

```
-----
name: <unnamed>
log: D:\Jason\workshop\Stata workshop\Stata presentation\stata presentation5_part2.log
log type: text
opened on: 26 Jun 2023, 10:40:05
```

```
.
. *****
. * A more complex example of using results of three regressions to
. * create a customized tables
. *****
```

```
. webuse nhanes21, clear
(Second National Health and Nutrition Examination Survey)
```

```
. collect clear

. collect create MyModels
(current collection is MyModels)
```

```
. *****
. * Get the statistics from the regressin
. *****
```

```
. *****
. * First Regression Model
. *****

. collect, name(MyModels): logistic heartatk c.age i.sex
```

```
Logistic regression                Number of obs = 10,349
                                   LR chi2(2)      = 607.59
                                   Prob > chi2     = 0.0000
Log likelihood = -1626.8003         Pseudo R2    = 0.1574
```

heartatk	Odds ratio	Std. err.	z	P> z	[95% conf. interval]
age	1.089351	.0053118	17.55	0.000	1.078989 1.099811
sex					
Female	.40225	.041006	-8.93	0.000	.3293997 .4912121
_cons	.0005532	.0001726	-24.04	0.000	.0003002 .0010195

Note: \_cons estimates baseline odds.

```
.
. collect _r_b_r_se,          ///
> name(MyModels)           ///
> tag(model[(1)])          ///
> : logistic heartatk c.age i.sex
```

```
Logistic regression                Number of obs = 10,349
                                   LR chi2(2)      = 607.59
                                   Prob > chi2     = 0.0000
Log likelihood = -1626.8003         Pseudo R2    = 0.1574
```

heartatk	Odds ratio	Std. err.	z	P> z	[95% conf. interval]
age	1.089351	.0053118	17.55	0.000	1.078989 1.099811
sex					

```

Female | .40225 .041006 -8.93 0.000 .3293997 .4912121
_cons | .0005532 .0001726 -24.04 0.000 .0003002 .0010195
-----

```

Note: \_cons estimates baseline odds.

```

.
.
. collect layout (colname#result) (model[(1)]), name(MyModels)

```

```

Collection: MyModels
Rows: colname#result
Columns: model[(1)]
Table 1: 12 x 1

```

```

-----
| (1)
-----+-----
Age (years) |
Coefficient | 1.089351
Std. error | .0053118
Male |
Coefficient | 1
Std. error | 0
Female |
Coefficient | .40225
Std. error | .041006
Intercept |
Coefficient | .0005532
Std. error | .0001726
-----

```

```

.
.
. collect dims

```

```

Collection dimensions
Collection: MyModels

```

```

-----
Dimension No. levels
-----+-----
Layout, style, header, label
cmdset 2
coleq 1
colname 8
colname_remainder 1
model 1
program_class 1
result 44
result_type 3
rowname 1
sex 2

Style only
border_block 4
cell_type 4
-----

```

```

. collect levelsof result

```

```

Collection: MyModels
Dimension: result

```

```

Levels: N N_cdf N_cds _r_b _r_ci _r_df _r_lb _r_p _r_se _r_ub _r_z _r_z_abs chi2 chi2type cmd cmdline converged depvar df_m estat_cmd ic k k_dv k_eq k_eq
marginsnotok marginsok ml_method mns opt p predict properties r2_p rank rc rules technique title user vce which

```

```

. collect layout (result), name(MyModels)

```

Collection: MyModels  
Rows: result

Your layout specification does not uniquely match any items. Dimension colname might help uniquely match items.

