IVEware Analysis Example Replication C12

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* IVEware Analysis Examples Replication for ASDA 2nd Edition
* Berglund April 2017
* Chapter 12 ;

libname d "P:\asda 2\data sets\nhanes 2011_2012\" ;

*set options and location to call IVEware from SAS session ;
options set=srclib "C:\iveware_15feb2017\sas" sasautos=('!srclib' sasautos) mautosource ;
* system options ;
options nonumber nodate ps=67 ls=119 ;

data c12_nhanes ;
 set d.c12_impute_subset_nhanes1112 ;
 if age18p=1 and wtmec2yr > 0 ;
 if bpxdi1_1 >=90 then high_dbp =1 ; else if . < bpxdi1_1 < 90 then high_dbp=0 ; else high_dbp=. ;
 * reverse coding of class variables to match lowest omitted group of Stata.
   IVEware omits highest category by default and does not allow user to specify omitted group in code ;
  rev_race=6-ridreth1 ;
  rev_gender=3-riagendr ;
  rev_dbp=2-high_dbp ;
run ;

ods rtf style=normalprinter bodytitle ;
title "Examine Missing Data Problem" ;
proc mi nimpute=0 ;
 var bpxdi1_1 bmxbmi indfmpir marcat riagendr ridreth1 agec agecsq wtmec2yr descode ;
run ;

* Complete Case Analyses, use SAS for weighted means without design based SE's ;
title "Weighted Complete Case Analysis for Table 12.3" ;
proc means data=c12_nhanes n nmiss mean ;
 var bpxdi1_1 bmxbmi indfmpir ;
 weight wtmec2yr ;
run ;

title ;
* IVEware DESCRIBE / TABLE analysis of high blood pressure, note: IVEware does not offer a logit option for CI, use default
;
%describe (setup=new, name="Example for Table 12.4" , dir=P:\ASDA 2\Analysis Example Replication\IVEware\IVEware files) ;
 title "CC Analysis Weighted and Design Based SE for High BP, Table 12.4" ;
 datain c12_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 table high_dbp ;
run;

%regress  (setup=new, name="Logistic Regression for Table 12.5 ", dir=P:\ASDA 2\Analysis Example Replication\IVEware\IVEware
files) ;
 title "CC Analysis Logistic Regression for Table 12.5" ;
 datain c12_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 class rev_race rev_gender ;
 dependent rev_dbp ;
 predictor rev_race rev_gender agec agecsq ;
 link logistic ;
run;

* MI Analyses ;
* Method 1: with Design Variables in Imputation Model ;
 data c12_nhanes_m1 ;
  set c12_nhanes ;
  * keep only variables needed for imputation process ;
  keep riagendr ridreth1 agec agecsq wtmec2yr descode bmxbmi marcat indfmpir bpxdi1_1 sdmvstra sdmvpsu  ;
 run ;

* Use IMPUTE module for imputation and analysis of imputed data sets in IVEware ;
%impute (setup=new, name="Example MI with Design Variables in Imputation Models ",
        dir=P:\ASDA 2\Analysis Example Replication\IVEware\IVEware files) ;
  title Method 1 with Design Variables in Models, Numbers for Table 12.5 ;
  datain c12_nhanes_m1 ;
  dataout outimpm1 all ;
  default continuous ;
  transfer sdmvstra sdmvpsu ;
  categorical marcat descode riagendr ridreth1 ;
  bounds bpxdi1_1 (>=10, <=120) indfmpir (>=0, <=5) ;
  multiples 5 ;
```

```
  seed 2016 ;
  iterations 5 ;
run;

data outimpm1 ;
  set outimpm1 ;
   if bpxdi1_1 >=90 then high_dbp =1 ; else if . < bpxdi1_1 < 90 then high_dbp=0 ; else high_dbp=. ;
 * reverse coding of class variables to match lowest omitted group of Stata.
   IVEware omits highest category by default and does not allow user to specify omitted group in code ;
  rev_race=6-ridreth1 ;
  rev_gender=3-riagendr ;
  rev_dbp=2-high_dbp ;
run ;

* Use DESCRIBE to obtain mean by multiple for 3 variables imputed, Numbers for Table 12.3  ;
%describe (setup=new, name="Example MI Method 1 with Design Variable in Models",
        dir=P:\ASDA 2\Analysis Example Replication\IVEware\IVEware files) ;
 title Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)  ;
 datain outimpm1 ;
 by _mult_ ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 mean bmxbmi indfmpir bpxdi1_1 ;
run;

* Use DESCRIBE to analyze and combine results from 5 imputed data sets ;
%describe (setup=new, name="Example MI Method 1 with Design Variable in Models",
        dir=P:\ASDA 2\Analysis Example Replication\IVEware\IVEware files) ;
 title High Blood Pressure, Numbers for Table 12.4 MI method 1 (Design Variable in Model)  ;
 datain outimpm1 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 table high_dbp ;
run;

%regress  (setup=new, name="MI Method 1 with Design Vars Logistic Regression for Table 12.5 ", dir=P:\ASDA 2\Analysis Example
Replication\IVEware\IVEware files) ;
 title "MI Method 1 with Design Vars, Logistic Regression for Table 12.5" ;
 datain outimpm1 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 class rev_race rev_gender ;
 dependent rev_dbp ;
 predictor rev_race rev_gender agec agecsq ;
 link logistic ;
run;

