NOTE: This installation is running Base SAS hot fix bundle 82BX08.

NOTE: AUTOEXEC processing beginning; file is C:\PROGRA~1\SASINS~1\SAS\V8\autoexec.sas.

```
1           ** C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\AUTOEXEC.SAS ;
2
3           OPTIONS LS= 132 PS= 70 MERGENOBY=ERROR MSGLEVEL=i;
```

NOTE: AUTOEXEC processing completed.

```
1           /*****************************************************************\
2
3           PROGRAM:        C:\MEPS\PROG\EXAMPLE_E1.SAS
4
5           DESCRIPTION:      THIS EXAMPLE SHOWS HOW TO COMPUTE PERSON-LEVEL
6                             ESTIMATES FOR PERSON-LEVEL HEALTHCARE EXPENDITURES.
7                             ESTIMATES INCLUDE: MEANS, PROPORTIONS, TOTALS.
8
9           INPUT FILE:      C:\MEPS\DATA\H60.SAS7BDAT (2001 FULL-YEAR DATA FILE)
10                              -- PERSON-LEVEL FILE
11
12          \*****************************************************************/
13
14          LIBNAME CMEPS V8 'C:\MEPS\DATA' ;
NOTE: Libref CMEPS was successfully assigned as follows:
      Engine:        V8
      Physical Name: C:\MEPS\DATA
15
16          FOOTNOTE 'PROGRAM: C:\MEPS\PROG\EXAMPLE_E1.SAS';
17
18          TITLE1 'AHRQ MEPS DATA USERS WORKSHOP (ESTIMATION) -- NOV/DEC 2004';
19          TITLE2 'HEALTHCARE EXPENDITURES, 2001';
20          TITLE3 ' ';
21
22          /***** THIS DATA STEP READS IN THE REQUIRED VARIABLES FROM THE *****/
23          /***** FULL-YEAR FILE (HC-060).                               *****/
24
25          /***** VARIABLE AGE IS CREATED BY TAKING THE VALUE OF AGE01X,  *****/
26          /***** OR, IF AGE01X HAS A MISSING VALUE, USING THE VALUE OF   *****/
27          /***** EITHER AGE42X OR AGE31X.                               *****/
28
29          /***** VARIABLE ANY_EXP IS CREATED AS DICHOTOMOUS VARIABLE     *****/
30          /***** INDICATING IF A PERSON HAD EITHER ZERO OR SOME HEALTH-  *****/
31          /***** CARE EXPENSES IN 2001. A VALUE OF '100' RATHER THAN '1' *****/
32          /***** IS USED TO ALLOW THE OUTPUT TO BE READ AS A PERCENTAGE. *****/
33
34          DATA H60;
35             SET CMEPS.H60 (KEEP= TOTEXP01 SEX AGE01X AGE42X AGE31X
36                              PERWT01F VARPSU01 VARSTR01);
37             IF AGE01X >= 0
```

```
38              THEN AGE = AGE01X;
39          ELSE IF AGE42X >= 0
40              THEN AGE = AGE42X;
41          ELSE IF AGE31X >= 0
42              THEN AGE = AGE31X;
43          ELSE AGE = AGE01X;
44          IF TOTEXP01 = 0
45              THEN ANY_EXP = 0;
46          ELSE ANY_EXP = 100;
47          LABEL TOTEXP01 = '2001 EXPENSES'
```

```
48                    ANY_EXP  = 'SOME EXPENSES IN 2001';
49            RUN;

NOTE: There were 33556 observations read from the data set CMEPS.H60.
NOTE: The data set WORK.H60 has 33556 observations and 10 variables.

50
51            /***** FORMATS FOR AGE AND SEX ARE USED TO CREATE CATEGORIES *****/
52            /***** FOR THE ANALYSIS PROCEDURES.                          *****/
53
54            PROC FORMAT;
55                VALUE AGEF
56                0-64 = '0-64'
57                65-90 = '65-90';
NOTE: Format AGEF has been output.
58                VALUE SEXF
59                1 = 'MALE'
60                2 = 'FEMALE';
NOTE: Format SEXF has been output.
61            RUN;


62
63            /********** MEANS **********/
64
65            TITLE4 'WEIGHTED MEAN FOR PERSON-LEVEL TOTAL EXPENDITURES';
66            TITLE5 'AND SUBGROUP ANALYSES FOR AGE AND SEX';
67
68            PROC SURVEYMEANS DATA= H60 NOBS SUMWGT MEAN STDERR CV CLM;
69                VAR TOTEXP01 ;
70                DOMAIN AGE SEX;
71                STRATA VARSTR01;
72                CLUSTER VARPSU01;
73                WEIGHT PERWT01F;
74                FORMAT AGE AGEF. SEX SEXF. ;
75            RUN;

NOTE: Due to nonpositive weights, 1434 observation(s) were deleted.
NOTE: Only one cluster in a stratum in domain AGE for variable(s) TOTEXP01. The variance of TOTEXP01 in that stratum is estimated
      by zero.
NOTE: There were 33556 observations read from the data set WORK.H60.
NOTE: The PROCEDURE SURVEYMEANS printed page 1.

76
77            TITLE4 'COMPARING MEAN EXPENDITURE DIFFERENCES';
78            TITLE5 ' ';
79            TITLE6 'MALE [1] VERSUS FEMALE [0]';
80
81            /***** RECODE VARIABLE *SEX* SO THAT FEMALE= 0 AND *****/
82            /***** MALE = 1.                                  *****/
83
84            /***** USE PROC SURVEYREG                         *****/
85
86            DATA H60V2;
```

```
87              SET H60;
88              IF SEX = 2
89                  THEN SEX = 0;
90          RUN;
```