. collect levelsof colname

Collection: MyModels  
Dimension: colname  
Levels: age 1.sex 2.sex c1 c2 c3 c4 \_cons

. collect layout (colname) (result), name(MyModels)

Collection: MyModels  
Rows: colname  
Columns: result  
Table 1: 4 x 2

```
-----  
| Coefficient Std. error  
-----+-----  
Age (years) |    1.089351   .0053118  
Male        |             1         0  
Female      |     .40225    .041006  
Intercept   |     .0005532   .0001726  
-----
```

. collect layout (colname#result) (), name(MyModels)

Collection: MyModels  
Rows: colname#result  
Table 1: 12 x 1

```
-----  
Age (years) |  
Coefficient | 1.089351  
Std. error | .0053118  
Male       |  
Coefficient | 1  
Std. error | 0  
Female     |  
Coefficient | .40225  
Std. error | .041006  
Intercept  |  
Coefficient | .0005532  
Std. error | .0001726  
-----
```

. collect levelsof model

Collection: MyModels  
Dimension: model  
Levels: (1)

. collect layout (colname#result) (model[(1)]), name(MyModels)

Collection: MyModels  
Rows: colname#result  
Columns: model[(1)]  
Table 1: 12 x 1

```
-----  
| (1)  
-----+-----  
Age (years) |  
Coefficient | 1.089351
```

```

Std. error | .0053118
Male      |
Coefficient |      1
Std. error |      0
Female    |
Coefficient |  .40225
Std. error |  .041006
Intercept |
Coefficient |  .0005532
Std. error |  .0001726
-----

```

```

.
.
. estat ic

```

Akaike's information criterion and Bayesian information criterion

```

-----
Model |      N  ll(null)  ll(model)  df      AIC      BIC
-----+-----
. |  10,349 -1930.594  -1626.8    3  3259.601  3281.334
-----

```

Note: BIC uses N = number of observations. See [R] IC note.

```

. return list

```

```

matrices:
      r(S) : 1 x 6

```

```

. matlist r(S)
-----
      |      N      ll      ll      df      AIC      BIC
-----+-----
. |  10349 -1930.594  -1626.8    3  3259.601  3281.334
-----

```

```

. display r(S)[1,"BIC"]
3281.3345

```

```

.
.
.
. collect AIC=r(S)[1,"AIC"]    ///
>       BIC=r(S)[1,"BIC"],    ///
>       name(MyModels)        ///
>       tag(model[(1)])        ///
>       : estat ic

```

Akaike's information criterion and Bayesian information criterion

```

-----
Model |      N  ll(null)  ll(model)  df      AIC      BIC
-----+-----
. |  10,349 -1930.594  -1626.8    3  3259.601  3281.334
-----

```

Note: BIC uses N = number of observations. See [R] IC note.

```

.
.
. collect layout (colname#result result[AIC BIC]) (model[(1)]), name(MyModels)

```

```

Collection: MyModels
Rows: colname#result result[AIC BIC]
Columns: model[(1)]
Table 1: 14 x 1

```

```

-----
|          (1)
-----+-----
Age (years) |
  Coefficient | 1.089351
  Std. error  | .0053118
Male         |
  Coefficient |          1
  Std. error  |          0
Female      |
  Coefficient | .40225
  Std. error  | .041006
Intercept   |
  Coefficient | .0005532
  Std. error  | .0001726
AIC         | 3259.601
BIC         | 3281.334
-----

```

```

.
.
.
. *****
. * Add a second model
. *****
.
. collect _r_b_r_se,          ///
>       name(MyModels)      ///
>       tag(model[(2)])     ///
>       : logistic heartatk c.age##i.sex

```

```

Logistic regression                               Number of obs = 10,349
                                                LR chi2(3)      = 608.84
                                                Prob > chi2    = 0.0000
Log likelihood = -1626.1712                    Pseudo R2     = 0.1577

```

```

-----
heartatk | Odds ratio   Std. err.      z    P>|z|    [95% conf. interval]
-----+-----
      age |    1.093746   .0067593    14.50  0.000    1.080578   1.107075
      sex |
Female   |    .8265962   .5310503    -0.30  0.767    .234658   2.911733
sex#c.age |
Female   |    .9886812   .0099386    -1.13  0.257    .9693925   1.008354
      _cons |    .0004293   .0001694   -19.64  0.000    .0001981   .0009306
-----