* Method 2 : without Design Variables in Imputation Model ;
 data c12_nhanes_m2 ;
  set c12_nhanes ;
  * keep only variables needed for imputation process, remove descode for this method  ;
  keep riagendr ridreth1 agec agecsq wtmec2yr   bmxbmi marcat indfmpir bpxdi1_1 sdmvstra sdmvpsu  ;
 run ;

* Use IMPUTE module for imputation and analysis of imputed data sets in IVEware ;
%impute (setup=new, name="Example MI without Design Variables in Imputation Models ",
        dir=P:\ASDA 2\Analysis Example Replication\IVEware\IVEware files) ;
  title Method 2 without Design Variables in Models, Numbers for Table 12.5 ;
  datain c12_nhanes_m2 ;
  dataout outimpm2 all ;
  default continuous ;
  transfer sdmvstra sdmvpsu ;
  categorical marcat riagendr ridreth1 ;
  bounds bpxdi1_1 (>=10, <=120) indfmpir (>=0, <=5) ;
  multiples 5 ;
  seed 2016 ;
  iterations 5 ;
run;

data outimpm2 ;
  set outimpm2 ;
   if bpxdi1_1 >=90 then high_dbp =1 ; else if . < bpxdi1_1 < 90 then high_dbp=0 ; else high_dbp=. ;
 * reverse coding of class variables to match lowest omitted group of Stata.
   IVEware omits highest category by default and does not allow user to specify omitted group in code ;
  rev_race=6-ridreth1 ;
  rev_gender=3-riagendr ;
  rev_dbp=2-high_dbp ;
run ;

* Use DESCRIBE to analyze and combine results from 5 imputed data sets ;
```

```
%describe (setup=new, name="Example MI Method 2 without Design Variable in Models",
        dir=P:\ASDA 2\Analysis Example Replication\IVEware\IVEware files) ;
 title High Blood Pressure, Numbers for Table 12.4 MI method 2 (NO Design Variable in Model)  ;
 datain outimpm2 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 table high_dbp ;
run;

%regress  (setup=new, name="MI Method 2 without Design Vars Logistic Regression for Table 12.5 ", dir=P:\ASDA 2\Analysis
Example Replication\IVEware\IVEware files) ;
 title "MI Method 2 without Design Vars, Logistic Regression for Table 12.5" ;
 datain outimpm2 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 class rev_race rev_gender ;
 dependent rev_dbp ;
 predictor rev_race rev_gender agec agecsq ;
 link logistic ;
run;

ods text="No FEFI Available in IVEware" ;

ods rtf close ;
```

Examine Missing Data Problem

The MI Procedure

Model Information	
Data Set	WORK.C12_NHANES
Method	MCMC
Multiple Imputation Chain	Single Chain
Initial Estimates for MCMC	EM Posterior Mode
Start	Starting Value
Prior	Jeffreys
Number of Imputations	0
Number of Burn-in Iterations	200
Number of Iterations	100
Seed for random number generator	589602001

Missing Data Patterns

Group	bpxdi1_1	bmxbmi	indfmpir	marcat	riagendr	ridreth1	agec	agecsq	wtmec2yr	descode	Freq	Percent
1	X	X	X	X	X	X	X	X	X	X	4416	78.65
2	X	X	X	.	X	X	X	X	X	X	230	4.10
3	X	X	.	X	X	X	X	X	X	X	369	6.57
4	X	X	.	.	X	X	X	X	X	X	31	0.55
5	X	.	X	X	X	X	X	X	X	X	48	0.85
6	X	.	X	.	X	X	X	X	X	X	6	0.11
7	X	.	.	X	X	X	X	X	X	X	12	0.21
8	.	X	X	X	X	X	X	X	X	X	386	6.87
9	.	X	X	.	X	X	X	X	X	X	22	0.39
10	.	X	.	X	X	X	X	X	X	X	62	1.10
11	.	X	.	.	X	X	X	X	X	X	9	0.16
12	.	.	X	X	X	X	X	X	X	X	18	0.32
13	.	.	X	.	X	X	X	X	X	X	2	0.04
14	.	.	.	X	X	X	X	X	X	X	4	0.07

Missing Data Patterns

Group	Group Means									
	bpxdi1_1	bmxbmi	indfmpir	marcat	riagendr	ridreth1	agec	agecsq	wtmec2yr	descode
1	71.566123	28.783243	2.444812	1.652400	1.498641	3.303895	2.017802	315.481111	43501	960.012908
2	62.234783	25.503478	1.606304	.	1.473913	3.186957	-27.811681	773.737724	27595	962.830435
3	71.495935	27.984011	.	1.685637	1.463415	3.409214	5.590640	365.713016	31449	960.598916
4	60.516129	25.967742	.	.	1.516129	3.645161	-24.613224	784.324845	26241	959.193548
5	69.458333	.	1.978750	1.687500	1.479167	3.145833	11.874007	456.168680	31873	971.375000
6	49.333333	.	0.561667	.	2.000000	2.833333	-27.688493	766.874858	17700	966.833333
7	66.666667	.	.	1.916667	1.583333	3.333333	12.811507	440.273597	20355	972.500000
8	.	29.594560	2.159689	1.639896	1.621762	3.217617	1.046395	313.345611	40647	959.948187
9	.	28.477273	1.695455	.	1.454545	3.136364	-27.627887	763.498474	29447	961.590909
10	.	27.659677	.	1.419355	1.580645	3.451613	6.967421	323.666696	32778	959.919355
11	.	27.111111	.	.	1.444444	2.333333	-17.021826	710.631456	15863	968.444444
12	.	.	2.062222	1.666667	1.888889	3.666667	5.089285	401.258831	35520	967.111111
13	.	.	0.670000	.	2.000000	4.500000	-27.855160	776.159912	14766	991.500000
14	.	.	.	1.500000	1.250000	3.000000	16.394840	594.478257	18287	921.750000

Weighted Complete Case Analysis for Table 12.3

The MEANS Procedure

Variable	Label	N	N Miss	Mean
bpxdi1_1		5112	503	71.6087722
bmxbmi	Body Mass Index (kg/m**2)	5525	90	28.6232688
indfmpir	Ratio of family income to poverty	5128	487	2.8592364

