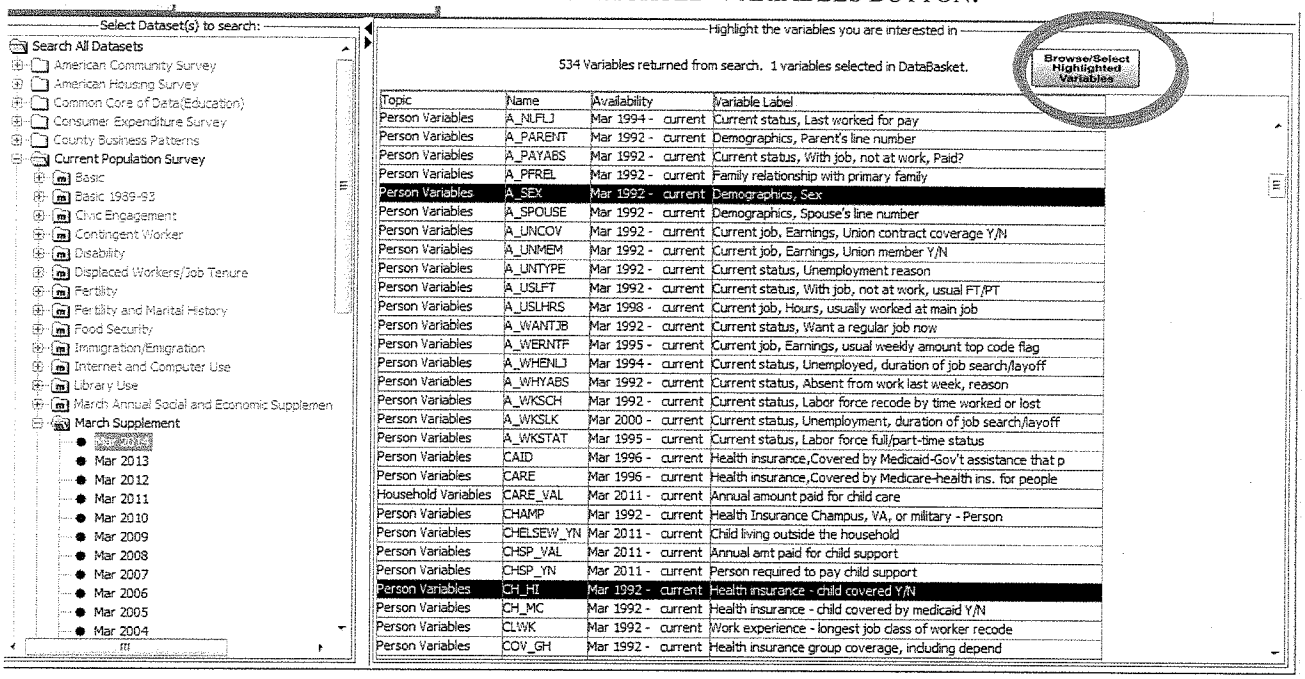
3. CLICK **OK**

You have added A_AGE to your data basket and you have restricted the universe to kids 15 and younger.



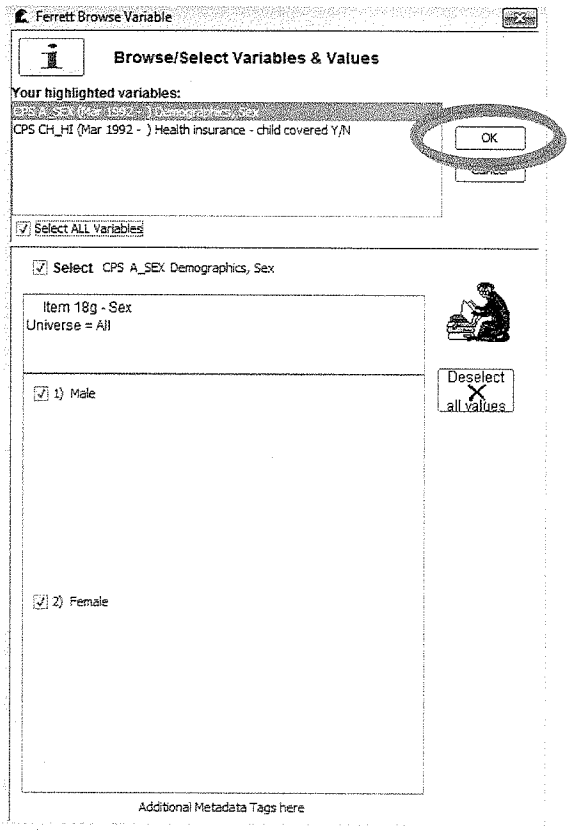
Choose your remaining variables from Step 1.

1. WITH YOUR LIST STILL SORTED BY NAME, SCROLL DOWN AND HIGHLIGHT THE **A_SEX** VARIABLE.
2. SCROLL DOWN UNTIL YOU SEE THE **CH_HI** VARIABLE (CHILD COVERED BY HEALTH INSURANCE). HOLD DOWN THE CONTROL KEY AND HIGHLIGHT IT.
3. CLICK THE BROWSE / SELECT HIGHLIGHTED VARIABLES BUTTON.



In the Ferrett Browse Variable window this time, you will see the two variables you have chosen in the **Your highlighted variables:** box. You can click on either of them to see its' codebook information.

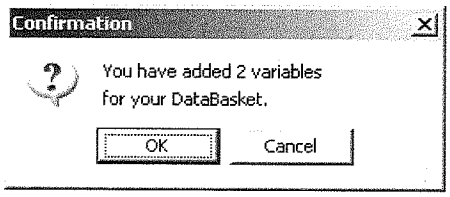
4. CLICK THE BOX MARKED **SELECT ALL VARIABLES**



*Note: Click **Select** <variable name> if you want to add only one variable to your Data Basket, click the **Select ALL Variables** box if you want to keep all the variables in your list.*

5. CLICK **OK**

You get a message: "You have added 2 variables to your data shopping basket."

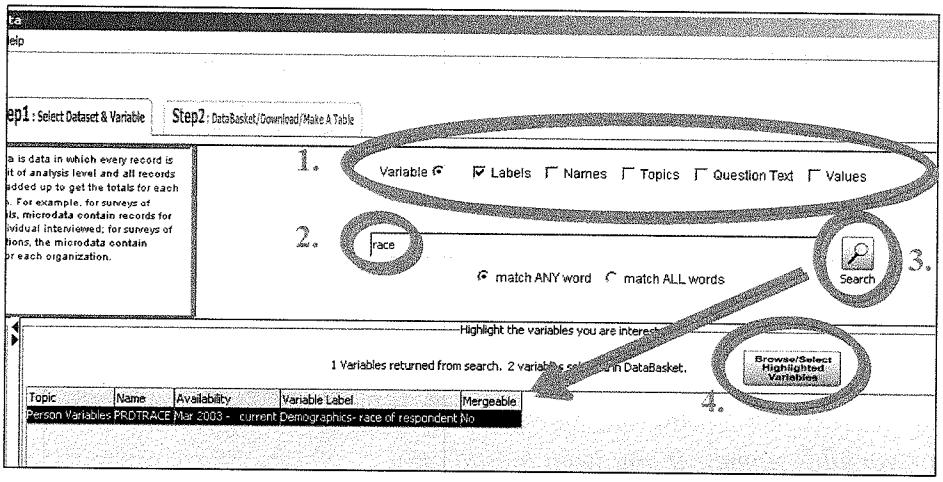


On Step 1 you can search for a variable through the labels, names, topics, full descriptions and values.

1. CHECK THE BOXES OF VARIABLE SEARCH TO INCLUDE LABELS, AND NAMES.
2. TYPE THE WORD **RACE** IN THE BOX LOCATED ABOVE **MATCH ANY WORD**.
3. CLICK THE **SEARCH** BUTTON.

The list of variables is reduced to those that have the word race in the selected search options. In our example **PRDTRACE** is the only variable returned.

4. HIGHLIGHT **PRDTRACE** - CLICK THE **BROWSE / SELECT HIGHLIGHTED VARIABLES** BUTTON.



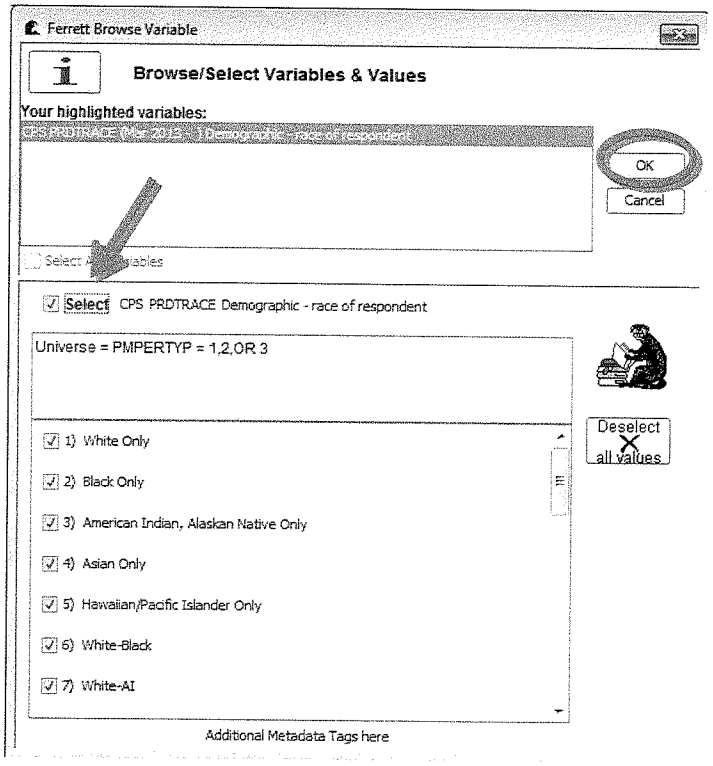
6. CHECK THE BOX TO SELECT CPS **PRDTRACE** AND CLICK OK.

You have added this variable to your databasket.

Note: If you were searching multiple words, the system default is to search on any of the words. You also have the option to match ALL words.