```

Note: \_cons estimates baseline odds.

```

. collect AIC=r(S) [1,"AIC"]          ///
>       BIC=r(S) [1,"BIC"],          ///
>       name(MyModels)              ///
>       tag(model[(2)])             ///
>       : estat ic

```

Akaike's information criterion and Bayesian information criterion

```

-----
Model |          N   ll(null)  ll(model)    df      AIC      BIC
-----+-----
. |    10,349  -1930.594  -1626.171     4   3260.342  3289.321
-----

```

Note: BIC uses N = number of observations. See [R] IC note.

```
.
.
. collect layout (colname#result result[AIC BIC]) (model), name(MyModels)
```

```
Collection: MyModels
  Rows: colname#result result[AIC BIC]
  Columns: model
  Table 1: 20 x 2
```

	(1)	(2)
Age (years)		
Coefficient	1.089351	1.093746
Std. error	.0053118	.0067593
Male		
Coefficient	1	1
Std. error	0	0
Female		
Coefficient	.40225	.8265962
Std. error	.041006	.5310503
Male # Age (years)		
Coefficient		1
Std. error		0
Female # Age (years)		
Coefficient		.9886812
Std. error		.0099386
Intercept		
Coefficient	.0005532	.0004293
Std. error	.0001726	.0001694
AIC	3259.601	3260.342
BIC	3281.334	3289.321

```
.
. collect preview
```

	(1)	(2)
Age (years)		
Coefficient	1.089351	1.093746
Std. error	.0053118	.0067593
Male		
Coefficient	1	1
Std. error	0	0
Female		
Coefficient	.40225	.8265962
Std. error	.041006	.5310503
Male # Age (years)		
Coefficient		1
Std. error		0
Female # Age (years)		
Coefficient		.9886812
Std. error		.0099386
Intercept		
Coefficient	.0005532	.0004293
Std. error	.0001726	.0001694
AIC	3259.601	3260.342
BIC	3281.334	3289.321

```
.
.
. *****
. * Add a third model
. *****
.
```

```

.
.
. collect _r_b_r_se,          ///
> name(MyModels)           ///
> tag(model[(3)])         ///
> : logistic heartatk c.age##i.sex i.diabetes

```

```

Logistic regression                               Number of obs = 10,349
                                                  LR chi2(4)      = 623.87
                                                  Prob > chi2    = 0.0000
Log likelihood = -1618.66                       Pseudo R2      = 0.1616

```

heartatk	Odds ratio	Std. err.	z	P> z	[95% conf. interval]	
age	1.091482	.0067544	14.15	0.000	1.078323	1.104801
sex						
Female	.8077041	.5178643	-0.33	0.739	.229879	2.837954
sex#c.age						
Female	.988949	.0099235	-1.11	0.268	.9696894	1.008591
diabetes						
Diabetic	1.839065	.2749373	4.08	0.000	1.371968	2.46519
_cons	.0004607	.0001815	-19.51	0.000	.0002129	.000997

Note: \_cons estimates baseline odds.

```

. collect AIC=r(S) [1,"AIC"]          ///
> BIC=r(S) [1,"BIC"],                ///
> name(MyModels)                     ///
> tag(model[(3)])                     ///
> : estat ic

```

Akaike's information criterion and Bayesian information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
.	10,349	-1930.594	-1618.66	5	3247.32	3283.543

Note: BIC uses N = number of observations. See [R] IC note.

```

.
. collect layout (colname#result result[AIC BIC]) (model), name(MyModels)

```

```

Collection: MyModels
Rows: colname#result result[AIC BIC]
Columns: model
Table 1: 26 x 3