NOTE: There were 33556 observations read from the data set WORK.H60.
NOTE: The data set WORK.H60V2 has 33556 observations and 10 variables.

```
91
92          PROC SURVEYREG DATA= H60V2;
93              MODEL TOTEXP01 = SEX;
94              STRATA VARSTR01;
95              CLUSTER VARPSU01;
96              WEIGHT PERWT01F;
```

```
97          RUN;

NOTE: In data set H60V2, total 33556 observations read, 1434 observations with missing values or non-positive weights are omitted.
NOTE: The PROCEDURE SURVEYREG printed page 2.

98
99          /********** PROPORTIONS **********/
100
101         /***** TWO METHODS TO GENERATE PROPORTIONS:      *****/
102         /***** (1) FREQUENCY TABLES                      *****/
103         /***** (2) MEANS OF DICHOTOMOUS VARIABLES        *****/
104
105         /***** IN SAS V8 PROC FREQ CAN BE USED TO        *****/
106         /***** GENERATE POINT ESTIMATES BUT NOT SEs      *****/
107         /***** OR CONFIDENCE LIMITS.  IN SAS V9 THE      *****/
108         /***** SURVEYFREQ PROCEDURE CAN BE USED TO       *****/
109         /***** GENERATE FREQUENCIES WITH SEs AND         *****/
110         /***** CONFIDENCE LIMITS FOR COMPLEX SURVEYS.    *****/
111
112         /***** HERE THE DICHOTOMOUS VARIABLE ANY_EXP     *****/
113         /***** IS USED TO USE PROPORTION OF PEOPLE       *****/
114         /***** WITH SOME HELATHCARE EXPENSES IN 2001.    *****/
115
116         TITLE4 'MEAN OF THE DICHOTOMOUS VARIABLE ANY_EXP';
117
118         PROC SURVEYMEANS DATA= H60 NOBS SUMWGT MEAN STDERR CLM;
119             VAR ANY_EXP;
120             DOMAIN AGE SEX;
121             STRATA VARSTR01;
122             CLUSTER VARPSU01;
123             WEIGHT PERWT01F;
124             FORMAT AGE AGEF. SEX SEXF. ;
125         RUN;

NOTE: Due to nonpositive weights, 1434 observation(s) were deleted.
NOTE: Only one cluster in a stratum in domain AGE for variable(s) ANY_EXP. The variance of ANY_EXP in that stratum is estimated by
      zero.
NOTE: There were 33556 observations read from the data set WORK.H60.
NOTE: The PROCEDURE SURVEYMEANS printed page 3.

126
127         /********** TOTALS **********/
128
129         /***** THE KEYWORD 'SUM' REQUESTS THE TOTAL FOR    *****/
130         /***** THE VARIABLE TOTEXP01.                      *****/
131
132         /***** THE KEYWORD 'SUMWGT' REQUESTS THE SUM OF    *****/
133         /***** THE WEIGHTS, i.e. THE POPULATION ESTIMATE. *****/
134
135         TITLE 'OVERALL TOTAL HEALTHCARE EXPENDITURES';
136
137         PROC SURVEYMEANS DATA= H60 NOBS SUMWGT SUM STD CLSUM;
138             VAR TOTEXP01;
139             STRATA VARSTR01;
```

```
140         CLUSTER VARPSU01;
141         WEIGHT PERWT01F;
142      RUN;


NOTE: Due to nonpositive weights, 1434 observation(s) were deleted.
NOTE: There were 33556 observations read from the data set WORK.H60.
NOTE: The PROCEDURE SURVEYMEANS printed page 4.

NOTE: SAS Institute Inc., SAS Campus Drive, Cary, NC USA 27513-2414
```

                      WEIGHTED MEAN FOR PERSON-LEVEL TOTAL EXPENDITURES
                           AND SUBGROUP ANALYSES FOR AGE AND SEX

                                The SURVEYMEANS Procedure

                                       Data Summary

              Number of Strata   145
              Number of Clusters   557
              Number of Observations   33556
              Number of Observations Used   32122
              Number of Obs with Nonpositive Weights   1434
              Sum of Weights   284247327

                                        Statistics

                              Sum of   Std Error   Lower 95%   Upper 95%   Coeff of
Variable   Label   N   Weights   Mean   of Mean   CL for Mean CL for Mean   Variation
----
TOTEXP01   2001 EXPENSES 32122 284247327 2555.359713 54.631583 2447.968301 2662.751124 0.021379