```
IVEware Setup Checker, Thu May 11 16:49:49 2017                                    1

Setup listing:

 title "CC Analysis Weighted and Design Based SE for High BP, Table 12.4" ;
 datain c12_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 table high_dbp ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:49:50 2017    1

"CC Analysis Weighted and Design Based SE for High BP, Table 12.4"

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:

         4  Variables
        14  Strata
        31  Secus

    Strata  Model
        14  Multiple PSU
         0  Paired Selection
         0  Successive Differences

      5615  Cases Read
```

```
IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:49:50 2017                                    2

"CC Analysis Weighted and Design Based SE for High BP, Table 12.4"

     Problem  1

Degrees of freedom
                          17

         Factor   Covariance of denominator
           None        0.06202

          Table      Number of         Sum of       Weighted       Standard
      high_dbp          Cases        Weights     Proportion          Error
             0           4795  1.998083e+008        0.93918        0.00796
             1            317  1.293962e+007        0.06082        0.00796

                         Lower          Upper         T Test     Prob > |T|
                         Bound          Bound
             0        0.92238        0.95598      117.95128        0.00000
             1        0.04402        0.07762        7.63854        0.00000

                   Unweighted           Bias         Design
                   Proportion                        Effect
             0        0.93799       -0.12666        5.67274
             1        0.06201        1.95590        5.67274
```

```
IVEware Setup Checker, Thu May 11 16:49:50 2017                    1

Setup listing:

 title "CC Analysis Logistic Regression for Table 12.5" ;
 datain c12_nhanes ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 class rev_race rev_gender ;
 dependent rev_dbp ;
 predictor rev_race rev_gender agec agecsq ;
 link logistic ;
run;
```

IVEware Jackknife Regression Procedure, Thu May 11 16:49:51 2017 1

"CC Analysis Logistic Regression for Table 12.5"

Regression type: Logistic
Dependent variable: rev_dbp
Predictors: rev_race
rev_gender
agec
agecsq
Cat. var. ref. codes: rev_race 5
rev_gender 2
rev_dbp 2
Stratum variable: sdmvstra Masked variance pseudo-stratum
Cluster variable: sdmvpsu Masked variance pseudo-PSU
Weight variable: wtmec2yr Full sample 2 year MEC exam weight

Valid cases 5112
Sum weights 212747914.3
Replicates 17

Degr freedom 17

-2 LogLike 93637927.65

Variable	Estimate	Std Error	T Test	Prob > |T|
Intercept	-2.2498852	0.1851925	-12.14890	0.00000
rev_race.1	0.0498803	0.2525815	0.19748	0.84579
rev_race.2	0.6582416	0.2243621	2.93384	0.00927
rev_race.3	0.1312534	0.2386519	0.54998	0.58949
rev_race.4	-0.7256814	0.2344287	-3.09553	0.00657
rev_gender	-0.5467630	0.2226645	-2.45555	0.02513
agec	0.0084599	0.0079280	1.06710	0.30085
agecsq	-0.0016157	0.0003032	-5.32951	0.00006

Variable	Odds Ratio	95% Confidence Interval Lower	Upper
Intercept			
rev_race.1	1.0511452	0.6169174	1.7910117
rev_race.2	1.9313932	1.2030728	3.1006266
rev_race.3	1.1402567	0.6891763	1.8865789
rev_race.4	0.4839947	0.2951467	0.7936760
rev_gender	0.5788204	0.3618433	0.9259067
agec	1.0084958	0.9917675	1.0255063
agecsq	0.9983856	0.9977472	0.9990244

Variable	Design Effect	SRS Estimate	% Diff SRS v Est
Intercept	0.71443	-2.3467126	4.30366
rev_race.1	0.97418	0.2775493	456.43117
rev_race.2	0.93811	0.7530974	14.41049
rev_race.3	1.03234	0.2551449	94.39100
rev_race.4	0.50129	-0.4043647	-44.27793
rev_gender	3.38419	-0.5708307	4.40187
agec	3.69982	0.0140019	65.50856

"CC Analysis Logistic Regression for Table 12.5"

Variable	Design Effect	SRS Estimate	% Diff SRS v Est
agecsq	1.67952	-0.0017603	8.94958

```
IVEware Setup Checker, Thu May 11 16:49:54 2017                                 1