```

	(1)	(2)	(3)
Age (years)			
Coefficient	1.089351	1.093746	1.091482
Std. error	.0053118	.0067593	.0067544
Male			
Coefficient	1	1	1
Std. error	0	0	0
Female			
Coefficient	.40225	.8265962	.8077041
Std. error	.041006	.5310503	.5178643

```

Male # Age (years) |
Coefficient         |           1           1
Std. error         |           0           0
Female # Age (years) |
Coefficient         |      .9886812   .988949
Std. error         |      .0099386   .0099235
Not diabetic       |
Coefficient         |                               1
Std. error         |                               0
Diabetic           |
Coefficient         |           1.839065
Std. error         |           .2749373
Intercept          |
Coefficient         |   .0005532   .0004293   .0004607
Std. error         |   .0001726   .0001694   .0001815
AIC                 |  3259.601  3260.342   3247.32
BIC                 |  3281.334  3289.321   3283.543
-----

```

```

.
.
.   *****
.   * Use collect style to format the table
.   *****
.
. // TURN OFF BASE LEVELS FOR FACTOR VARIABLES
. collect style showbase off

. // CHANGE THE INTERACTION DELIMITER
. collect style row stack, spacer delimiter(" x ")

. // REMOVE THE VERTICAL LINE
. collect style cell border_block, border(right, pattern(nil))

. // FORMAT THE NUMBERS
. collect style cell, nformat(%5.2f)

. collect style cell result[AIC BIC], nformat(%8.0f)

. // PUT PARENTHESES AROUND THE STANDARD ERRORS
. collect style cell result[_r_se], sformat("(%s)")

. // LABEL AIC AND BIC
. collect style header result[AIC BIC], level(label)

.
.
. collect preview

```

```

-----
              (1)   (2)   (3)
-----
Age (years)
Coefficient      1.09   1.09   1.09
Std. error      (0.01) (0.01) (0.01)

Female
Coefficient      0.40   0.83   0.81
Std. error      (0.04) (0.53) (0.52)

Female x Age (years)
Coefficient              0.99   0.99
Std. error              (0.01) (0.01)

Diabetic
Coefficient              1.84
Std. error              (0.27)

```



```
Intercept
  Coefficient      0.00  0.00  0.00
  Std. error      (0.00) (0.00) (0.00)

AIC                3260   3260   3247

BIC                3281   3289   3284
```

```
-----
.
.
. *****
. *use the collect style cell option halign() to center the items and column headers in the table.
. *****
. . collect style cell cell_type[item column-header], halign(center)

.
. . collect preview
```

```
-----
              (1)   (2)   (3)
-----
Age (years)
  Coefficient      1.09   1.09   1.09
  Std. error      (0.01) (0.01) (0.01)

Female
  Coefficient      0.40   0.83   0.81
  Std. error      (0.04) (0.53) (0.52)

Female x Age (years)
  Coefficient              0.99   0.99
  Std. error              (0.01) (0.01)

Diabetic
  Coefficient              1.84
  Std. error              (0.27)

Intercept
  Coefficient      0.00   0.00   0.00
  Std. error      (0.00) (0.00) (0.00)

AIC                3260   3260   3247

BIC                3281   3289   3284
```

```
-----
.
. *****
. * use the collect style header option level() to hide the labels for the row dimension result.
. *****
.
. collect style header result, level(hide)

. collect preview
```

```
-----
              (1)   (2)   (3)
-----
Age (years)
  1.09   1.09   1.09
 (0.01) (0.01) (0.01)

Female
  0.40   0.83   0.81
 (0.04) (0.53) (0.52)

Female x Age (years)
              0.99   0.99
```

(0.01) (0.01)

Diabetic		1.84	
		(0.27)	
Intercept	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
AIC	3260	3260	3247
BIC	3281	3289	3284