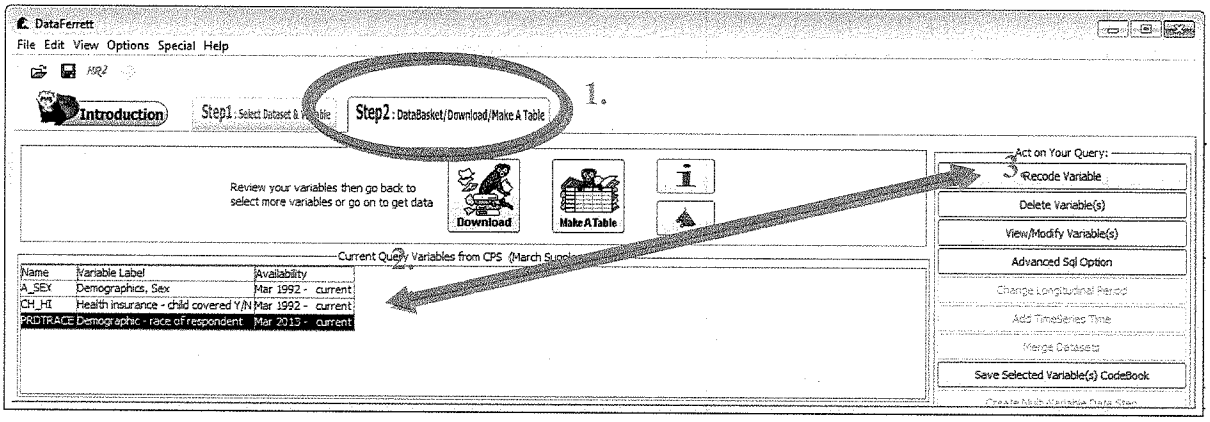
Note: Want to make a change? Simply clear your text from the search and begin another text search.

TO GET ALL OF THE VARIABLES BACK IN THE DATASET WINDOW RE-OPEN THE MAR 2007 DATASET FROM THE DATASET LIST ON THE LEFT SIDE.



STEP 2: DATA SHOPPING BASKET/DOWNLOAD/MAKE A TABLE

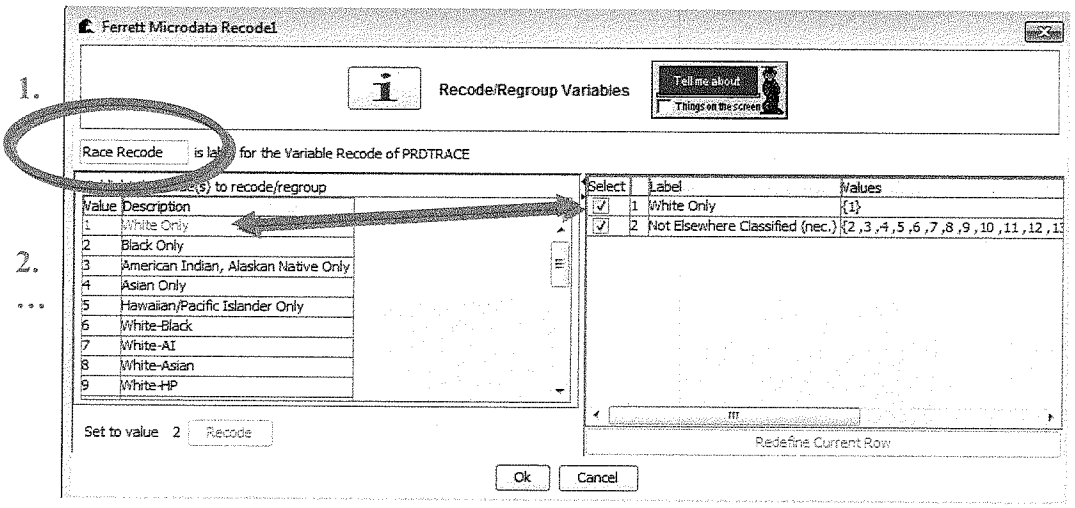
1. CLICK THE STEP 2: DATA SHOPPING BASKET / DOWNLOAD / MAKE A TABLE TAB
2. HIGHLIGHT THE RACE VARIABLE PRDTRACE



Selecting a variable from your list of Current Query Variables will activate the following options: Recoding, Deleting and Modifying the variables.

RECODE VARIABLE(S)

3. CLICK ON THE RECODE VARIABLE(S) BUTTON LOCATED AT THE TOP RIGHT SIDE OF THE SCREEN.



4. ASSIGN A LABEL TO THE RECODE IN THE BOX LABELED RECODE1 AT THE TOP LEFT.
5. HIGHLIGHT THE FIRST CATEGORY, **WHITE ONLY** AND CLICK THE **RECODE** BUTTON AT THE BOTTOM LEFT.
   Notice the right hand side of the screen displays 2 categories for the new recoded variable:

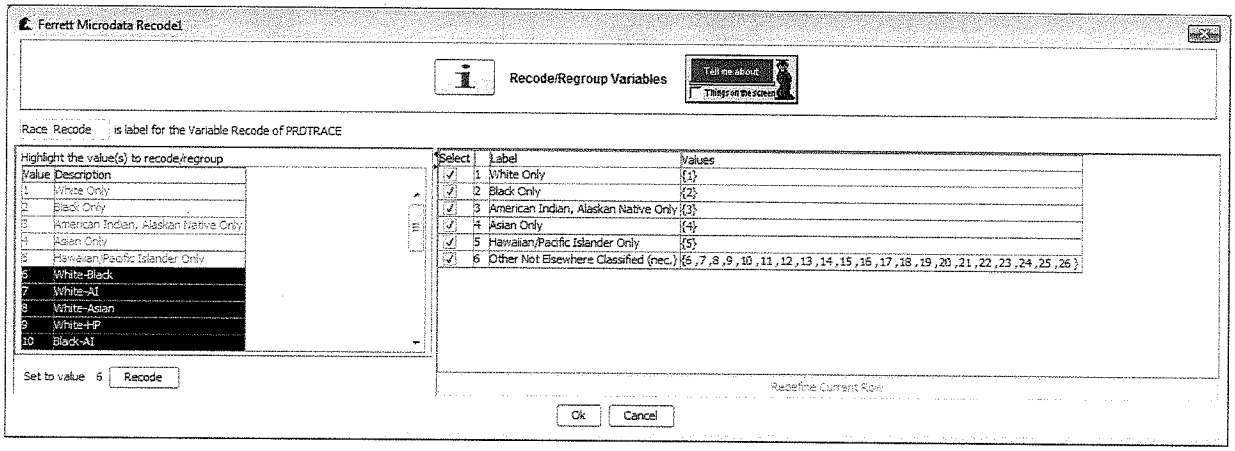
```
1      White Only              (1)
2      Not elsewhere classified  (2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17)
```

6. HIGHLIGHT THE **BLACK ONLY** AND CLICK THE **RECODE** BUTTON AT THE BOTTOM LEFT.
   BLACK ONLY has been assign to value 2 in the recode.

7. CONTINUE BY ASSIGNING THE REMAINING CATEGORIES TO THE FOLLOWING VALUES:

value	category
3	American Indian, Alaskan Native Only
4	Asian Only
5	Hawaiian Pacific Islander Only
6	All remaining categories

8. TYPE A NEW LABEL BY DOUBLE CLICKING THE LABEL FOR THE RECODED VALUE CALLED **NOT ELSEWHERE CLASSIFIED (NEC.)**. TYPE THE WORD **OTHER** AND MAKE SURE TO HIT THE ***ENTER*** KEY.



9. FINISH BY CLICKING THE OK BUTTON AT THE BOTTOM OF THE SCREEN.

Delete Variable(s)

This function allows you to remove variable(s) from the Data Basket. Highlight the variable(s) you want to delete and click "Delete Variable(s)" button.

Modify Variable(s)

Modify will open the Browse Variables window again and you can change values that were previously selected.

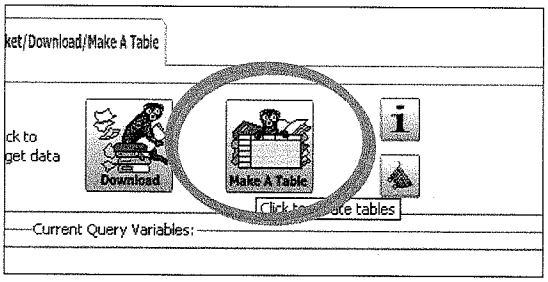
Advanced SQL Option

This function allows you to show the SQL routine that will be used to run your query. Advanced SQL opens the Advanced sql options to change clauses and add conditions in an SQL-like syntax.

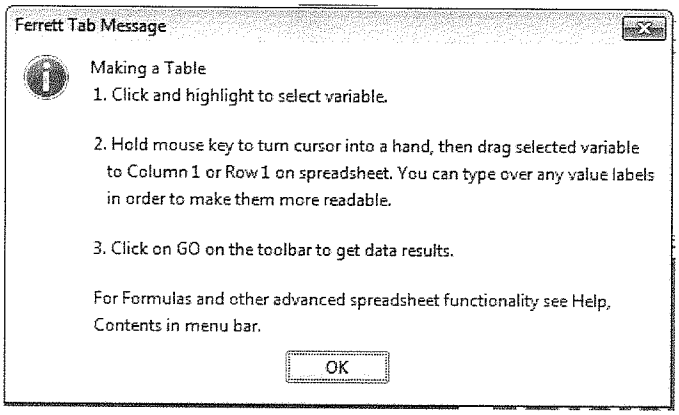
Save Selected Variable(s) Codebook

This allows you to save the documentation for the variables in your Data Basket to an ascii text or html file. The documentation includes the variable name, label and value descriptions.

STEP 3: DOWNLOAD / MAKE A TABLE



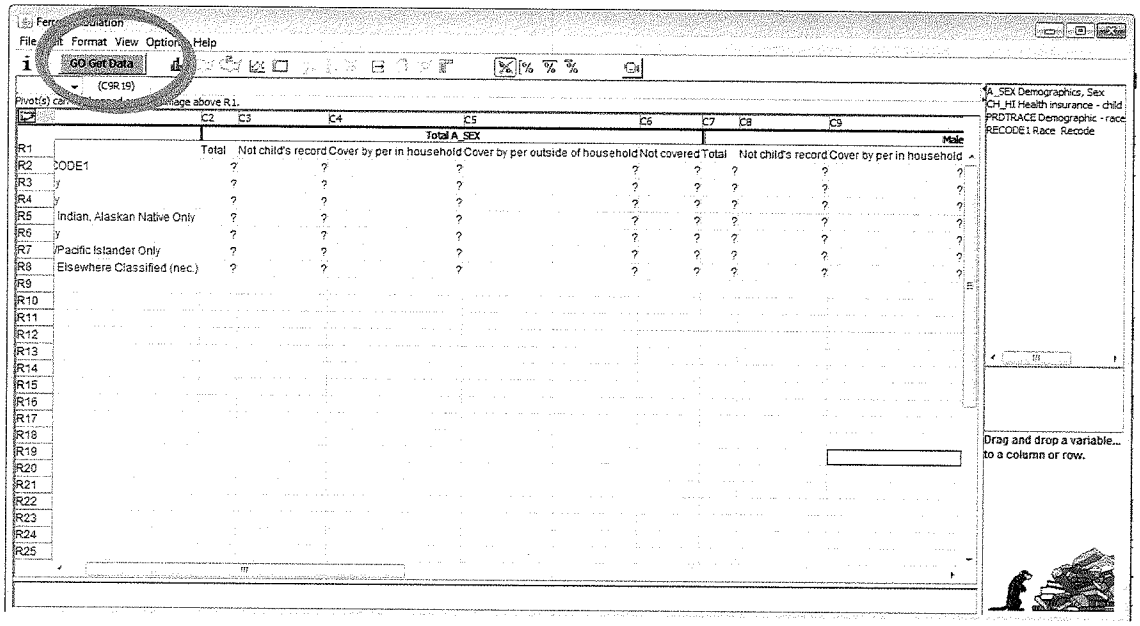
1. CLICK ON THE **MAKE A TABLE** BUTTON



You will see the following pop-up window. These are directions for making a table. READ AND CLOSE by clicking the X in the upper right corner.