Setup listing:

  title Method 1 with Design Variables in Models, Numbers for Table 12.5 ;
  datain c12_nhanes_m1 ;
  dataout outimpm1 all ;
  default continuous ;
  transfer sdmvstra sdmvpsu ;
  categorical marcat descode riagendr ridreth1 ;
  bounds bpxdi1_1 (>=10, <=120) indfmpir (>=0, <=5) ;
  multiples 5 ;
  seed 2016 ;
  iterations 5 ;
run;
```

```
IVEware Iterative Imputation Procedure, Thu May 11 16:50:02 2017                1

Method 1 with Design Variables in Models, Numbers for Table 12.5

Imputation 1

Variable          Observed           Imputed    Double counted
riagendr              5615                 0                 0
ridreth1              5615                 0                 0
wtmec2yr              5615                 0                 0
indfmpir              5128               487                 0
bmxbmi                5525                90                 0
marcat                5315               300                 0
descode               5615                 0                 0
bpxdi1_1              5112               503                 0
agec                  5615                 0                 0
agecsq                5615                 0                 0

Variable indfmpir
                  Observed           Imputed          Combined
  Number              5128               487              5615
 Minimum                 0         0.0154413                 0
 Maximum                 5           4.99035                 5
    Mean           2.37393           2.50006           2.38487
 Std Dev           1.66622            1.2274           1.63314

Variable bmxbmi
                  Observed           Imputed          Combined
  Number              5525                90              5615
 Minimum              13.4           9.86825           9.86825
 Maximum              82.1           43.0532              82.1
    Mean           28.6177           29.2882           28.6284
 Std Dev           6.92018           7.13963           6.92361

Variable marcat
                  Observed           Imputed          Combined
    Code       Freq    Per       Freq    Per       Freq    Per
       1       2991  56.27         87  29.00       3078  54.82
       2       1183  22.26          3   1.00       1186  21.12
       3       1141  21.47        210  70.00       1351  24.06
   Total       5315 100.00        300 100.00       5615 100.00

Variable bpxdi1_1
                  Observed           Imputed          Combined
  Number              5112               503              5615
 Minimum                10           34.9502                10
 Maximum               120           108.189               120
    Mean           71.0168           72.0131           71.1061
 Std Dev           11.9403           12.1498           11.9615
```

Method 1 with Design Variables in Models, Numbers for Table 12.5

Imputation 2

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
descode	5615	0	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.0301694	0
Maximum	5	4.98011	5
Mean	2.37393	2.49276	2.38423
Std Dev	1.66622	1.16482	1.62912

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	9.09624	9.09624
Maximum	82.1	44.2379	82.1
Mean	28.6177	28.4866	28.6156
Std Dev	6.92018	5.88409	6.90437

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	77	25.67	3068	54.64
2	1183	22.26	8	2.67	1191	21.21
3	1141	21.47	215	71.67	1356	24.15
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	37.5689	10
Maximum	120	105.401	120
Mean	71.0168	71.6962	71.0777
Std Dev	11.9403	12.051	11.9507

IVEware Iterative Imputation Procedure, Thu May 11 16:50:02 2017 3

Method 1 with Design Variables in Models, Numbers for Table 12.5

Imputation 3

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
descode	5615	0	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.00700819	0
Maximum	5	4.97921	5
Mean	2.37393	2.48681	2.38372
Std Dev	1.66622	1.26528	1.63556

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	11.0043	11.0043
Maximum	82.1	45.5745	82.1
Mean	28.6177	28.5465	28.6165
Std Dev	6.92018	7.24301	6.9248

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	78	26.00	3069	54.66
2	1183	22.26	6	2.00	1189	21.18
3	1141	21.47	216	72.00	1357	24.17
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	35.6651	10
Maximum	120	114.769	120
Mean	71.0168	71.4865	71.0589
Std Dev	11.9403	12.6099	12.0014

Method 1 with Design Variables in Models, Numbers for Table 12.5

Imputation 4

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
descode	5615	0	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.00782548	0
Maximum	5	4.96337	5
Mean	2.37393	2.41774	2.37773
Std Dev	1.66622	1.23667	1.6334

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	8.92426	8.92426
Maximum	82.1	43.7886	82.1
Mean	28.6177	28.9998	28.6238
Std Dev	6.92018	5.99381	6.90601

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	75	25.00	3066	54.60
2	1183	22.26	6	2.00	1189	21.18
3	1141	21.47	219	73.00	1360	24.22
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	41.3492	10
Maximum	120	109.157	120
Mean	71.0168	72.3044	71.1322
Std Dev	11.9403	12.0558	11.9553

Method 1 with Design Variables in Models, Numbers for Table 12.5

Imputation 5

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
descode	5615	0	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.00514882	0
Maximum	5	4.98837	5
Mean	2.37393	2.50832	2.38558
Std Dev	1.66622	1.24774	1.63452

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	13.6249	13.4
Maximum	82.1	46.859	82.1
Mean	28.6177	28.8649	28.6216
Std Dev	6.92018	6.16482	6.9083

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	68	22.67	3059	54.48
2	1183	22.26	5	1.67	1188	21.16
3	1141	21.47	227	75.67	1368	24.36
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	31.025	10
Maximum	120	112.425	120
Mean	71.0168	71.1062	71.0248
Std Dev	11.9403	12.7706	12.0159

```
IVEware Setup Checker, Thu May 11 16:50:07 2017                                    1

