```
* IVEware (SAS Callable) Analysis Examples Replication for ASDA 3rd Edition
* Berglund Winter 2025
* Chapter 6 ;

libname d "P:\ASDA3\Data Sets for Analysis Examples and Stata R Code" ;
ods listing ;
ods graphics off ;
options nodate nonumber ls=125 ps=68 ;

* set options and location to call IVEware from SAS session ;
options set=srclib "E:\ive 11feb24\sas" sasautos=('!srclib' sasautos) mautosource ;

ods rtf style=minimal bodytitle;

title ;

data c6_nhanes ;
  set d.nhanes1112 ;
  * create age18p ;
  age18p=0 ;
  if age >=18 then age18p=1 ;
run ;

* Example 6.1: Estimating the Proportion of the U.S. Adult Population with an Irregular Heart Beat. ;
%describe (setup=new, name="Example 6.1 Using Table", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
 title "Example 6.1 Proportion of US Adults with Irregular Hear Beat" ;
 datain c6_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 table irregular ;   *NOTE: TABLE uses same method for CI as MEAN, NO OPTION FOR LOGIT ;
run;

%describe (setup=new, name="Example 6.1 Using Mean", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
 title "Example 6.1 Proportion of US Adults with Irregular Hear Beat" ;
 datain c6_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 mean irregular ;
run;

****;
*Example 6.2: Estimating the Proportion of U.S. Adults by Race and Ethnicity using NHANES data. ;
%describe (setup=new, name="Example 6.2", dir=P:\asda3\Replication Iveware\Chapter 6) ;
 title "Example 6.2 Proportion of US Adults by Race and Ethnicity" ;
 datain c6_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 table ridreth1 ;
run;

*Example 6.2 Alternative Bayesian Bootstrap Approach, Creates Synthetic Output Data for Bayesian Bootstrap with Complex
Sample Features Incorporated into Data Set ;
%bbdesign (setup=new, name="Example 6.2 BBDesign for Table of Proportion of Race Ethnicity Using NHANES Data",
dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
 datain c6_nhanes ;
 dataout c6_nhanes_bb ;
 stratum sdmvstra ;
 cluster sdmvpsu ;
 weight wtmec2yr ;
 csamples 5 ;
 wsamples 5 ;
 seed 2025 ;
run;
```

```
* Example 6.3 ;
%describe (setup=new, name="Example 6.3", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
 title " Example 6.3: Estimating the Proportions of U.S. Adults by Blood Pressure Category using the 2011-2012 NHANES
Data." ;
 datain c6_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 table bp_cat ;
run;

**** ;
data c6_russia ;
  set d.ess6_russia ;
run ;

ods text="GOF for Proportions Not Available in IVEware: Example 6.4: A Goodness of Fit Test for Proportions of Russians
age 15+ by Marital Status.";

%describe (setup=new, name="Example 6.4", dir=p:\ASDA3\Replication Iveware\Chapter 6) ;
 title " Example 6.4: Proportions of Russians Age 15+ by Marital Status" ;
 datain c6_russia ;
 stratum stratify ; cluster psu ; weight pspwght;
 table marcat ;
run;

ods text="GOF for Proportions Not Available in IVEware: Example 6.4: A Goodness of Fit Test for Proportions of Russians
age 15+ by Marital Status." ;

ods text="Weighted Plots not Available in IVEware: Example 6.5 Pie Charts and Vertical Bar Charts of the Estimated
Proportions of Russians age 15+ by Marital Status." ;

****;
data c6_ncsr ;
 set d.ncsr ;
run ;

%describe (setup=new, name="Example 6.6", dir=P:\ASDA3\Replication Iveware\Chapter 6)) ;
 title " Example 6.6: Estimation of Total Proportions for the Crosstabulation of Gender and Lifetime Major Depression
Status (Source: NCS-R)." ;
 datain c6_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 table sex*mde ;
run;

%describe (setup=new, name="Example 6.6", dir=P:\ASDA3\Replication Iveware\Chapter 6)) ;
 title " Example 6.6: Estimation of Row Proportions for the Crosstabulation of Gender and Lifetime Major Depression
Status (Source: NCS-R)." ;
 datain c6_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 table mde ;
 by sex ;
run;

****;
%describe (setup=new, name="Example 6.7", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