MAKE A 3-WAY TABLE.

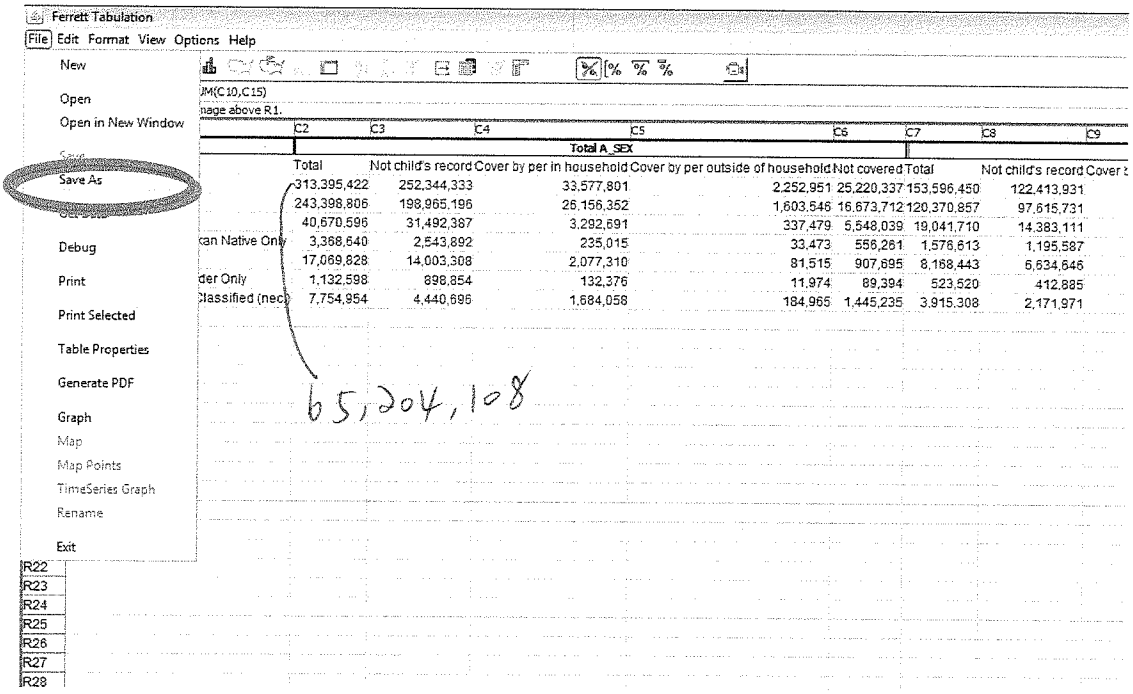
2. DRAG THE RECODED **RACE** VARIABLE TO THE **R2,C1** CELL
3. DRAG THE VARIABLE **A_SEX** TO THE **R1,C2** CELL
4. DRAG THE **CH_HI** VARIABLE TO THE **R1,C2** CELL ALSO



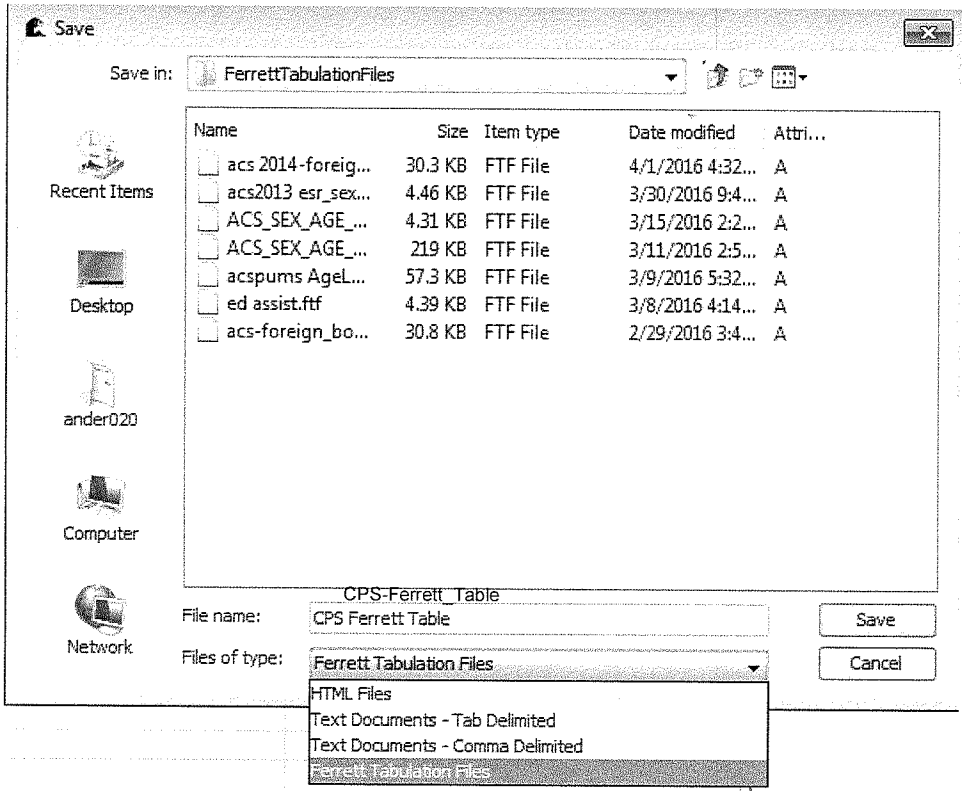
5. CLICK THE GREEN **GO GET DATA** BUTTON ON THE MENU BAR

Note: No need to do anything about a weight variable, it is automatically applied.

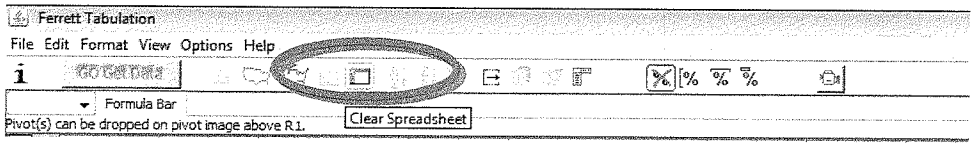
6. TO SAVE THE TABLE CLICK **FILE SAVE AS** ON THE MENU BAR.



7. MAKE SURE TO SAVE AS (AN HTML, TEXT (TAB DELIMITED OR COMMA DELIMITED), PDF OR FERRETT TABULATION FILE). You can save the layout of your tabulation and all the variables in your databasket for later use.



Please Note: The menu bar has a "CLEAR SPREADSHEET" button which will clear all the data from the spreadsheet but will still keep the variables in your databasket (appears on the right). Click the CLEAR SPREADSHEET button to start over dragging variables into the cells of the Ferrett Tabulation.



The DataFerrett Tabulation screen is a separate screen that can be left open or closed. If you wish to add variables from Step 1, they will always be reflected in the list of variables on your DataFerrett Tabulation screen.

Accessing the DataFerrett Software

Go to http://dataferrett.census.gov/ and click "Launch DataFerrett" on the right side of the screen to access the launch page.

DataFerrett Help Desk

For technical assistance in using DataFerrett, you can call the help desk toll-free at 1-866-437-0171.

The help desk can assist you with issues concerning the use of the DataFerrett software, but not with questions regarding the subject matter contained in the datasets. The help desk can, however, usually direct you to the appropriate subject matter experts.

Example 1 - Joining datasets by a common variable: Creating a single table using multiple datasets

Other features illustrated: Aggregate data multi-variable recode, computational calculation

Background: Some datasets may have variables whose value sets are defined alike (comparable). Examples include demographic variables (e.g. gender, race, marital status) and geographic variables (e.g. state code, county code). Co-tabulation allows you to tabulate information from the different datasets side by side using the comparable variable as a hinge.

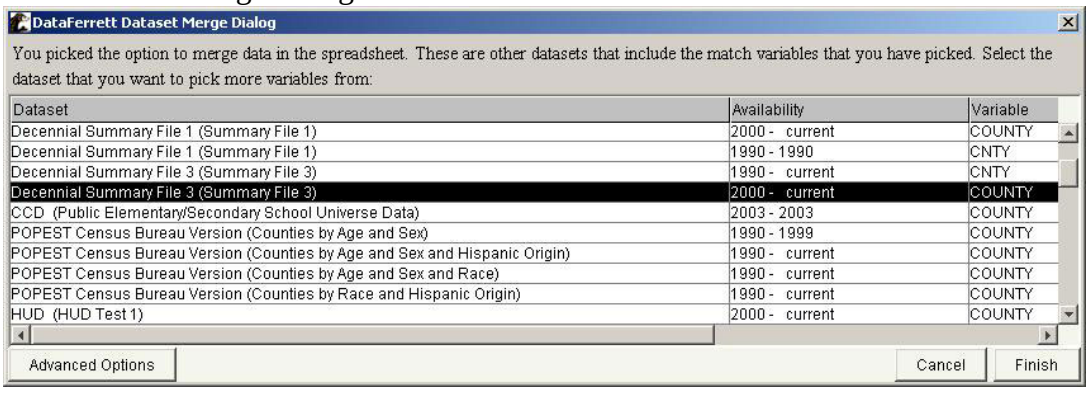
Goals: 1) Estimate the number of people per gas station in each county in Maryland. 2) Add the number of households without vehicles to the table.

Steps:

Goal 1 Estimate the number of people per gas station in each county in Maryland.