Setup listing:

 title Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1
 (Design Variable in Model)  ;
 datain outimpm1 ;
 by _mult_ ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 mean bmxbmi indfmpir bpxdi1_1 ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:50:08 2017    1

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable

By variables:           _mult_
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:

         7  Variables
        14  Strata
        31  Secus

    Strata  Model
        14  Multiple PSU
         0  Paired Selection
         0  Successive Differences

     28075  Cases Read
```

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

By Condition
mult
1

Problem 1

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean bmxbmi	Number of Cases	Sum of Weights	Weighted Mean	Standard Error
	5615	2.320025e+008	28.6275	0.2165521

Lower Bound	Upper Bound	T Test	Prob > |T|
28.17061	29.08438	132.19681	0.00000

Unweighted Mean	Bias	Design Effect
28.62841	0.00320	5.86963

By Condition
mult
1

Problem 2

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean indfmpir	Number of Cases	Sum of Weights	Weighted Mean	Standard Error
	5615	2.320025e+008	2.847165	0.1022661

Lower Bound	Upper Bound	T Test	Prob > |T|
2.631403	3.062928	27.84076	0.00000

Unweighted Mean	Bias	Design Effect
2.384865	-16.23720	21.00653

By Condition
mult
1

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

Problem 3

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
bpxdi1_1	Cases	Weights	Mean	Error
	5615	2.320025e+008	71.71603	0.5106929

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
70.63856	72.7935	140.42888	0.00000

Unweighted	Bias	Design
Mean		Effect
71.10607	-0.85051	11.13053

By Condition

mult
2

Problem 4

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
bmxbmi	Cases	Weights	Mean	Error
	5615	2.320025e+008	28.62488	0.2106929

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
28.18036	29.0694	135.86070	0.00000

Unweighted	Bias	Design
Mean		Effect
28.61556	-0.03255	5.58416

By Condition

mult
2

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

Problem 5

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
indfmpir	Cases	Weights	Mean	Error
	5615	2.320025e+008	2.852833	0.1022824

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
2.637036	3.06863	27.89173	0.00000

Unweighted	Bias	Design
Mean		Effect
2.384233	-16.42580	21.18078

By Condition
mult
2

Problem 6

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
bpxdi1_1	Cases	Weights	Mean	Error
	5615	2.320025e+008	71.60925	0.471935

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
70.61356	72.60495	151.73542	0.00000

Unweighted	Bias	Design
Mean		Effect
71.07768	-0.74233	9.45855

By Condition
mult
3

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

Problem 7

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
bmxbmi	Cases	Weights	Mean	Error
	5615	2.320025e+008	28.61818	0.2084342

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
28.17843	29.05794	137.30078	0.00000

Unweighted	Bias	Design
Mean		Effect
28.61653	-0.00579	5.43529

By Condition

mult
3

Problem 8

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
indfmpir	Cases	Weights	Mean	Error
	5615	2.320025e+008	2.847242	0.1031242

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
2.629669	3.064815	27.60984	0.00000

Unweighted	Bias	Design
Mean		Effect
2.383716	-16.27982	21.37862

By Condition

mult
3

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

Problem 9

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of Cases	Sum of Weights	Weighted Mean	Standard Error
bpxdi1_1	5615	2.320025e+008	71.70987	0.5074674

Lower Bound	Upper Bound	T Test	Prob > |T|
70.63921	72.78053	141.30933	0.00000

Unweighted Mean	Bias	Design Effect
71.05889	-0.90779	10.83465

By Condition
mult
4

Problem 10

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of Cases	Sum of Weights	Weighted Mean	Standard Error
bmxbmi	5615	2.320025e+008	28.62195	0.2096277

Lower Bound	Upper Bound	T Test	Prob > |T|
28.17967	29.06422	136.53703	0.00000

Unweighted Mean	Bias	Design Effect
28.62379	0.00644	5.53040

By Condition
mult
4

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

Problem 11

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
indfmpir	Cases	Weights	Mean	Error
	5615	2.320025e+008	2.84486	0.1016688

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
2.630358	3.059362	27.98164	0.00000

Unweighted	Bias	Design
Mean		Effect
2.377726	-16.42029	20.79663

By Condition

mult
4

Problem 12

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
bpxdi1_1	Cases	Weights	Mean	Error
	5615	2.320025e+008	71.61934	0.5071962

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
70.54925	72.68943	141.20636	0.00000

Unweighted	Bias	Design
Mean		Effect
71.13216	-0.68023	10.95244

By Condition

mult
5

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

Problem 13

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
bmxbmi	Cases	Weights	Mean	Error
	5615	2.320025e+008	28.62826	0.212136

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
28.18069	29.07583	134.95239	0.00000

Unweighted	Bias	Design
Mean		Effect
28.62163	-0.02317	5.66285

By Condition
mult
5

Problem 14

Degrees of freedom
17

Factor	Covariance of denominator
None	0.06037

Mean	Number of	Sum of	Weighted	Standard
indfmpir	Cases	Weights	Mean	Error
	5615	2.320025e+008	2.852655	0.1021378

Lower	Upper	T Test	Prob > |T|
Bound	Bound		
2.637163	3.068147	27.92947	0.00000

Unweighted	Bias	Design
Mean		Effect
2.385582	-16.37328	21.00015

By Condition
mult
5

IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:50:08 2017 9

Numbers for 3 Imputed Variables by Multiple, Table 12.3 MI method 1 (Design Variable in Model)

Problem 15

Degrees of freedom

17

Factor	Covariance of denominator
None	0.06037

Mean	Number of Cases	Sum of Weights	Weighted Mean	Standard Error
bpxdi1_1	5615	2.320025e+008	71.59756	0.5198232

Lower Bound	Upper Bound	T Test	Prob > |T|
70.50083	72.69429	137.73445	0.00000

Unweighted Mean	Bias	Design Effect
71.02483	-0.79993	11.34789