 title " Example 6.7: Comparing the Proportions of U.S. Adult Men and Women with Lifetime Major Depression.  " ;
 datain c6_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 table mde ;
 contrast sex ;
run;
* Alternate Bayesian Analysis ;
```

```
%bbdesign (setup=new, name="Example 6.7 BBDesign for Lifetime Major Depression by Gender", dir=P:\ASDA3\Replication
Iveware\Chapter 6) ;
 datain c6_ncsr ;
 dataout c6_ncsr_bb ;
 stratum sestrat ;
 cluster seclustr ;
 weight ncsrwtsh ;
 csamples 5 ;
 wsamples 5 ;
 seed 2025 ;
run;


* Example 6.8 test of independence in DESCRIBE/TABLE command, therefore use REGRESS command, this uses logistic
regression and provides a design-based t test with p value ;
%regress (setup=new, name="Example 6.8", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
title Example 6.8: Testing the Independence of MDE and Gender in U.S. Adults Using the NCS-R data. ;
 datain c6_ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 class mde sex ;
 dependent mde ;
 predictor sex ;
run;

data c6_ncsr1 ;
 set c6_ncsr ;
* create indicator for subpopulation of interest ;
 age18_28=0 ;
 if 18<=age<=28 then age18_28=1 ;
 if sex=2 then sexr=1 ; if sex=1 then sexr=2 ;
 if mde=1 then mder=1 ; if mde=0 then mder=2 ;
 * create a dummy variable for males ;
 if sex=1 then sexm=1 ; else sexm=0 ;
run ;
proc freq ;
 tables sexm mder ;
run ;

* Note: due to Bad Strata 18, this code aborts ;
%describe (setup=new, name="Example 6.9", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
title Example 6.9: Testing the Independence of Alcohol Dependence and Education Level in Young Adults (Ages 18-28)
using the NCS-R data. ;
 datain c6_ncsr1 ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 by age18_28 ;
 table ed4cat*ald ;
run;

* Note: use reversed coded mde variable to omit same categories as Stata (IVEware omits highest category by default)  ;
%regress (setup=new, name="Example 6.10", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
title "Example 6.10: Simple Logistic Regression to Estimate the NCS-R Male/Female Odds Ratio for Lifetime Major
Depressive Episode. " ;
 datain c6_ncsr1 ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 class mder sex ;
 dependent mder ;
 predictor sex ;
run;

* Example 6.11: Using the NCS-R Data to Estimate and Test the Association between Gender and Depression in the U.S.
Adult Population when controlling for Age. ;
ods text="Example 6.11 CMH Trend not Available in IVEware" ;
```

```
* Example 6.12, need data set with just variables used in PROC CATMOD in SASMOD command of IVEware, this enables
program to work correctly for JRR ;
data c6_ncsra ;
 set c6_ncsr1 ;
keep seclustr sestrat ncsrwtsh mde sexm  ;
run ;

* Example 6.12: A Simple Log-linear Model to Test the Association between Lifetime Major Depression Episode and Sex.  ;
 %sasmod (setup=new, name="Example 6.12", dir=P:\ASDA3\Replication Iveware\Chapter 6) ;
 title Example 6.12: A Simple Log-linear Model to Test the Association between Lifetime Major Depression Episode and
Sex ;
 datain c6_ncsra ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 proc catmod ;
  model mde*sexm=_response_ ;
  loglin mde sexm mde*sexm ;
 run ;

ods rtf close ;
```

```
IVEware Setup Checker, Fri Feb 28 14:26:41 2025                                  1

Setup listing:

 title "Example 6.1 Proportion of US Adults with Irregular Hear Beat" ;
 datain c6_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 table irregular ;   *NOTE: TABLE uses same method for CI as MEAN, NO OPTION FOR
 LOGIT ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:42 2025    1

"Example 6.1 Proportion of US Adults with Irregular Hear Beat"

By variables:           age18p
Stratum variable:       sdmvstra  Masked variance pseudo-stratum
Cluster variable:       sdmvpsu  Masked variance pseudo-PSU
Weight variable:        WTMEC2YR  Full sample 2 year MEC exam weight

Analysis description:

         5  Variables
        14  Strata
        31  Secus

    Strata  Model
        14  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      9338  Cases Read
```