1. Select first dataset - County Business Patterns, County Level, 2003.
2. Select variables - Selectable Geographies (all counties in MD), Establishments (est), and industry (naics=447///).
3. Select second dataset - Decennial Census, Summary File 3, 2000.
    - Go to Step 2: DataBasket/Download/Make a table tab.
    - Highlight the county variable.
    - Press the "Merge Datasets" button on the right-hand side.
    - The merge dialog appears with information that you will only be able to create tables and not extract data. Press the "Next" button. This will bring back a list of datasets with a comparable variable and may take a while to populate.
    - After the results return, enlarge the window by dragging the right side farther to the right.
    - Scroll down the list looking for the name of the second dataset named in step 3. Highlight this dataset and press the "Finish" button. You will get a warning that you will be taken back to step 1 where you will select variables from the second dataset.

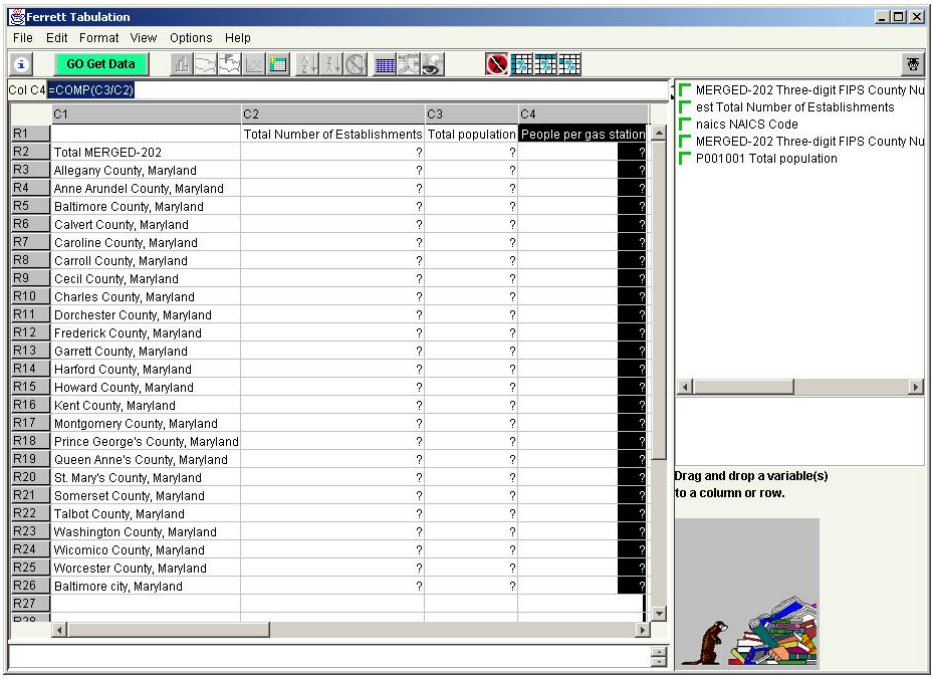
    Screenshot of merge dialog dataset selection:



4. Select the variable from Summary File 3 - P1. Total Population (P001001).
5. Go to Step 2 tab and press the "Make a Table" button. This brings up the DataFerrett spreadsheet window.

6. Click and drag the first "MERGED-200 Three digit FIPS County Number" variable into C1,R1 to define the counties in the rows. This is the comparable dimension and all other variables will be dropped in the columns.
7. Click and drag the "est" variable into C2,R1.
8. Click and drag the "P001001" variable into C3,R1.
9. Create a formula calculating people per gas station in column 4 (C4)
    - Highlight column 4 by clicking in the gray column header.
    - In the formula bar above the column headers enter the formula - **=comp(c3/c2)** and press the Enter key.
    - Add a description to the column header: “People per gas station.”

    Screenshot of co-tabulation table and a formula:



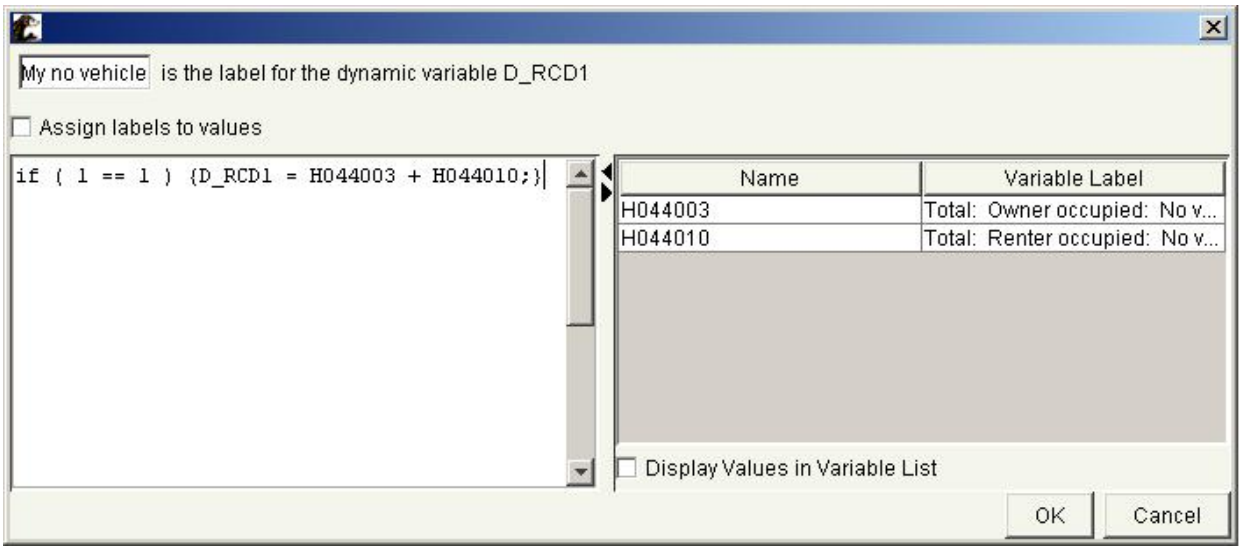
10. Press the green "Go Get Data" button in the toolbar.

Goal 2 Add the number of households without vehicles to the table.
At this point, we can explore how many households have no vehicle within each county.

1. DO NOT CLOSE the spreadsheet window, but go back to your main DataFerrett window using your Windows taskbar.
2. Go to the Step 1 tab so that you can add an additional variable from SF3.
3. Scroll down the dataset list under SF3 until you find table "H44. Tenure by vehicles available", and view all of the variables in this table.
4. Select the "D_H044_1 - Total Housing Units: No Vehicle Available" variable. This is a pre-defined recode that sums together the H044003 and H044010 variables.
5. Now go back to the tabulation window from your taskbar.
6. The added variable is there, now drag it into column 5 (C5,R1) and press the "Go Get Data" button.
7. If this summed variable had not already been defined, we could have created it ourselves.

- DO NOT CLOSE the spreadsheet window, but go to your main DataFerrett window using your Windows taskbar.
- Select the H044003 and H044010 variables.
- Go to the Step 2 tab and highlight the H044003 and H044010 variables, then pre the "Create Multi-variable Data Step" button on the right-hand side. This brings up the multi-variable recode dialog window.
- Make sure you give your new variable a good label in the text field at the upper left.
- Enter the formula **if (1 == 1) {D_RCD1 = H044003 + H044010;}** in the text area as shown below.
  Note: the new variable name in the formula, D_RCD1, is the dynamic variable name shown at the top of the window and your formula must use the name shown.
  The "if (1 == 1)" syntax is used to force the condition to be true in all cases.
  The syntax of the formula is like programmatic code and must follow this: if (*condition*) { *action* ;}

  Screenshot of multi-variable recode of aggregate variables:



- Press the "OK" button to save the created variable.

8. Now go back to the tabulation window from your taskbar.
9. The newly created variable is there, now drag it into column 6 (C6,R1) and press the "Go Get Data" button.
   Note: The numbers in columns 6 and 5 should be identical.

Example 2 - Multi-variable recode for microdata

Other features illustrated: Using percent buttons, sorting on a column, creating a time series graph from a table cell(s), creating a table that averages across time, creating a table that shows data over time, turning off/on Automatic Totals, cross-variable explosion, nesting vs. not nesting

Background: In microdata datasets, you can create new variables with values based on the combinations of multiple variables' values.

Goals: 1) Determine the percentage of people with and without health care coverage by age groups. 2) Examine health insurance coverage numbers over time.

Steps:

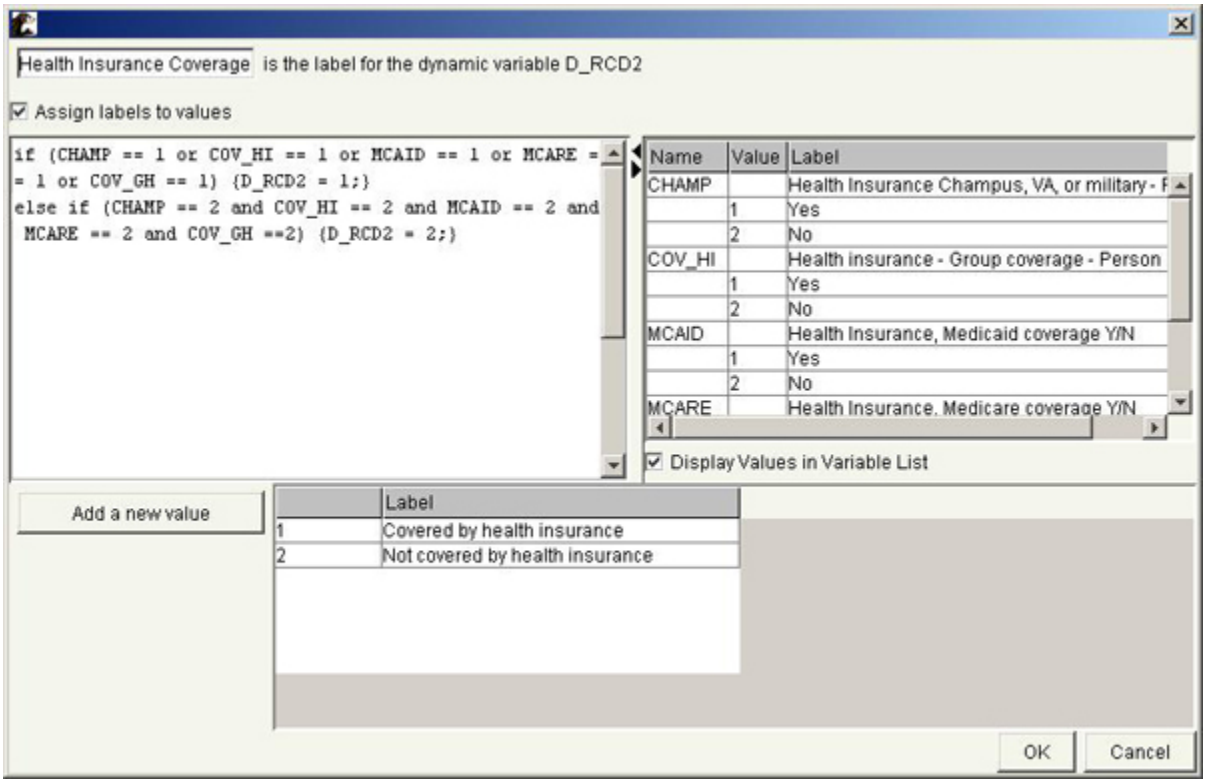
Goal 1 Determine the percentage of people with and without health care coverage by age groups.