```
IVEware Setup Checker, Thu May 11 16:50:09 2017                                    1

Setup listing:

 title High Blood Pressure, Numbers for Table 12.4 MI method 1 (Design Variable
 in Model)  ;
 datain outimpm1 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 table high_dbp ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:50:09 2017    1

High Blood Pressure, Numbers for Table 12.4 MI method 1 (Design Variable in Model)

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:

         4  Variables
        14  Strata
        31  Secus

    Strata  Model
        14  Multiple PSU
         0  Paired Selection
         0  Successive Differences

     28075  Cases Read
```

```
IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:50:09 2017                                    2

High Blood Pressure, Numbers for Table 12.4 MI method 1 (Design Variable in Model)

     Problem  1

Degrees of freedom
                          17

         Factor   Covariance of denominator
           None        0.06037

          Table      Number of         Sum of       Weighted       Standard
      high_dbp          Cases        Weights     Proportion          Error
             0          26321  1.088835e+009        0.93864        0.00758
             1           1754  7.117777e+007        0.06136        0.00758

                        Lower          Upper         T Test     Prob > |T|
                        Bound          Bound
             0        0.92265        0.95463      123.86238        0.00000
             1        0.04537        0.07735        8.09696        0.00000

                   Unweighted           Bias         Design
                   Proportion                        Effect
             0        0.93752       -0.11890       27.99259
             1        0.06248        1.81885       27.99259
```

```
IVEware Setup Checker, Thu May 11 16:50:10 2017                                 1

Setup listing:

 title "MI Method 1 with Design Vars, Logistic Regression for Table 12.5" ;
 datain outimpm1 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 class rev_race rev_gender ;
 dependent rev_dbp ;
 predictor rev_race rev_gender agec agecsq ;
 link logistic ;
run;
```

```
IVEware Jackknife Regression Procedure, Thu May 11 16:50:11 2017                1

"MI Method 1 with Design Vars, Logistic Regression for Table 12.5"

Regression type:        Logistic
Dependent variable:     rev_dbp
Predictors:             rev_race
                        rev_gender
                        agec
                        agecsq
Cat. var. ref. codes:   rev_race  5
                        rev_gender  2
                        rev_dbp  2
Stratum variable:       sdmvstra  Masked variance pseudo-stratum
Cluster variable:       sdmvpsu  Masked variance pseudo-PSU
Weight variable:        wtmec2yr  Full sample 2 year MEC exam weight

Valid cases              28075
Sum weights         1160012695
Replicates                 17

Degr freedom               17

-2 LogLike         512659071.8

Variable              Estimate         Std Error            T Test        Prob > |T|
Intercept            -2.2449412         0.1843422          -12.17812           0.00000
rev_race.1            0.1409756         0.2385482            0.59097           0.56231
rev_race.2            0.6590560         0.2206014            2.98754           0.00827
rev_race.3            0.1709951         0.2255394            0.75816           0.45874
rev_race.4           -0.6198303         0.2209709           -2.80503           0.01218
rev_gender           -0.5528237         0.2125988           -2.60031           0.01867
agec                  0.0093629         0.0072934            1.28376           0.21645
agecsq               -0.0017257         0.0002770           -6.22923           0.00001

Variable                   Odds             95% Confidence Interval
                          Ratio             Lower              Upper
Intercept
rev_race.1            1.1513965         0.6960615          1.9045931
rev_race.2            1.9329668         1.2136442          3.0786293
rev_race.3            1.1864849         0.7372328          1.9095004
rev_race.4            0.5380357         0.3375511          0.8575958
rev_gender            0.5753230         0.3673765          0.9009736
agec                  1.0094069         0.9939934          1.0250594
agecsq                0.9982758         0.9976925          0.9988594

Variable                 Design            SRS             % Diff
                         Effect          Estimate          SRS v Est
Intercept               3.86087        -2.3483848            4.60785
rev_race.1              4.83085         0.3551100          151.89478
rev_race.2              4.94321         0.7541703           14.43189
rev_race.3              5.05547         0.2997473           75.29586
rev_race.4              2.50532        -0.3369218          -45.64289
rev_gender             17.26219        -0.5641468            2.04823
agec                   16.87164         0.0145980           55.91256
```

```
IVEware Jackknife Regression Procedure, Thu May 11 16:50:16 2017                2

"MI Method 1 with Design Vars, Logistic Regression for Table 12.5"

Variable                 Design            SRS             % Diff
                         Effect          Estimate          SRS v Est
agecsq                  7.59452        -0.0018434            6.81885
```

```
IVEware Setup Checker, Thu May 11 16:50:17 2017                                 1