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:42 2025
2

"Example 6.1 Proportion of US Adults with Irregular Hear Beat"

By Condition
age18p
0

Problem 1

Degrees of freedom
17

Factor	Covariance of denominator
None	0.07910

Table irregular	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	3642	7.270614e+07	0.99581	0.00154
1	11	305579.8	0.00419	0.00154

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.99257	0.99906	647.71840	0.00000
1	0.00094	0.00743	2.72232	0.01448

	Unweighted Proportion	Bias	Design Effect
0	0.99699	0.11791	2.07112
1	0.00301	-28.05329	2.07112

By Condition
age18p
1

Problem 2

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06112

Table irregular	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	5264	2.196305e+08	0.98358	0.00168
1	110	3666308	0.01642	0.00168

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.98004	0.98712	586.21233	0.00000
1	0.01288	0.01996	9.78568	0.00000

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:42 2025
3

"Example 6.1 Proportion of US Adults with Irregular Hear Beat"

	Unweighted Proportion	Bias	Design Effect
0	0.97953	-0.41175	0.93664
1	0.02047	24.66618	0.93664

```
IVEware Setup Checker, Fri Feb 28 14:26:44 2025                                    1

Setup listing:

 title "Example 6.1 Proportion of US Adults with Irregular Hear Beat" ;
 datain c6_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 mean irregular ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:45 2025    1

"Example 6.1 Proportion of US Adults with Irregular Hear Beat"

By variables:           age18p
Stratum variable:       sdmvstra  Masked variance pseudo-stratum
Cluster variable:       sdmvpsu  Masked variance pseudo-PSU
Weight variable:        WTMEC2YR  Full sample 2 year MEC exam weight

Analysis description:

         5  Variables
        14  Strata
        31  Secus

    Strata  Model
        14  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      9338  Cases Read
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:45 2025
2

"Example 6.1 Proportion of US Adults with Irregular Hear Beat"

By Condition
         age18p
              0

     Problem  1

Degrees of freedom
                           17

         Factor   Covariance of denominator
           None        0.07910

           Mean      Number of         Sum of       Weighted       Standard
      irregular          Cases        Weights           Mean          Error
                          3653   7.301172e+07    0.004185353    0.001537419

                         Lower          Upper         T Test     Prob > |T|
                         Bound          Bound
                  0.0009416818    0.007429024        2.72232        0.01448

                   Unweighted           Bias         Design
                         Mean                        Effect
                  0.003011224      -28.05329        2.07112

By Condition
         age18p
              1

     Problem  2

Degrees of freedom
                           17

         Factor   Covariance of denominator
           None        0.06112

           Mean      Number of         Sum of       Weighted       Standard
      irregular          Cases        Weights           Mean          Error
                          5374   2.232968e+08     0.01641899    0.001677858

                         Lower          Upper         T Test     Prob > |T|
                         Bound          Bound
                     0.01287902     0.01995896        9.78568        0.00000

                   Unweighted           Bias         Design
                         Mean                        Effect
                     0.02046892       24.66618        0.93664
```

```
IVEware Setup Checker, Fri Feb 28 14:26:47 2025                                  1

Setup listing:

 title "Example 6.2 Proportion of US Adults by Race and Ethnicity" ;
 datain c6_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 table ridreth1 ;
run;
```

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:48 2025 1

"Example 6.2 Proportion of US Adults by Race and Ethnicity"

By variables: age18p
Stratum variable: sdmvstra Masked variance pseudo-stratum
Cluster variable: sdmvpsu Masked variance pseudo-PSU
Weight variable: WTMEC2YR Full sample 2 year MEC exam weight

Analysis description:

5 Variables
14 Strata
31 Secus

Strata Model
14 Multiple PSU
0 Paired Selection
0 Successive Differences

9338 Cases Read

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:48 2025
2

"Example 6.2 Proportion of US Adults by Race and Ethnicity"

By Condition
age18p
0

Problem 1

Degrees of freedom
17

Factor Covariance of denominator
None 0.08075

Table RIDRETH1	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
1	747	1.144517e+07	0.15344	0.03166
2	434	6051942	0.08114	0.01693
3	827	3.974194e+07	0.53282	0.04960
4	1077	1.094441e+07	0.14673	0.02809
5	638	6404678	0.08587	0.01146

	Lower Bound	Upper Bound	T Test	Prob > |T|
1	0.08665	0.22024	4.84668	0.00015
2	0.04542	0.11685	4.79307	0.00017
3	0.42817	0.63747	10.74165	0.00000
4	0.08747	0.20599	5.22394	0.00007
5	0.06168	0.11005	7.49119	0.00000