-----

```
.
. *****
. *the collect style column option extraspace to add an extra space between the columns.
. *****
. collect style column, extraspace(1)
.
. *****
. * Export the table to an Adobe PDF document
. *****
. putpdf clear
.
. putpdf begin
.
. putpdf paragraph, font("Calibri Light",26) halign(center)
.
. putpdf text ("Hypertension in the United States")
.
. putpdf paragraph, font("Calibri Light",14) halign(left)
.
. putpdf text ("The National Health and Nutrition Examination Survey (NHANES)")
.
. putpdf paragraph
.
. putpdf text ("Hypertension is a major cause of morbidity and mortality in ")
.
. putpdf text ("the United States. This report will explore the predictors ")
.
. putpdf text ("of hypertension using the NHANES dataset.")
.
. collect style putpdf, width(60%) indent(1 in)
> title("Table 3: Logistic Regression Models for Hypertension Status")
> note("Note: Odds ratio (standard error)")
.
. putpdf collect
(collection MyModels posted to putpdf)
.
. putpdf save MyTable3.pdf, replace
successfully created "C:/Users/wuh/Documents/MyTable3.pdf"
.
. *****
. * save the label, style, and collection
. *****
. collect style save "c:\ado\personal\MyLogitStyle", replace
(style from MyModels saved to file c:\ado\personal\MyLogitStyle.stjson)
.
. collect label save "c:\ado\personal\MyLogitLabels", replace
(labels from MyModels saved to file c:\ado\personal\MyLogitLabels.stjson)
.
.
```

```
. *****
. * Apply the saved table label and style to other analyses
. *****
```

```
. webuse lbw, clear
(Hosmer & Lemeshow data)
```

```
. describe low age smoke ht
```

Variable name	Storage type	Display format	Value label	Variable label
low	byte	%8.0g		Birthweight<2500g
age	byte	%8.0g		Age of mother
smoke	byte	%9.0g	smoke	Smoked during pregnancy
ht	byte	%8.0g		Has history of hypertension

```
.
. table () (command result), command(_r_b _r_se _r_z _r_p _r_ci ///
> : logistic low c.age##i.smoke ht) ///
> style(MyLogitStyle, override) label(MyLogitLabels)
```

```
-----
logistic low c.age##i.smoke ht
-----
```

Age (years)	0.92	(0.04)	-1.85	0.06	0.84	1.01
Smoker	0.36	(0.56)	-0.66	0.51	0.02	7.37
Smoker x Age (years)	1.08	(0.07)	1.14	0.25	0.95	1.23
Has history of hypertension	3.47	(2.15)	2.00	0.05	1.02	11.72
Intercept	2.16	(2.27)	0.73	0.46	0.28	16.90

```
-----
```

```
.
. *****
. * customize the label of column
. *****
```

```
. collect label list colname, all
```

```
Collection: Table
Dimension: colname
Label: Covariate names and column names
Level labels:
  _cons Intercept
  _hide
  age Age (years)
  c1
  c2
  c3
  c4
  diabetes Diabetes status
  ht Has history of hypertension
  sex Sex
  smoke Smoked during pregnancy
```

```
. collect label levels colname age "Age", modify
```

```
. collect label levels colname ht "Hypertension", modify
```

```
. collect label levels colname smoke "Smoke", modify
```

```
.
```

```
. collect preview
```

```
-----  
logistic low c.age##i.smoke ht  
-----
```

Age	0.92	(0.04)	-1.85	0.06	0.84	1.01
Smoker	0.36	(0.56)	-0.66	0.51	0.02	7.37
Smoker x Age	1.08	(0.07)	1.14	0.25	0.95	1.23
Hypertension	3.47	(2.15)	2.00	0.05	1.02	11.72
Intercept	2.16	(2.27)	0.73	0.46	0.28	16.90

```
-----
```

```
.  
. log close  
  name: <unnamed>  
  log: D:\Jason\workshop\Stata workshop\Stata presentation\stata presentation5_part2.log  
  log type: text  
  closed on: 26 Jun 2023, 10:40:06  
-----
```