Setup listing:

  title Method 2 without Design Variables in Models, Numbers for Table 12.5 ;
  datain c12_nhanes_m2 ;
  dataout outimpm2 all ;
  default continuous ;
  transfer sdmvstra sdmvpsu ;
  categorical marcat riagendr ridreth1 ;
  bounds bpxdi1_1 (>=10, <=120) indfmpir (>=0, <=5) ;
  multiples 5 ;
  seed 2016 ;
  iterations 5 ;
run;
```

```
IVEware Iterative Imputation Procedure, Thu May 11 16:50:24 2017                1

Method 2 without Design Variables in Models, Numbers for Table 12.5

Imputation 1

Variable          Observed           Imputed    Double counted
riagendr              5615                 0                 0
ridreth1              5615                 0                 0
wtmec2yr              5615                 0                 0
indfmpir              5128               487                 0
bmxbmi                5525                90                 0
marcat                5315               300                 0
bpxdi1_1              5112               503                 0
agec                  5615                 0                 0
agecsq                5615                 0                 0

Variable indfmpir
                  Observed           Imputed          Combined
  Number              5128               487              5615
 Minimum                 0          0.032626                 0
 Maximum                 5           4.93685                 5
    Mean           2.37393           2.42202            2.3781
 Std Dev           1.66622           1.18697           1.63022

Variable bmxbmi
                  Observed           Imputed          Combined
  Number              5525                90              5615
 Minimum              13.4           8.52327           8.52327
 Maximum              82.1           49.6352              82.1
    Mean           28.6177           28.5267           28.6162
 Std Dev           6.92018           7.30523           6.92584

Variable marcat
                  Observed           Imputed          Combined
    Code       Freq    Per       Freq    Per       Freq    Per
       1       2991  56.27         72  24.00       3063  54.55
       2       1183  22.26          4   1.33       1187  21.14
       3       1141  21.47        224  74.67       1365  24.31
   Total       5315 100.00        300 100.00       5615 100.00

Variable bpxdi1_1
                  Observed           Imputed          Combined
  Number              5112               503              5615
 Minimum                10            35.4098                10
 Maximum               120            113.428               120
    Mean           71.0168           70.9421           71.0101
 Std Dev           11.9403           12.4594           11.9866
```

IVEware Iterative Imputation Procedure, Thu May 11 16:50:24 2017 2

Method 2 without Design Variables in Models, Numbers for Table 12.5

Imputation 2

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.010699	0
Maximum	5	4.96541	5
Mean	2.37393	2.31538	2.36885
Std Dev	1.66622	1.25736	1.63481

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	3.11599	3.11599
Maximum	82.1	43.2074	82.1
Mean	28.6177	28.3937	28.6141
Std Dev	6.92018	7.58684	6.93069

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	82	27.33	3073	54.73
2	1183	22.26	5	1.67	1188	21.16
3	1141	21.47	213	71.00	1354	24.11
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	32.7419	10
Maximum	120	111.713	120
Mean	71.0168	69.9168	70.9183
Std Dev	11.9403	12.4536	11.9901

Method 2 without Design Variables in Models, Numbers for Table 12.5

Imputation 3

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.0368445	0
Maximum	5	4.99707	5
Mean	2.37393	2.38845	2.37518
Std Dev	1.66622	1.21403	1.63189

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	11.3713	11.3713
Maximum	82.1	39.5287	82.1
Mean	28.6177	27.9791	28.6074
Std Dev	6.92018	6.04115	6.90696

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	79	26.33	3070	54.67
2	1183	22.26	2	0.67	1185	21.10
3	1141	21.47	219	73.00	1360	24.22
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	36.1256	10
Maximum	120	101.034	120
Mean	71.0168	69.9444	70.9208
Std Dev	11.9403	11.7412	11.9255

Method 2 without Design Variables in Models, Numbers for Table 12.5

Imputation 4

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.0545825	0
Maximum	5	4.99655	5
Mean	2.37393	2.40867	2.37694
Std Dev	1.66622	1.22086	1.63235

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	10.6167	10.6167
Maximum	82.1	44.2962	82.1
Mean	28.6177	29.0727	28.625
Std Dev	6.92018	7.04733	6.92183

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	74	24.67	3065	54.59
2	1183	22.26	6	2.00	1189	21.18
3	1141	21.47	220	73.33	1361	24.24
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	33.2953	10
Maximum	120	101.932	120
Mean	71.0168	70.4069	70.9622
Std Dev	11.9403	11.7659	11.925

Method 2 without Design Variables in Models, Numbers for Table 12.5

Imputation 5

Variable	Observed	Imputed	Double counted
riagendr	5615	0	0
ridreth1	5615	0	0
wtmec2yr	5615	0	0
indfmpir	5128	487	0
bmxbmi	5525	90	0
marcat	5315	300	0
bpxdi1_1	5112	503	0
agec	5615	0	0
agecsq	5615	0	0

Variable indfmpir

	Observed	Imputed	Combined
Number	5128	487	5615
Minimum	0	0.0130819	0
Maximum	5	4.92415	5
Mean	2.37393	2.37894	2.37436
Std Dev	1.66622	1.23398	1.63318

Variable bmxbmi

	Observed	Imputed	Combined
Number	5525	90	5615
Minimum	13.4	11.2722	11.2722
Maximum	82.1	44.003	82.1
Mean	28.6177	28.3713	28.6137
Std Dev	6.92018	6.20574	6.90888

Variable marcat

	Observed		Imputed		Combined	
Code	Freq	Per	Freq	Per	Freq	Per
1	2991	56.27	80	26.67	3071	54.69
2	1183	22.26	5	1.67	1188	21.16
3	1141	21.47	215	71.67	1356	24.15
Total	5315	100.00	300	100.00	5615	100.00

Variable bpxdi1_1

	Observed	Imputed	Combined
Number	5112	503	5615
Minimum	10	30.0288	10
Maximum	120	118.165	120
Mean	71.0168	71.2004	71.0333
Std Dev	11.9403	12.2105	11.9638