	Unweighted Proportion	Bias	Design Effect
1	0.20064	30.76008	28.72003
2	0.11657	43.67186	14.30616
3	0.22213	-58.30987	36.78983
4	0.28928	97.15143	23.45404
5	0.17137	99.57225	6.23008

By Condition
age18p
1

Problem 2

Degrees of freedom
17

Factor Covariance of denominator
None 0.06037

Table RIDRETH1	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
1	569	1.836715e+07	0.07917	0.01725

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:26:48 2025
3

"Example 6.2 Proportion of US Adults by Race and Ethnicity"

Table RIDRETH1	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
2	577	1.536422e+07	0.06622	0.01519
3	2014	1.529793e+08	0.65939	0.03889
4	1505	2.718712e+07	0.11718	0.02337
5	950	1.810472e+07	0.07804	0.01092

	Lower Bound	Upper Bound	T Test	Prob > |T|
1	0.04277	0.11556	4.58929	0.00026
2	0.03417	0.09828	4.35897	0.00043
3	0.57733	0.74144	16.95450	0.00000
4	0.06788	0.16649	5.01433	0.00011
5	0.05500	0.10107	7.14811	0.00000

	Unweighted Proportion	Bias	Design Effect
1	0.10134	28.00105	22.91659
2	0.10276	55.17016	20.95462
3	0.35868	-45.60366	37.80772
4	0.26803	128.72636	29.63794
5	0.16919	116.80775	9.29983

```
SRCware BBDesign, Fri Feb 28 14:26:49 2025                              1

Setup listing:

 datain c6_nhanes ;
 dataout c6_nhanes_bb ;
 stratum sdmvstra ;
 cluster sdmvpsu ;
 weight wtmec2yr ;
 csamples 5 ;
 wsamples 5 ;
 seed 2025 ;
run;
```

```
SRCware BBDesign, Fri Feb 28 14:27:00 2025                              1

Results:

Variables               39
Observations          9756
Strata                  14
Clusters                31
Cluster samples          5
Weight samples           5
Syn pop size         97560
```

```
IVEware Setup Checker, Fri Feb 28 14:27:07 2025                                  1

Setup listing:

 title " Example 6.3: Estimating the Proportions of U.S. Adults by Blood Pressure
 Category using the 2011-2012 NHANES Data." ;
 datain c6 nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 by age18p ;
 table bp cat ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:08 2025    1

" Example 6.3: Estimating the Proportions of U.S. Adults by Blood Pressure Category

By variables:           age18p
Stratum variable:       sdmvstra  Masked variance pseudo-stratum
Cluster variable:       sdmvpsu  Masked variance pseudo-PSU
Weight variable:        WTMEC2YR  Full sample 2 year MEC exam weight

Analysis description:

         5  Variables
        14  Strata
        31  Secus

    Strata  Model
        14  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      9338  Cases Read
```

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:08 2025
2

" Example 6.3: Estimating the Proportions of U.S. Adults by Blood Pressure Category using the 2011-2012 NHANES Data."

By Condition
age18p
0

Problem 1

Degrees of freedom
17

Factor	Covariance of denominator
None	0.07745

Table bp_cat	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
1	1543	3.671991e+07	0.90383	0.00972
2	154	3870348	0.09527	0.00955
3	2	36604.36	0.00090	0.00066
4	0	0	0.00000	0.00000

	Lower Bound	Upper Bound	T Test	Prob > |T|
1	0.88332	0.92435	92.94489	0.00000
2	0.07511	0.11542	9.97194	0.00000
3	-0.00049	0.00229	1.36958	0.18864
4	0.00000	0.00000	0.00000	0.00000

	Unweighted Proportion	Bias	Design Effect
1	0.90818	0.48106	1.84735
2	0.09064	-4.85398	1.79802
3	0.00118	30.65229	0.81634
4	0.00000	0.00000	0.00000

By Condition
age18p
1

Problem 2

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06127

Table bp cat	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
1	2438	1.051854e+08	0.47222	0.01552
2	2284	9.533164e+07	0.42799	0.01204
3	489	1.777016e+07	0.07978	0.00582
4	145	4457862	0.02001	0.00438

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:08 2025
3

" Example 6.3: Estimating the Proportions of U.S. Adults by Blood Pressure Category using the 2011-2012 NHANES Data."