1. Open the Ferrett Session File (or saved data basket) named cps_mar_healthins_multi_databasket.fsf .
2. Go to the Step 2 tab to view the variables in the data basket. There are five health insurance variables that are required to determine if someone has some sort of health insurance coverage:
    - CHAMP - Health Insurance Champus, VA, or military - Person
    - COV_HI - Health insurance - Group coverage - Person
    - COV_GH - Health insurance group coverage, including depend
    - MCAID - Health Insurance, Medicaid coverage Y/N
    - MCARE - Health Insurance, Medicare coverage Y/N

    For a person to have any coverage, the answer to any one of these must be "Yes" and for a person to NOT have coverage, the answer to ALL of these must be "No." We can create a multi-variable recode that does this for us so that we have one new variable that shows whether a person has coverage or not.

3. Highlight the "D_RCD2 Health Insurance Coverage" variable and click on the "Modify" button on the right-hand side. This brings up the multi-variable recode window and shows us the definition of this variable. See the image below:

Screenshot of multi-variable recode for microdata variables:



4. Close the multi-variable recode window by pressing the "Cancel" button at the bottom right.
5. We will now create a new multi-variable recode defined the same way.
    - Highlight the five health insurance variables listed above (ctrl-mouse click combination), then press the "Create Multi-variable Data Step" button on the right-hand side. This brings up the multi-variable recode dialog window.
    - Give your new variable a label in the text field at the upper left, something like "Health insurance coverage - Y/N".
    - Our new variable will have two values - 1=Yes, covered; and 2=No, not covered - and these are defined by the "if" and "else if" statements in the formulas.
    - To view the values of each variable, check the "Display Values in Variable List" box on the right side below the list of variables.
    - Enter the formula in the text area exactly as shown in the image above, except you MUST change the D_RCD2 to the name of your new variable shown at the top where you gave it a label.
    - To assign value labels to your new variable's values, check the "Assign labels to values" box directly above the text area. This will then reveal an area at the bottom for defining value labels.
    - Click in the "label" area for value 1 and enter "Covered by health insurance".
    - Click the "Add a new value" button to get a line for value 2.
    - Click in the "label" area for value 2 and enter "NOT covered by health insurance".
    - Click the "Ok" button. You now have a new variable in your data basket.
6. Press the "Make a Table" button. This brings up the DataFerrett spreadsheet window.
7. Drop the "RECODE3 Age groups" variable into column 1 to define the rows.
8. Drop our new dynamic recode into C2,R1 to define the columns and press the "Go Get Data" button.

9. Show the percentages of each age group covered and not covered by clicking on the "Show % of first data column" button in the toolbar.
10. Sort the results by column 4 - not covered by health insurance - to see which age groups have the highest and lowest percentages.
11. Turn off sorting and turn off the percentages.

Goal 2 Examine health insurance coverage numbers over time.

1. Create a time series graph - highlight four cells in column 4 - not covered, 4 age groups - then press the Time series Graph button in the toolbar. This automatically creates a time series graph of the same measure going back in time as far as possible, up to 12 time periods.
2. Show the same table, but show the average over 5 years, and add the SEX variable to the table.
    - DO NOT CLOSE the spreadsheet window, but go to your main DataFerrett window using your Windows taskbar.
    - Go to the Step 1 tab and notice that there are several years of the March supplement available and currently just Mar 2007 is highlighted. Highlight all available years using the ctrl-click or shift-click combinations.
    - Now go back to the tabulation window from your taskbar.
    - Drag the SEX variable into column 1 to break out each age group by sex.
    - Press the "Go Get Data" button. By looking at the universe and dataset information in the spreadsheet (blue text in the middle of the right-hand side), you can see how many years are listed for the "Dataset(s) selected".
    - Go to the "Options" menu and you will see that "Average across time" is selected. You could change it to "Cumulative" if you wanted to see the cumulative totals over all years.
3. Create a table that shows the health insurance coverage for EACH of the available years.
    - Close the current spreadsheet window.
    - From the Step 2 tab, press the "Make a table" button.
    - Notice that there is now a variable named "Instances" at the top of your variable list in the spreadsheet. This variable appears when you have more than one instance highlighted in the dataset list and you open a spreadsheet window.
    - Drag your multi-variable recode into column 1 to define the rows.
    - Turn off the automatic totals - go to "Options" and click on the "Automatic Totals" to de-select that option.
    - Drag the Instances variable into C2,R1 to show the years in the columns. There is no total for all years because we turned the automatic totals off before dropping this variable.
    - "Go Get Data".
    - Highlight the data cells in row 4, not covered by health insurance, and DO NOT include the label cell (C1,R4).
    - Press the "Graph" button in the toolbar (looks like a bar graph). The initial graph window that opens will show a bar graph by default.
    - Using the drop-down list at the bottom left, select "Line Graph" to essentially create a different time series graph.
    - Since the most recent time is on the left side, you can change it to the opposite by selecting the "Edit" menu and selecting "Reverse Axis".

Additional Table Manipulation

- Close the spreadsheet window.
- In the Step 1 tab, select only Mar 2007.

- Step 2, "Make a Table"
- Health insurance recode in column1.
- Age recode in C2,R1 to define columns.
- Nest SEX in the rows on top of health insurance.
- Turn off "Automatic Totals".
- Drop the race variable in the rows, but not nested - drop two lines below current row definitions.
- Turn on "Automatic Totals".
- Turn off "Cross variable explosion" and nest the Hispanic variable on the race - wpresse only category.

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Example 3 - Mapping address points on a thematic map

Other features illustrated: Viewing underlying records, clearing one dimension, changing universe from the spreadsheet

Background: If a dataset has correctly-defined address point information, points can be mapped on top of a thematic map from a separate dataset.

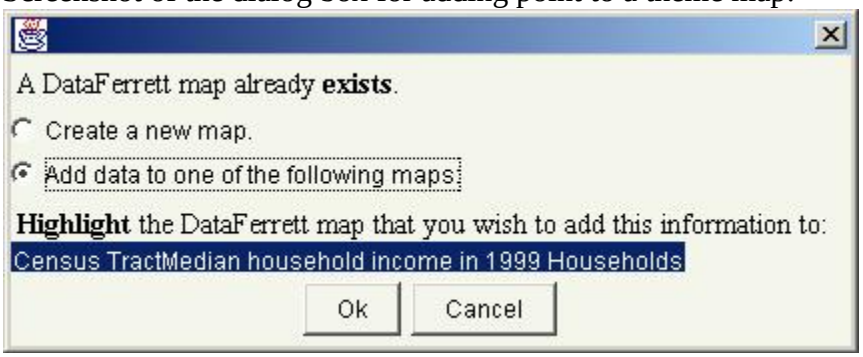
Goals: 1) Show the locations of all the public schools in DC on top of a thematic map showing the median household income by tracts from SF3. 2) Show how you can view the underlying records from the spreadsheet to see all the information for the universe of the selected cell(s).

Steps

Goal 1 Show the locations of all the public schools in DC on top of a thematic map showing the median household income by tracts from SF3.

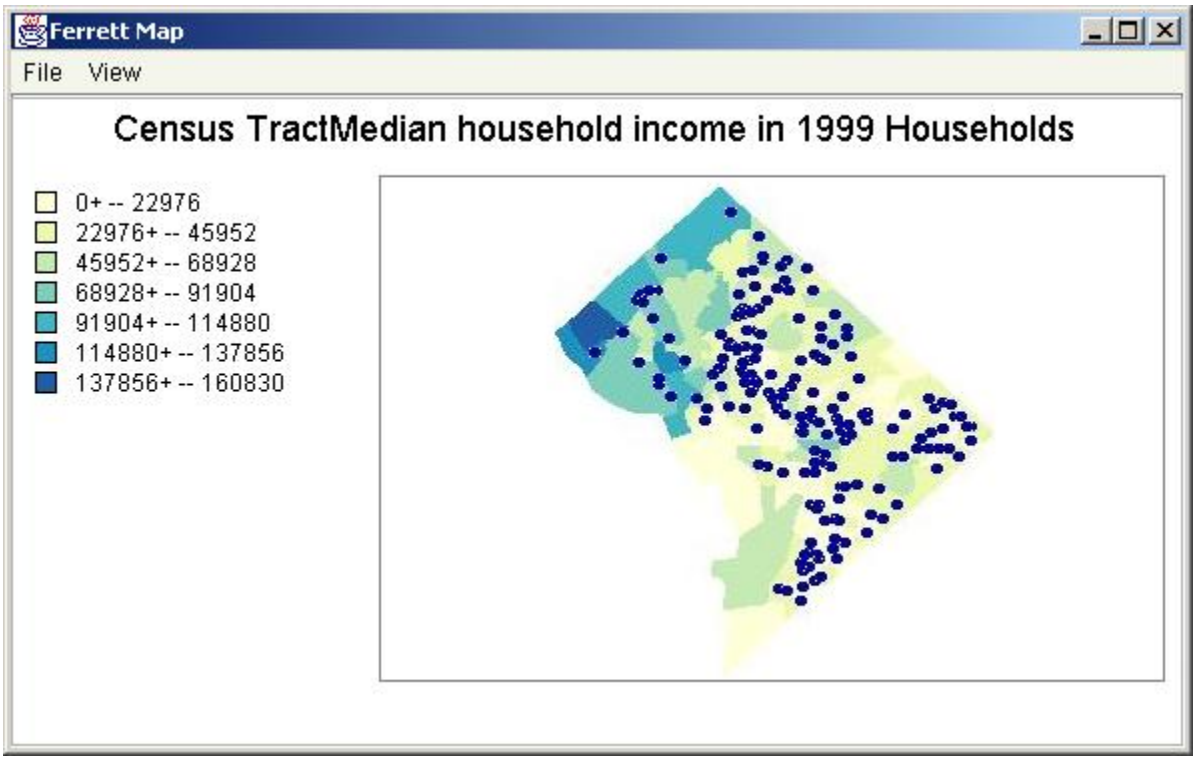
1. Create our underlying thematic map on which we will lay our school locations. Open the Ferrett Session File (or saved data basket) named point_map_theme_sf3_median_income.fsf .
2. Go to the Step 2 tab to see the variables in the data basket - median household income and tracts (all tracts in DC).
3. "Make a Table"
4. Drag the tract variable to column 1 to define the rows.
5. Drag the income variable to C2, R1 and "Go Get Data".
6. Highlight the data cells in column 2 and click on the "Map" button in the toolbar. The map window showing the income by tract opens. DO NOT CLOSE the map window.
7. Go back to the spreadsheet window and CLOSE it.
8. Go back to the Step 1 tab.
9. Clear the data basket by clicking on the "Empty Data Basket" button on the right side.
10. Open the Ferrett Session File (or saved data basket) named point_ccd_schools.fsf .
11. Go to the Step 2 tab to see the variables in the data basket - county (DC) and some information about the public schools, including address, phone, number of students, teachers, and level of the school.
12. "Make a Table"
13. Drag the county variable to column 1 to define the rows.
14. Drag the "MEMBER - Total students..." variable to C2, R1 and "Go Get Data".
15. Highlight the C2,R3 data cell.
16. Click on the "Point Map" button in the toolbar (US with a flag on it).
17. After a few seconds, a dialog box appears asking if you want to create a new map or add to an existing map. Select the "Add to existing map" option and the theme map we created is shown and highlighted. Click the "Ok" button.