```
IVEware Setup Checker, Thu May 11 16:50:30 2017                                  1

Setup listing:

 title High Blood Pressure, Numbers for Table 12.4 MI method 2 (NO Design
 Variable in Model)  ;
 datain outimpm2 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 table high_dbp ;
run;
```

```
IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:50:30 2017    1

High Blood Pressure, Numbers for Table 12.4 MI method 2 (NO Design Variable in Model

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:

         4  Variables
        14  Strata
        31  Secus

    Strata  Model
        14  Multiple PSU
         0  Paired Selection
         0  Successive Differences

     28075  Cases Read
```

```
IVEware Design-Based Descriptive Statistics Procedure, Thu May 11 16:50:30 2017                                  2

High Blood Pressure, Numbers for Table 12.4 MI method 2 (NO Design Variable in Model)

     Problem  1

Degrees of freedom
                          17

         Factor   Covariance of denominator
           None        0.06037

          Table      Number of         Sum of       Weighted       Standard
      high_dbp          Cases        Weights     Proportion          Error
             0          26345  1.089829e+009        0.93950        0.00731
             1           1730  7.018384e+007        0.06050        0.00731

                        Lower          Upper         T Test     Prob > |T|
                        Bound          Bound
             0        0.92407        0.95492      128.48204        0.00000
             1        0.04508        0.07593        8.27411        0.00000

                   Unweighted           Bias         Design
                   Proportion                        Effect
             0        0.93838       -0.11900       26.40831
             1        0.06162        1.84787       26.40831
```

```
IVEware Setup Checker, Thu May 11 16:50:31 2017                                 1

Setup listing:

 title "MI Method 2 without Design Vars, Logistic Regression for Table 12.5" ;
 datain outimpm2 ;
 stratum sdmvstra ; cluster sdmvpsu ; weight wtmec2yr ;
 class rev_race rev_gender ;
 dependent rev_dbp ;
 predictor rev_race rev_gender agec agecsq ;
 link logistic ;
run;
```

```
IVEware Jackknife Regression Procedure, Thu May 11 16:50:31 2017                1

"MI Method 2 without Design Vars, Logistic Regression for Table 12.5"

Regression type:        Logistic
Dependent variable:     rev_dbp
Predictors:             rev_race
                        rev_gender
                        agec
                        agecsq
Cat. var. ref. codes:   rev_race  5
                        rev_gender  2
                        rev_dbp  2
Stratum variable:       sdmvstra  Masked variance pseudo-stratum
Cluster variable:       sdmvpsu  Masked variance pseudo-PSU
Weight variable:        wtmec2yr  Full sample 2 year MEC exam weight

Valid cases              28075
Sum weights         1160012695
Replicates                 17

Degr freedom               17

-2 LogLike          507637784.9

Variable              Estimate         Std Error            T Test        Prob > |T|
Intercept           -2.1781243         0.1687071         -12.91069           0.00000
rev_race.1           0.0044023         0.2165026           0.02033           0.98401
rev_race.2           0.5939946         0.2144136           2.77032           0.01310
rev_race.3           0.0769777         0.2210660           0.34821           0.73196
rev_race.4          -0.7188328         0.2112862          -3.40218           0.00339
rev_gender          -0.5628732         0.2009012          -2.80174           0.01226
agec                 0.0093385         0.0070922           1.31672           0.20541
agecsq              -0.0016865         0.0002912          -5.79239           0.00002

Variable                  Odds             95% Confidence Interval
                         Ratio             Lower              Upper
Intercept
rev_race.1           1.0044120         0.6361134         1.5859489
rev_race.2           1.8112090         1.1521402         2.8472905
rev_race.3           1.0800180         0.6774423         1.7218276
rev_race.4           0.4873207         0.3120450         0.7610488
rev_gender           0.5695702         0.3727908         0.8702205
agec                 1.0093822         0.9943909         1.0245995
agecsq               0.9983149         0.9977019         0.9989284

Variable                Design             SRS              % Diff
                        Effect           Estimate          SRS v Est
Intercept              3.41993        -2.2819725            4.76778
rev_race.1             4.06901         0.2120586         4717.04098
rev_race.2             4.91530         0.6824068           14.88434
rev_race.3             5.08085         0.1984507          157.80284
rev_race.4             2.33492        -0.4217491          -41.32862
rev_gender            15.20044        -0.5703297            1.32472
agec                  15.80973         0.0150669           61.34213
```

```
IVEware Jackknife Regression Procedure, Thu May 11 16:50:37 2017                2

"MI Method 2 without Design Vars, Logistic Regression for Table 12.5"

Variable                Design             SRS              % Diff
                        Effect           Estimate          SRS v Est
agecsq                 8.37924        -0.0018071            7.15228
```

No FEFI Available in IVEware