	Lower Bound	Upper Bound	T Test	Prob > |T|
1	0.43948	0.50497	30.42493	0.00000
2	0.40259	0.45338	35.56085	0.00000
3	0.06751	0.09205	13.71834	0.00000
4	0.01076	0.02926	4.56436	0.00028

	Unweighted Proportion	Bias	Design Effect
1	0.45519	-3.60694	5.17604
2	0.42644	-0.36165	3.16838
3	0.09130	14.44190	2.46687
4	0.02707	35.27232	5.24926

GOF for Proportions Not Available in IVEware: Example 6.4: A Goodness of Fit Test for Proportions of Russians age 15+ by Marital Status.

```
IVEware Setup Checker, Fri Feb 28 14:27:10 2025                                    1

Setup listing:

 title " Example 6.4: Proportions of Russians Age 15+ by Marital Status" ;
 datain c6 russia ;
 stratum stratify ; cluster psu ; weight pspwght;
 table marcat ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:11 2025    1

" Example 6.4: Proportions of Russians Age 15+ by Marital Status"

Stratum variable:       stratify  Stratification
Cluster variable:       psu  Primary Sampling Unit
Weight variable:        pspwght  Post-stratification weight including design weight

Analysis description:

         4  Variables
         8  Strata
       184  Secus

    Strata  Model
         8  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      2484  Cases Read
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:11 2025
2

" Example 6.4: Proportions of Russians Age 15+ by Marital Status"

     Problem  1

Degrees of freedom
                          176

         Factor   Covariance of denominator
           None        0.03839

          Table      Number of         Sum of       Weighted       Standard
         marcat          Cases        Weights     Proportion          Error
              1           1066       1235.957        0.50386        0.01288
              2            791       564.3472        0.23007        0.01154
              3            587       652.6725        0.26607        0.01340

                         Lower          Upper         T Test     Prob > |T|
                         Bound          Bound
              1        0.47845        0.52927       39.12645        0.00000
              2        0.20730        0.25283       19.94261        0.00000
              3        0.23963        0.29252       19.85402        0.00000

                    Unweighted           Bias         Design
                    Proportion                        Effect
              1        0.43617      -13.43426        1.62065
              2        0.32365       40.67677        1.83552
              3        0.24018       -9.73175        2.24686
```

GOF for Proportions Not Available in IVEware: Example 6.4: A Goodness of Fit Test for Proportions of Russians age 15+ by Marital Status.

Weighted Plots not Available in IVEware: Example 6.5 Pie Charts and Vertical Bar Charts of the Estimated Proportions of Russians age 15+ by Marital Status.

```
IVEware Setup Checker, Fri Feb 28 14:27:13 2025                                    1

Setup listing:

 title " Example 6.6: Estimation of Total Proportions for the Crosstabulation of
 Gender and Lifetime Major Depression Status (Source: NCS-R)." ;
 datain c6 ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 table sex*mde ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:15 2025    1

" Example 6.6: Estimation of Total Proportions for the Crosstabulation of Gender and

Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtsh  NCSR sample part 1 weight

Analysis description:

         5  Variables
        42  Strata
        84  Secus

    Strata  Model
        42  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      9282  Cases Read
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:15 2025
2

" Example 6.6: Estimation of Total Proportions for the Crosstabulation of Gender and Lifetime Major Depression Status
(So

     Problem  1

Degrees of freedom
                           42

         Factor   Covariance of denominator
           None        0.04886

          Table                       Number of         Sum of       Weighted       Standard
            sex            mde           Cases        Weights     Proportion          Error
              1              0            3522       3774.474        0.40664        0.00698
              1              1             617       670.2321        0.07221        0.00344
              2              0            3931       3728.062        0.40164        0.00536
              2              1            1212       1109.232        0.11950        0.00303

                                        Lower          Upper         T Test     Prob > |T|
                                        Bound          Bound
              1              0        0.39256        0.42073       58.25808        0.00000
              1              1        0.06527        0.07915       21.00460        0.00000
              2              0        0.39083        0.41246       74.92532        0.00000
              2              1        0.11339        0.12561       39.46856        0.00000

                                   Unweighted           Bias         Design
                                   Proportion                        Effect
              1              0        0.37944       -6.68899        1.87406
              1              1        0.06647       -7.94233        1.63719
              2              0        0.42351        5.44352        1.10974
              2              1        0.13058        9.26482        0.80862
```

```
IVEware Setup Checker, Fri Feb 28 14:27:16 2025                                  1

Setup listing:

 title " Example 6.6: Estimation of Row Proportions for the Crosstabulation of
 Gender and Lifetime Major Depression Status (Source: NCS-R)." ;
 datain c6 ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 table mde ;
 by sex ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:17 2025    1

" Example 6.6: Estimation of Row Proportions for the Crosstabulation of Gender and L

By variables:           sex  Sex 1=Male 2=Female
Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtsh  NCSR sample part 1 weight

Analysis description:

         5  Variables
        42  Strata
        84  Secus

    Strata  Model
        42  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      9282  Cases Read
```