Screenshot of the dialog box for adding point to a theme map:



18. Find your map window in your taskbar and open it.
19. In the map window's "View" menu, select "Layers", and then from that select "Red Dot". The school location points will appear on your map. These dots represent the schools for those students in the selected table cell.

    Screenshot of point map showing schools on median income theme in DC:



Goal 2: Show how you can view the underlying records from the spreadsheet to see all the information for the universe of the selected cell(s).

1. Back in your spreadsheet window, clear ONLY the column dimension - go to the "Edit" menu, select "Clear", then select "All Columns".
2. Drag the LEVEL variable into C2, R1 to re-define the columns, then "Go Get Data".

3. Highlight the data cells in R3, C4 and C5, middle and high schools.
4. Click on the "View Underlying Records" button in the toolbar (looks like a spreadsheet with a magnifying glass on it). This brings up a new window showing all the variables for the records with the values highlighted. The output can be sorted by any variable column by clicking in the header.
5. Close the underlying record window.

Additional Manipulations **-** Changing Universes in the Spreadsheet

1. You can change your table to show some other set of counties.
2. Clear your row dimension - "Edit" menu - "Clear" - "All Rows".
3. Double click on the County variable in your spreadsheet variable list on the right side. This will bring up the Geography Codebook window.
4. Highlight "District of Columbia" shown on the right side and press the "Delete" button.
5. Highlight the FIPS county code on the left side and then press the "Next" button.
6. Highlight the FIPS state code on the left side and press the "Next" button.
7. Select "California" and press the "Next" button. This moves California to the right side.
8. Press the "Next" button again. This will show all the counties in the state.
9. Highlight the "Select All" at the top of the list and press the "Next" button. This moves all counties to the right side.
10. Press the "Finish" button. You should return to your spreadsheet window.
11. Drag the county variable to C1 to define the rows with all the counties in California. Press the "Go Get Data" button.

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Example 4 - Spreadsheet functions: Ranking, weighted ranking, order of formula processing.

Other features illustrated: Summing calculation, hiding columns, creating column spanners, viewing hidden columns, IF conditions

Background: This example shows how you can use ranking and apply weights to those ranks in order to answer questions like "What is the best county for ...?"

Goals: 1) Create a table that will rank the best county in the US in which to live, based on our three criteria - commute time, median household income, and median housing value. 2) Limit our rankings to counties that meet our population size criteria - between 50,000 and 150,000 people.

Steps

Goal 1 Create a table that will rank the best county in the US in which to live, based on our three criteria - commute time, median household income, and median housing value.

1. Open the Ferrett Session File (or saved data basket) named sf3_bestcounty_tolive.fsf .
2. Go to the Step 2 tab to see the variables in the data basket - number of workers not working at home, aggregate travel time to work, median household income, median value of owner-occupied housing units, and county (all counties in US).
3. "Make a Table"
4. Turn off the "Automatic Totals" (in the "Options" menu) and drag the county variable to column 1 to define the rows.
5. Drag the aggregate travel time variable, P033001, to column 2 - C2, R1.
6. Drag the workers variable, P031002, to column 3 - C3, R1.
7. Skip two columns and drag the median household income variable, P053001, to column 6 - C6, R1.
8. Skip 2 columns and drag the median housing unit value variable, P085001, to column 9 - C9, R1.
9. "Go Get Data"

Create calculations and rankings.

1. Calculate the average commute time in column 4.
    - Click in the C4 column header to select the column in which to create the calculation.
    - In the formula bar, enter **=comp(c2/c3)** == aggregate travel time divided by workers not working at home equals average travel time.
2. Create the county ranking for commute time to work. The lower the commute time, the higher the rank number.
    - Click the C5 column header to select the column in which to create the ranking.
    - In the formula bar, enter **=rank(c4)**
3. Create the county ranking for median household income. In this case, we want the higher value to have the higher rank number. Therefore, we will need to create an inverse income column on which to create the ranking.
    - Click the C7 column header to select the column in which to create the calculation for inverting the income.
    - In the formula bar, enter **=comp(0-c6)**
    - Click the C8 column header to select the column in which to create the ranking.
    - In the formula bar, enter **=rank(c7)**

4. Create the county ranking for median housing unit value. The lower the median value, the higher the rank number. If for some reason you were to want to rank the counties higher based on HIGH housing values, then you would need to create an inverted housing value column like we did for income.
    - Click the C10 column header to select the column in which to create the ranking.
    - In the formula bar, enter **=rank(c9)**

Hide Columns

Since several of our columns were used to create our desired columns, we can hide them. In our example, we do not need to see the columns used to calculate the commute time or the inverted income column used for ranking income.

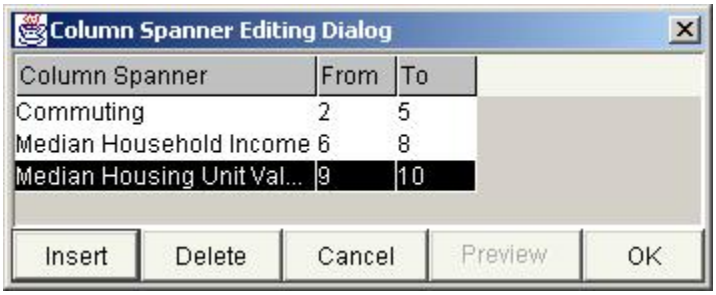
1. Click the C2 column header to select the column you wish to hide, then select the "Edit" menu, then select "Hide".
2. Repeat for columns 3 and 7. Currently you can only highlight one column at a time.
3. If you ever want to see the hidden columns, select the "View" menu, then select "Hidden Rows/Columns".
4. If you ever want to change a hidden column back to not being hidden (unhide), first view the hidden columns as in the previous step, then highlight the column, then select the "Edit" menu and select "Unhide". The "Unhide" selection allows you to unhide only the selected column, or unhide all hidden columns.

Create Custom Column Spanners

You can create your own custom column spanners to group columns together. In our example, we can create spanners to group the three different measures and their rankings together.

1. Select the "Edit" menu, then select "Column Spanners". This opens the "Column Spanner Editing Dialog" box. There are three fields for you to supply - 1) the text for the spanner, 2) the beginning column, and 3) the ending column. See the image.

    Screenshot of column spanner creation:



2. Press the "Insert" button at the bottom to enter the first spanner.
3. Click in the empty "Column Spanner" field and type in your first spanner - **Commuting** - then press the "Enter" key.
4. Click in the empty "From" column and enter the column number the spanner should start with - **2** - then press the "Enter" key.
5. Click in the empty "To" column and enter the column number where the spanner should end - **5** - then press the "Enter" key.
6. Press the "Insert" button at the bottom to enter another spanner.

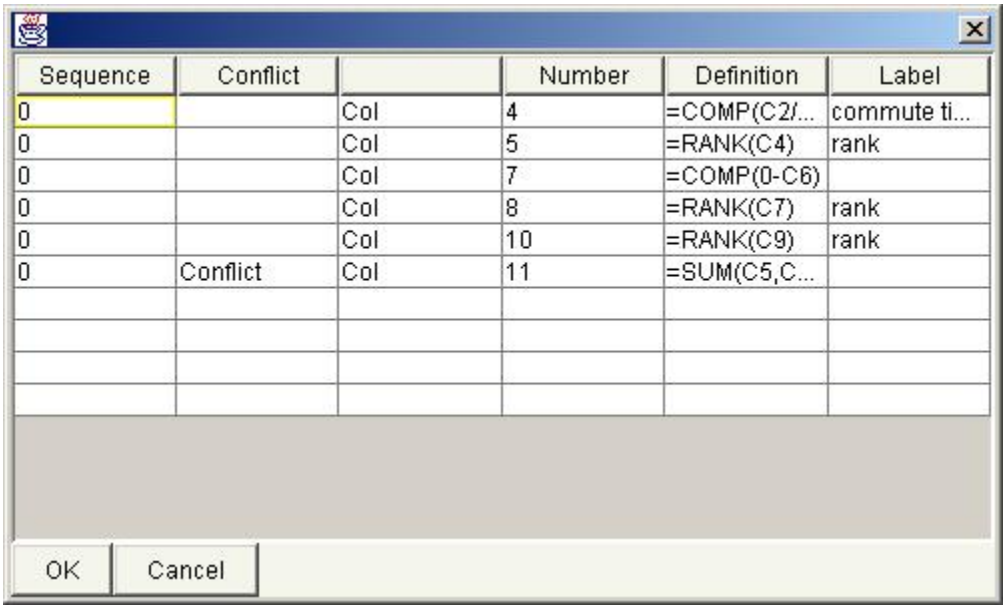
7. Enter the information as show in the image above.
8. Once the three spanners have been entered, press the "OK" button.

Create the Combined Ranking

Now we want to sum all three rankings together to find which counties rank the best based on the three criteria. The summed rankings will show us which counties have the shortest commute times, the highest median income, and the lowest median housing values.

1. Click in the C11 column header to select the column in which to create the summed ranking.
2. In the formula bar, enter **=sum(c5,c8,c10)** == this sums the rankings together.
3. A small dialog box will appear showing the computations and the last one shows a conflict. See the image.