                                   Domain Analysis: AGE

                                      Sum of   Std Error   Lower 95%   Upper 95%   Coeff of
AGE   Variable Label   N   Weights   Mean   of Mean   CL for Mean CL for Mean   Variation
----
0-64   TOTEXP01 2001 EXPENSES 28295 248412067 1944.345562   44.883157 1856.117008 2032.574117 0.023084
65-90   TOTEXP01 2001 EXPENSES   3827   35835260 6790.944722 239.389968 6320.363250 7261.526194 0.035251

                                   Domain Analysis: SEX

                                      Sum of   Std Error   Lower 95%   Upper 95%   Coeff of
SEX   Variable Label   N   Weights   Mean   of Mean   CL for Mean CL for Mean   Variation
----
MALE   TOTEXP01 2001 EXPENSES 15369 138630937 2280.601782   81.814411 2119.776037 2441.427527 0.035874
FEMALE   TOTEXP01 2001 EXPENSES 16753 145616389 2816.937064   62.743712 2693.599328 2940.274800 0.022274

                          PROGRAM: C:\MEPS\PROG\EXAMPLE_E1.SAS

COMPARING MEAN EXPENDITURE DIFFERENCES

MALE [1] VERSUS FEMALE [0]

The SURVEYREG Procedure

Regression Analysis for Dependent Variable TOTEXP01

Data Summary

Number of Observations   32122
Sum of Weights   284247327
Weighted Mean of TOTEXP01   2555.4
Weighted Sum of TOTEXP01   7.26354E11

Design Summary

Number of Strata   145
Number of Clusters   557

Fit Statistics

R-square   0.001278
Root MSE   7495.07
Denominator DF   412

ANOVA for Dependent Variable TOTEXP01

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2.043E13	2.043E13	41.10	<.0001
Error	32120	1.597E16	4.971E11		
Corrected Total	32121	1.599E16			

Tests of Model Effects

Effect	Num DF	F Value	Pr > F
Model	1	31.19	<.0001
Intercept	1	2015.58	<.0001
SEX	1	31.19	<.0001

NOTE: The denominator degrees of freedom for the F tests is 412.

Estimated Regression Coefficients

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	2816.93706	62.7446887	44.90	<.0001
SEX	-536.33528	96.0366671	-5.58	<.0001

NOTE: The denominator degrees of freedom for the t tests is 412.
PROGRAM: C:\MEPS\PROG\EXAMPLE_E1.SAS

```
                         MEAN OF THE DICHOTOMOUS VARIABLE ANY_EXP

                            The SURVEYMEANS Procedure

                                  Data Summary

        Number of Strata                              145
        Number of Clusters                            557
        Number of Observations                      33556
        Number of Observations Used                 32122
        Number of Obs with Nonpositive Weights       1434
        Sum of Weights                          284247327


                                  Statistics

                          Sum of                    Std Error    Lower 95%    Upper 95%
Variable   Label                   N     Weights        Mean      of Mean   CL for Mean  CL for Mean
----------------------------------------------------------------------------------------------------
ANY_EXP    SOME EXPENSES IN 2001   32122   284247327  85.353435    0.320337   84.723736   85.983135
----------------------------------------------------------------------------------------------------


                              Domain Analysis: AGE

                              Sum of                    Std Error    Lower 95%    Upper 95%
AGE     Variable   Label               N    Weights        Mean      of Mean   CL for Mean  CL for Mean
----------------------------------------------------------------------------------------------------
0-64    ANY_EXP    SOME EXPENSES IN 2001  28295  248412067  83.780423    0.359005   83.074714   84.486133
65-90   ANY_EXP    SOME EXPENSES IN 2001   3827   35835260  96.257645    0.354136   95.561500   96.953790
----------------------------------------------------------------------------------------------------


                              Domain Analysis: SEX

                              Sum of                    Std Error    Lower 95%    Upper 95%
SEX     Variable   Label               N    Weights        Mean      of Mean   CL for Mean  CL for Mean
----------------------------------------------------------------------------------------------------
MALE    ANY_EXP    SOME EXPENSES IN 2001  15369  138630937  80.416420    0.436449   79.558475   81.274364
FEMALE  ANY_EXP    SOME EXPENSES IN 2001  16753  145616389  90.053615    0.305437   89.453206   90.654024
----------------------------------------------------------------------------------------------------




                         PROGRAM: C:\MEPS\PROG\EXAMPLE_E1.SAS
```

The SURVEYMEANS Procedure

Data Summary

```
Number of Strata                              145
Number of Clusters                            557
Number of Observations                      33556
Number of Observations Used                 32122
Number of Obs with Nonpositive Weights       1434
Sum of Weights                          284247327
```

Statistics

Variable	Label	N	Sum of Weights	Sum	Std Dev	Lower 95% CL for Sum	Upper 95% CL for Sum
TOTEXP01	2001 EXPENSES	32122	284247327	726354166775	20005091265	687029386898	765678946651

PROGRAM: C:\MEPS\PROG\EXAMPLE_E1.SAS