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:17 2025
2

" Example 6.6: Estimation of Row Proportions for the Crosstabulation of Gender and Lifetime Major Depression Status (Sour

By Condition
sex
1

Problem 1

Degrees of freedom
42

Factor	Covariance of denominator
None	0.04853

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	3522	3774.474	0.84921	0.00775
1	617	670.2321	0.15079	0.00775

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.83357	0.86484	109.60601	0.00000
1	0.13516	0.16643	19.46270	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.85093	0.20296	1.93978
1	0.14907	-1.14296	1.93978

By Condition
sex
2

Problem 2

Degrees of freedom
42

Factor	Covariance of denominator
None	0.05133

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	3931	3728.062	0.77069	0.00565
1	1212	1109.232	0.22931	0.00565

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.75930	0.78209	136.47193	0.00000
1	0.21791	0.24070	40.60527	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.76434	-0.82417	0.92791
1	0.23566	2.76999	0.92791

```
IVEware Setup Checker, Fri Feb 28 14:27:19 2025                                  1

Setup listing:

 title " Example 6.7: Comparing the Proportions of U.S. Adult Men and Women with
 Lifetime Major Depression.  " ;
 datain c6 ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 table mde ;
 contrast sex ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:20 2025    1

" Example 6.7: Comparing the Proportions of U.S. Adult Men and Women with Lifetime M

Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtsh  NCSR sample part 1 weight

Analysis description:

         5  Variables
        42  Strata
        84  Secus

    Strata  Model
        42  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      9282  Cases Read
```

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:20 2025
2

" Example 6.7: Comparing the Proportions of U.S. Adult Men and Women with Lifetime Major Depression. "

Problem 1

Degrees of freedom
42

Factor	Covariance of denominator
sex 1	0.04853

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	3522	3774.474	0.84921	0.00775
1	617	670.2321	0.15079	0.00775

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.83357	0.86484	109.60601	0.00000
1	0.13516	0.16643	19.46270	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.85093	0.20296	1.93978
1	0.14907	-1.14296	1.93978

Factor	Covariance of denominator
sex 2	0.05133

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	3931	3728.062	0.77069	0.00565
1	1212	1109.232	0.22931	0.00565

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.75930	0.78209	136.47193	0.00000
1	0.21791	0.24070	40.60527	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.76434	-0.82417	0.92791
1	0.23566	2.76999	0.92791

Contrast
sex 1 versus 2

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
0	7453	7502.536	0.07851	0.00955

IVEware Design-Based Descriptive Statistics Procedure, Fri Feb 28 14:27:20 2025
3

" Example 6.7: Comparing the Proportions of U.S. Adult Men and Women with Lifetime Major Depression. "

Table mde	Number of Cases	Sum of Weights	Weighted Proportion	Standard Error
1	1829	1779.464	-0.07851	0.00955

	Lower Bound	Upper Bound	T Test	Prob > |T|
0	0.05924	0.09779	8.21988	0.00000
1	-0.09779	-0.05924	-8.21988	0.00000