Screenshot of calculation sequence conflict dialog:



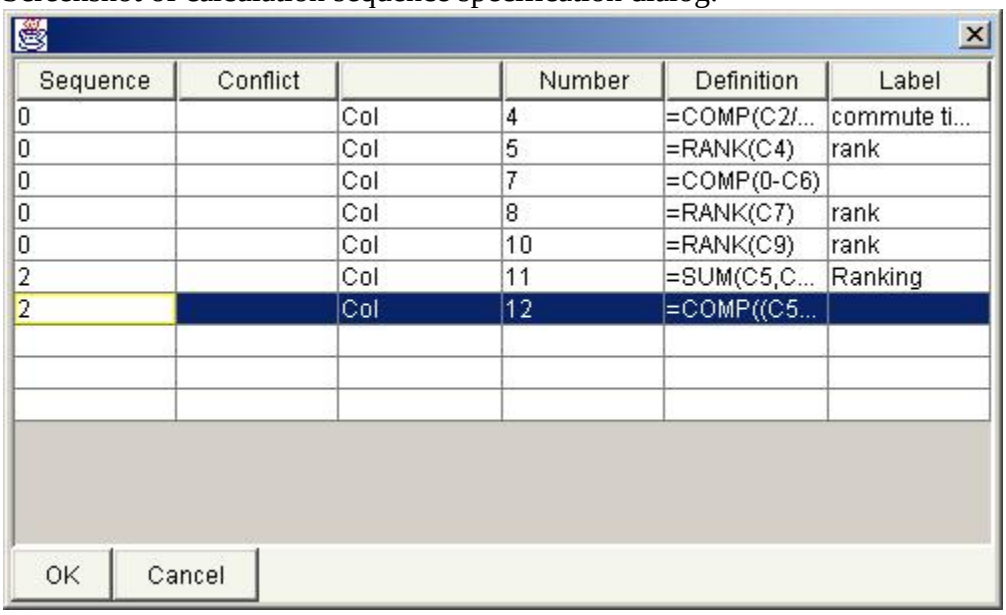
The computations must happen in order, or they cannot be completed properly. In this case, all previous ranking functions must be completed prior to our summing the ranks together, therefore we want to change the conflicting computation's sequence.

4. Click in the "Sequence" cell of the "Conflict" row and change the 0 to a 2 and press the "Enter" key. This will make this computation occur last.
5. Press the "OK" button.
   To see which county ranks the highest or lowest, highlight column 11 and use the sort buttons in the toolbar.

Adding Weights to the Ranking Criteria

We can customize our final ranking by weighting the criteria that are of more importance to us. For example, if the commute time is the most important criterion to us, we can weight it higher than the others. The weights must add up to 1. We will weight commute time as 0.5, and the other two as 0.25 each.

1. Unsort the table by pressting the "Return to original order" button next to the sort buttons on the toolbar.
2. Click in the C12 column header to select the column in which to create the weighted ranking.
3. In the formula bar, enter **=comp((c5*0.5)+(c8*0.25)+(c10*0.25))** == this weights the ranks and sums them together.
4. We notice that we get all 0s in our table. We have a sequence conflict again, but we were not notified this time. We can change the sequence manually.
5. Go to the "Options" menu and select the "Specify Sequence" option. This will bring up the dialog we saw before. Now, we want to change the last two calculations to have a sequence of 2, making sure to press the "Enter" key after each change. See the image.
   Screenshot of calculation sequence specification dialog:



Sequence	Conflict		Number	Definition	Label
0		Col	4	=COMP(C2/...	commute ti...
0		Col	5	=RANK(C4)	rank
0		Col	7	=COMP(0-C6)	
0		Col	8	=RANK(C7)	rank
0		Col	10	=RANK(C9)	rank
2		Col	11	=SUM(C5,C...	Ranking
2		Col	12	=COMP((C5...	

OK Cancel

Once the sequence is changed, the weighted rankings appear. You can easily change these weighted rankings by changing the weights in the formula for column 12. To edit a formula, simply highlight the column and the formula should appear in the formula bar. Edit the formula and press the "Enter" key and the changes will be applied.

You can sort the table to find the best and worst counties based on your weighted ranks.

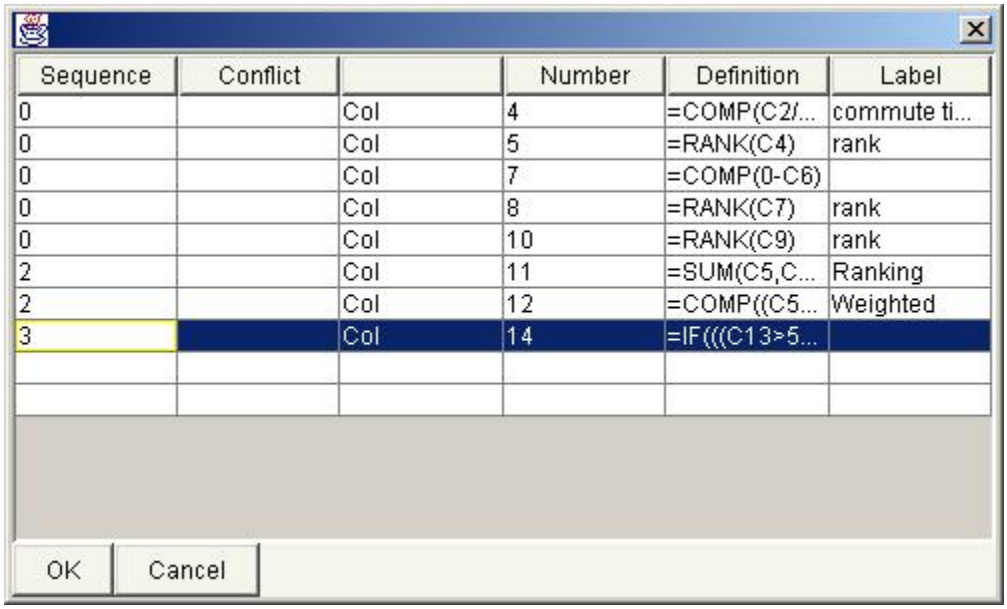
Goal 2 Limit our rankings to counties that meet our population size criteria - between 50,000 and 150,000 people.

If we only want to see the best counties of a certain size, we can include the population variable and then use an IF condition in a formula to remove counties from the top of the list.

1. DO NOT CLOSE your spreadsheet window.
2. Go back to the Step 1 tab and find the P1. Total Population table in Summary File 3.
3. Get the variable, and add the P001001 variable to your data basket.
4. Now go back to the spreadsheet window and you will see the P001001 variable in your variable list.
5. Drag P001001 into column 13. Press the "Go Get Data" button.
6. Click in the C14 column header to select the column in which to create the weighted ranking for counties of a certain size.

7. In the formula bar, enter **=IF(((C13>50000)AND(C13<250001)),C12,3500)** == this condition will use the weighted rank (C12) if the county population is between 50,001 and 250,000 and if the population is smaller or greater than that, it will set the rank to 3500 (an arbitrary number higher than the highest county rank).
8. We notice that we get all 0s and 3500s in our table. We have a sequence conflict again, and again we were not notified. We must change the sequence manually.
9. Go to the "Options" menu and select the "Specify Sequence" option. This will bring up the dialog we saw before. Now, we want to change the last three calculations - two to have a sequence of 2, and the last one to a sequence of 3, making sure to press the "Enter" key after each change. See the image.

   Screenshot of calculation sequence specification dialog:



Sequence	Conflict		Number	Definition	Label
0		Col	4	=COMP(C2/...	commute ti...
0		Col	5	=RANK(C4)	rank
0		Col	7	=COMP(0-C6)	
0		Col	8	=RANK(C7)	rank
0		Col	10	=RANK(C9)	rank
2		Col	11	=SUM(C5,C...	Ranking
2		Col	12	=COMP((C5...	Weighted
3		Col	14	=IF(((C13>5...	

OK Cancel

Once the sequence is changed, we now can sort the list and see the best counties based on the weighted criteria we used and limiting the counties to the size we specified.

Example 5 - List mode: show a list of only those records meeting a set criterion

Other features illustrated: Advanced SQL

Background: You can have your table only show results for the records that meet your criteria. For example, if you want to see all the counties within a select number of states that have a population within a certain size, you can get those listed in a table and include additional information from the dataset.

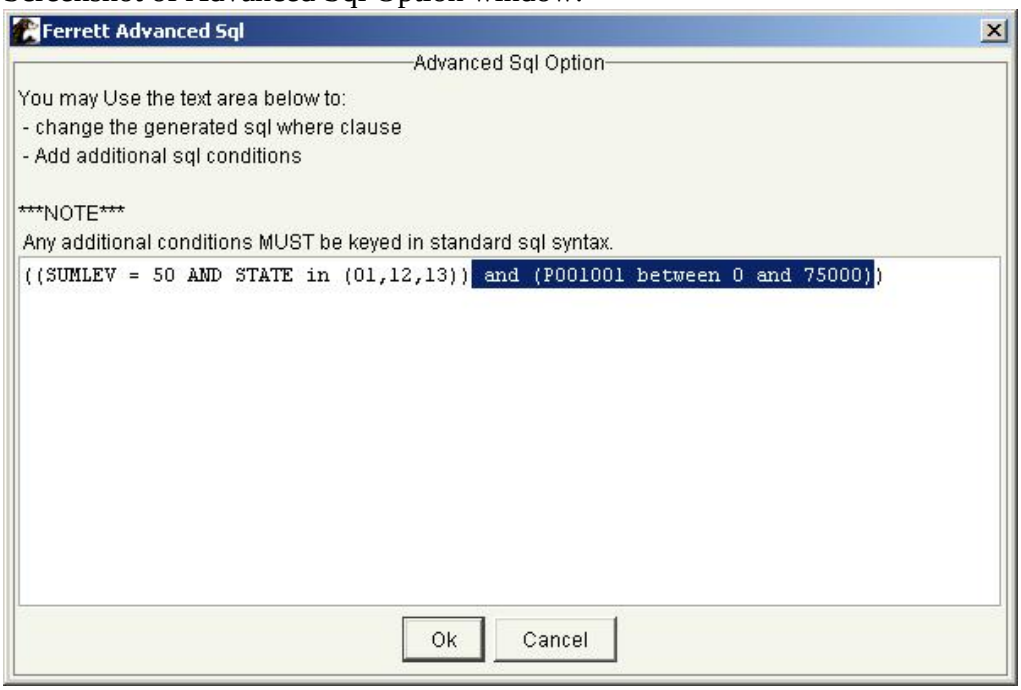
Goals: 1) Create a listing of all the counties in Alabama, Georgia, and Florida that have a population of less than 75,000 people. 2) Show the actual population estimate and the median household income for those counties.