	Unweighted Proportion	Bias	Design Effect
0	0.08659	10.28509	1.39688
1	-0.08659	10.28509	1.39688

```
SRCware BBDesign, Fri Feb 28 14:30:06 2025                              1

Setup listing:

 datain c6_ncsr ;
 dataout c6 ncsr bb ;
 stratum sestrat ;
 cluster seclustr ;
 weight ncsrwtsh ;
 csamples 5 ;
 wsamples 5 ;
 seed 2025 ;
run;
```

```
SRCware BBDesign, Fri Feb 28 14:30:15 2025                              1

Results:

Variables               21
Observations          9282
Strata                  42
Clusters                84
Cluster samples          5
Weight samples           5
Syn pop size         92820
```

```
IVEware Setup Checker, Fri Feb 28 14:30:21 2025                                 1

Setup listing:

title Example 6.8: Testing the Independence of MDE and Gender in U.S. Adults
 Using the NCS-R data. ;
 datain c6 ncsr ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 class mde sex ;
 dependent mde ;
 predictor sex ;
run;
```

```
IVEware Jackknife Regression Procedure, Fri Feb 28 14:30:22 2025                1

Example 6.8: Testing the Independence of MDE and Gender in U.S. Adults Using the N

Regression type:        Logistic
Dependent variable:     mde  Major Depressive Episode 1=Yes 0=No
Predictors:             sex  Sex 1=Male 2=Female
Cat. var. ref. codes:   sex  2
                        mde  1
Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtsh  NCSR sample part 1 weight

Valid cases               9282
Sum weights        9282.000152
Replicates                  42

Degr freedom                42

-2 LogLike         8979.023905

Variable              Estimate         Std Error            T Test        Prob > |T|
Intercept            1.2122210         0.0319281          37.96720           0.00000
sex                  0.5161712         0.0693894           7.43876           0.00000

Variable                  Odds             95% Confidence Interval
                         Ratio             Lower             Upper
Intercept
sex                  1.6755999         1.4566482         1.9274627

Variable                Design            SRS             % Diff
                        Effect          Estimate          SRS v Est
Intercept              0.94436         1.1766220          -2.93668
sex                    1.61378         0.5652933           9.51661
```

```
IVEware Setup Checker, Fri Feb 28 14:30:32 2025                                  1

Setup listing:

title "Example 6.10: Simple Logistic Regression to Estimate the NCS-R Male/Female
 Odds Ratio for Lifetime Major Depressive Episode. " ;
 datain c6 ncsr1 ;
 stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
 class mder sex ;
 dependent mder ;
 predictor sex ;
run;
```

```
IVEware Jackknife Regression Procedure, Fri Feb 28 14:30:33 2025                 1

"Example 6.10: Simple Logistic Regression to Estimate the NCS-R Male/Female Odds R

Regression type:        Logistic
Dependent variable:     mder
Predictors:             sex  Sex 1=Male 2=Female
Cat. var. ref. codes:   sex  2
                        mder  2
Stratum variable:       sestrat  SAMPLING ERROR STRATUM
Cluster variable:       seclustr  SAMPLING ERROR CLUSTER
Weight variable:        ncsrwtsh  NCSR sample part 1 weight

Valid cases               9282
Sum weights        9282.000152
Replicates                  42

Degr freedom                42

-2 LogLike         8979.023905

Variable              Estimate         Std Error            T Test        Prob > |T|
Intercept          -1.2122210         0.0319281         -37.96720           0.00000
sex                -0.5161712         0.0693894          -7.43876           0.00000

Variable                  Odds             95% Confidence Interval
                         Ratio             Lower             Upper
Intercept
sex                   0.5968012         0.5188168         0.6865076

Variable                Design            SRS             % Diff
                        Effect          Estimate         SRS v Est
Intercept              0.94436        -1.1766220          -2.93668
sex                    1.61378        -0.5652933           9.51661
```

Example 6.11 CMH Trend not Available in IVEware

```
IVEware Setup Checker, 28FEB25, 14:30:41

Setup listing:
title Example 6.12: A Simple Log-linear Model to Test the Association between Lifetime Major Depression Episode and Sex
;
datain c6_ncsra ;
stratum sestrat ; cluster seclustr ; weight ncsrwtsh ;
proc catmod ;
model mde*sexm=_response_ ;
loglin mde sexm mde*sexm ;
run ;
```

```
IVEware Multiple Imputation Regression, Fri Feb 28 14:31:13 2025                1

Example 6.12: A Simple Log-linear Model to Test the Association between Lifetime M


Valid cases                  9282
Sum weights          9282.000152
Replicates                    42

Degr freedom                  42

-2 LogLike           21829.99861

Variable                Estimate         Std Error            T Test        Prob > |T|
mde 0                  0.7351533         0.0173686          42.32652           0.00000
sexm 0                 0.1228566         0.0116436          10.55145           0.00000
mde*sexm 0 0          -0.1290428         0.0173474          -7.43876           0.00000

Variable                Estimate             95% Confidence Interval
                                             Lower              Upper
mde 0                  0.7351533         0.7001021          0.7702046
sexm 0                 0.1228566         0.0993589          0.1463542
mde*sexm 0 0          -0.1290428        -0.1640511         -0.0940345
```