Steps

Goal 1 Create a listing of all the counties in Alabama, Georgia, and Florida that have a population of less than 75,000 people.

1. Open the Ferrett Session File (or saved data basket) named sf3_bestcounty_tolive.fsf .
2. In the data basket, delete the FIPS County variable
3. Go to the step 1 tab. You will notice that there is a required variable - Selectable Geographies.
4. Double click on this variable. This brings up the geography selection window. Select all the counties in Alabama, Florida, and Georgia.
5. In the step 1 tab, go to the "Geographic Traits" topic listed under Summary File 3 and view all the variables.
6. Sort the list by variable name and select the "NAME" and the "STUSAB" variables. These two variables will give us geographic names for our list.
7. Select the "P001001" variable from the P1. Total Population topic in SF3.
8. Go to the step 2 tab in order to set our population limit.
    - Click on the "Advanced Sql Option" button on the right side. This brings up the Advanced Sql Option window. See the image.

Screenshot of Advanced Sql Option window:



- Insert text as shown in the highlighted portion of the image. This will limit the counties in our list to those with a population under 75,000.
- Press the "Ok" button.

9. "Make a Table" and close the green-bordered instruction window.
10. Go to the "Options" menu and select "List Mode". When creating a table in "List Mode", you will always leave column 1 empty.
11. Drag the "NAME" variable to column 2 (C2, R1).
12. Drag the "STUSAB" variable to column 3 (C3, R1).
13. "Go Get Data" and your result is a list of the county names and state abbreviations for all of the counties in the selected three states that have a population less than 75,000.

Goal 2 Show the actual population estimate and the median household income for those counties.

We can also view other variables in our list, such as the population and median household income.

1. Turn off the List Mode - "Options" menu, select "List Mode".
2. Drag the P001001 (population) variable into column 4 (C4,R1).
3. Drag the P053001 (median income) variable into column 5 (C5,R1).
4. "Go Get Data"

Example 6 - Using a single cell as part of a formula instead of the entire row or column

Other features illustrated: Column number formatting (decimals shown)

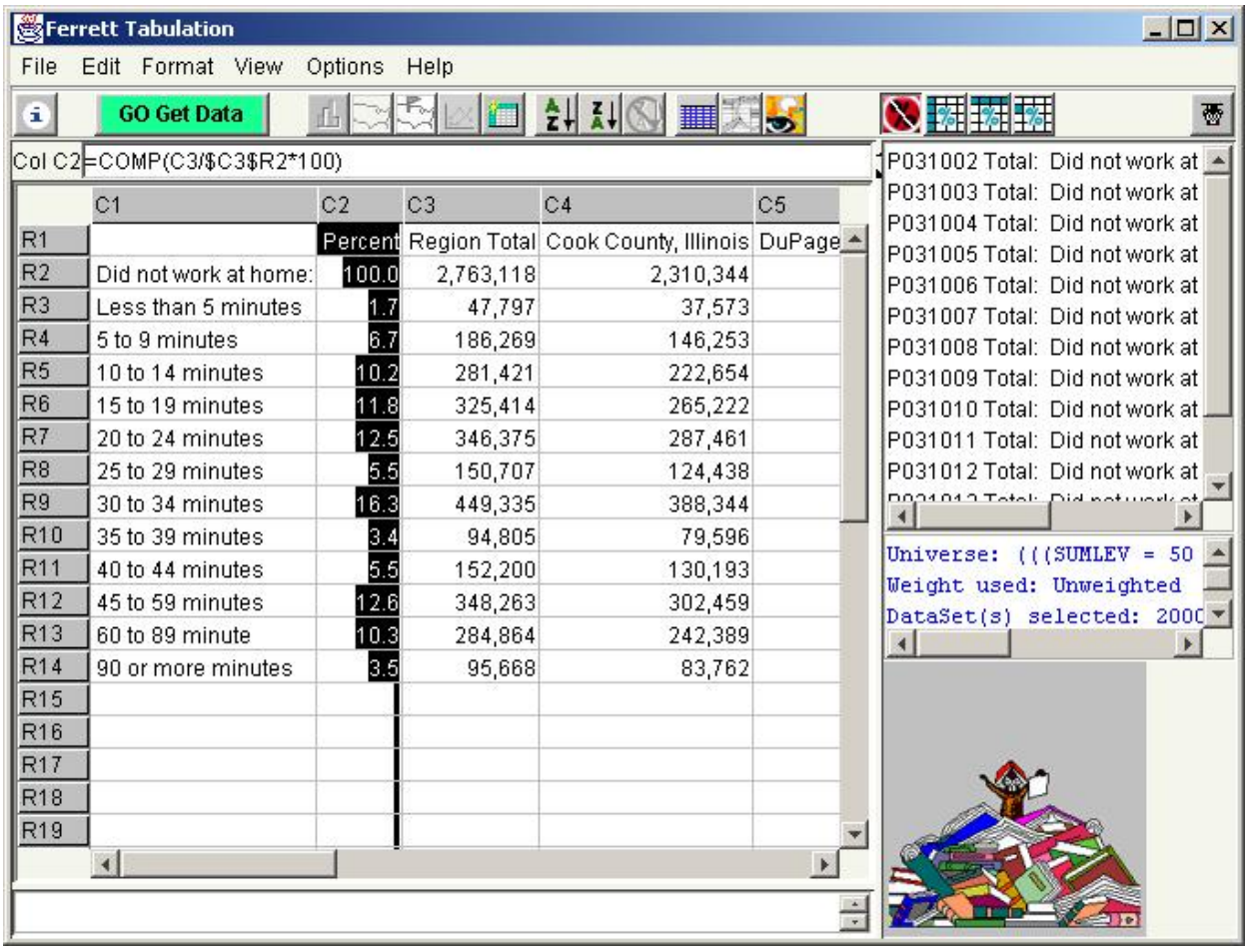
Background: The DataFerrett spreadsheet typically does row and column calculations since calculations normally apply to all cells in the row or column equally. However, sometimes you want to create a calculation that uses one specific cell as part of the formula and not the entire column or row.

Goal: Create a table that calculates the percentage of drivers within commute time ranges for a set of counties, while still showing the numbers of drivers within each commute time.

Steps:

1. Open the Ferrett Tabulation File named edw_trans_time_sf3_cell_calculation.ftf. Press the "OK" button on the Ferrett Chosen Instance Warning dialog.
2. "Go Get Data" to see the tabulation.
3. Column 2 was created using a formula that calculates the percent of commuters by travel time ranges. The formula in this case does not use Row 2 as the denominator, but instead just uses cell C3, R2 designated as **$C3$R2** - see the image for the entire formula.

Screenshot of table with a formula using a cell:



	C1	C2	C3	C4	C5
R1		Percent	Region Total	Cook County, Illinois	DuPage
R2	Did not work at home:	100.0	2,763,118	2,310,344	
R3	Less than 5 minutes	1.7	47,797	37,573	
R4	5 to 9 minutes	6.7	186,269	146,253	
R5	10 to 14 minutes	10.2	281,421	222,654	
R6	15 to 19 minutes	11.8	325,414	265,222	
R7	20 to 24 minutes	12.5	346,375	287,461	
R8	25 to 29 minutes	5.5	150,707	124,438	
R9	30 to 34 minutes	16.3	449,335	388,344	
R10	35 to 39 minutes	3.4	94,805	79,596	
R11	40 to 44 minutes	5.5	152,200	130,193	
R12	45 to 59 minutes	12.6	348,263	302,459	
R13	60 to 89 minute	10.3	284,864	242,389	
R14	90 or more minutes	3.5	95,668	83,762	
R15					
R16					
R17					
R18					
R19					

4. We can create a new column and replicate this formula.
5. Highlight C6 by clicking in the gray column header.
6. In the formula bar, enter the formula as- **=COMP(C3/$C3$R2*100)** -then press the "Enter" key.
7. Highlight the column again, then select the "Decimal Format" button or the "Format" menu, then "Decimal" to bring up the decimal formatting dialog.
8. Select the "One decimal place" option and press the "Ok" button.
9. The percents in our new column (C6) should match the percents in column 2.

By creating a formula using a single cell as the denominator, we are able to create a column showing percents while also maintaining all the other data columns.

TheDataWeb DataFerrett

Example 7 - Calculating medians (or any percentile) on-the-fly

Other features illustrated: Column formulas and IF conditions

Background: The DataFerrett spreadsheet allows you to calculate medians (or any percentile) on-the-fly by creating your own bins (microdata) or utilizing income distribution counts (aggregate data), and using standard formulas to calculate the linear percentile you have defined within a given distribution.

Goal: Create a table that calculates the median income for age groups (for the population 15 and over) using the March CPS supplement (Annual Social and Economic Supplement).

Steps:

1. Open the Ferrett Tabulation File named cps_income_percentile+mean.ftf.
2. "Go Get Data" to see the tabulation.
3. This tabulation calculates the median (the 50th percentile) which is defined in column 2 (C2) as 0.5. This value can be changed to any percentile you want (number greater than 0 and less than 1, e.g 0.25 for first quartile). To change the value, click in the gray C2 column header. This will show the formula in the formula bar. Edit the formula.
4. This table uses the 2006 March file (which reports income for 2005). To calculate for a different year, leave the spreadsheet window open and go to Step 1 in the DataFerrett window to select a different year. Then go back to the spreadsheet window and "Go Get Data".
5. You can also calculate for different ages or other variables. To do so, you either select new variables or create new recodes (while the spreadsheet window is open). New variables or recodes will become available in the spreadsheet window. Then, go to "Edit - Clear > All rows" to clear the existing age variable. Then drop your variable(s) into column 1 and "Go Get Data".
6. This table's universe eliminates income values of zero through the Advanced SQL Option in the Step 2 tab of DataFerrett. If you wanted to include these values, or if you wanted to determine the medians for only positive income (current table includes negative income), you can do so in the Advanced SQL Option. The existing SQL universe is
   `(AGE1 in (1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17) and ((PTOTVAL between -999999 and -1) or (PTOTVAL between 1 and 999999)))`
   If you wanted to include the zero PTOTVAL values, you could simply remove everything related to PTOTVAL like:
   `(AGE1 in (1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17))`
   Or if you wanted to use only positive income values, change the universe to: `(AGE1 in (1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17) and (PTOTVAL between 1 and 999999))`

NOTE: These percentile calculations are not statistically accurate and will not match published numbers exactly, although they should be within the confidence interval.