User: HW1 Output

```
      name:  <unnamed>
       log:  C:\Users\kwnabors\Desktop\HW1 Output.smcl
  log type:  smcl
 opened on:   7 Apr 2022, 16:58:53

 1 . do "C:\Users\kwnabors\Desktop\HW1.do"

 2 . clear

 3 .
 4 . cd C:\Users\kwnabors\desktop
   C:\Users\kwnabors\Desktop

 5 .
 6 . ssc install estout
   checking estout consistency and verifying not already installed...
   all files already exist and are up to date.

 7 .
 8 .
 9 . use WAGE1.DTA

10 . *opens WAGE1 data set
11 .
12 . summarize wage educ

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
        wage |        526    5.896103    3.693086        .53      24.98
        educ |        526    12.56274    2.769022          0         18

13 . * calculates mean and standard devatation for both wage and educ
14 .
15 . hist wage, name(wagehist)
   (bin=22, start=.52999997, width=1.1113636)

16 . *draws a histogram for wage
17 .
18 . hist educ, name(educhist)
   (bin=22, start=0, width=.81818182)

19 . *draws a histogram for educ
20 .
21 . scatter wage educ, name(scatterwageeduc)

22 . *creates a scatterplot with educ as the x-axis and wage as the y-axis
23 .
24 . mean wage if educ<=12

   Mean estimation                           Number of obs = 314

--------------------------------------------------------------
             |       Mean   Std. err.      [95% conf. interval]
-------------+------------------------------------------------
        wage |   4.885701   .1583978       4.574042     5.19736
--------------------------------------------------------------
```

```
25 . *calculates wage if deducation is also less than or equal to 12
26 .
27 . ttest educ == 11, level(95)

One-sample t test
```

Variable	Obs	Mean	Std. err.	Std. dev.	[95% conf.	interval]
educ	**526**	**12.56274**	**.1207351**	**2.769022**	**12.32555**	**12.79992**

```
    mean = mean(educ)                                             t =  12.9435
H0: mean = 11                                     Degrees of freedom =      525

    Ha: mean < 11               Ha: mean != 11                 Ha: mean > 11
 Pr(T < t) = 1.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 0.0000

28 . *Fail to reject the null hypothsis
29 .
30 . gen log_wage =log(wage)

31 . *creates a new variable that is the log of wage
32 .
33 . gen diff = lwage - log_wage

34 .
35 . summarize diff
```

Variable	Obs	Mean	Std. dev.	Min	Max
diff	**526**	**0**	**0**	**0**	**0**

```
36 .
37 . clear

38 . sysuse auto
(1978 automobile data)

39 . reg mpg weight foreign
```

Source	SS	df	MS		
				Number of obs	= **74**
				F(2, 71)	= **69.75**
Model	**1619.2877**	**2**	**809.643849**	Prob > F	= **0.0000**
Residual	**824.171761**	**71**	**11.608053**	R-squared	= **0.6627**
				Adj R-squared	= **0.6532**
Total	**2443.45946**	**73**	**33.4720474**	Root MSE	= **3.4071**

mpg	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
weight	**-.0065879**	**.0006371**	**-10.34**	**0.000**	**-.0078583**	**-.0053175**
foreign	**-1.650029**	**1.075994**	**-1.53**	**0.130**	**-3.7955**	**.4954422**
_cons	**41.6797**	**2.165547**	**19.25**	**0.000**	**37.36172**	**45.99768**

```
40 .
```

```
41 . reg mpg foreign
```

Source	SS	df	MS	Number of obs	=	74
				F(1, 72)	=	13.18
Model	378.153515	1	378.153515	Prob > F	=	0.0005
Residual	2065.30594	72	28.6848048	R-squared	=	0.1548
				Adj R-squared	=	0.1430
Total	2443.45946	73	33.4720474	Root MSE	=	5.3558

mpg	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
foreign	4.945804	1.362162	3.63	0.001	2.230384	7.661225
_cons	19.82692	.7427186	26.70	0.000	18.34634	21.30751

```
42 . est sto m1

43 . reg mpg foreign weight
```

Source	SS	df	MS	Number of obs	=	74
				F(2, 71)	=	69.75
Model	1619.2877	2	809.643849	Prob > F	=	0.0000
Residual	824.171761	71	11.608053	R-squared	=	0.6627
				Adj R-squared	=	0.6532
Total	2443.45946	73	33.4720474	Root MSE	=	3.4071

mpg	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
foreign	-1.650029	1.075994	-1.53	0.130	-3.7955	.4954422
weight	-.0065879	.0006371	-10.34	0.000	-.0078583	-.0053175
_cons	41.6797	2.165547	19.25	0.000	37.36172	45.99768

```
44 . est sto m2

45 . reg mpg foreign weight displacement gear_ratio
```

Source	SS	df	MS	Number of obs	=	74
				F(4, 69)	=	34.94
Model	1635.80554	4	408.951386	Prob > F	=	0.0000
Residual	807.653917	69	11.7051292	R-squared	=	0.6695
				Adj R-squared	=	0.6503
Total	2443.45946	73	33.4720474	Root MSE	=	3.4213

mpg	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
foreign	-2.246035	1.239644	-1.81	0.074	-4.719056	.2269861
weight	-.006752	.0011636	-5.80	0.000	-.0090733	-.0044307
displacement	.0082467	.011398	0.72	0.472	-.0144917	.0309852
gear_ratio	2.057582	1.755167	1.17	0.245	-1.443881	5.559045
_cons	34.52195	6.674547	5.17	0.000	21.2066	47.83731

```
46 . est sto m3

47 .
48 .
49 .
50 . *star(* 0.05 ** 0.01 *** 0.001)
51 . esttab m1 m2 m3, p star(+ 0.1 * 0.05 ** 0.01)
```

	(1) mpg	(2) mpg	(3) mpg
foreign	**4.946****	**-1.650**	**-2.246+**
	(**0.001**)	(**0.130**)	(**0.074**)
weight		**-0.00659****	**-0.00675****
		(**0.000**)	(**0.000**)
displacement			**0.00825**
			(**0.472**)
gear_ratio			**2.058**
			(**0.245**)
_cons	**19.83****	**41.68****	**34.52****
	(**0.000**)	(**0.000**)	(**0.000**)
N	**74**	**74**	**74**

p-values in parentheses
+ p<0.1, * p<0.05, ** p<0.01

```
52 .
53 . clear

54 . set obs 100000
   Number of observations (_N) was 0, now 100,000.

55 . gen x=rnormal(2,4)

56 . hist x, name(histnormal)
   (bin=50, start=-15.873209, width=.70366436)

57 .
58 . clear

59 . set obs 100000
   Number of observations (_N) was 0, now 100,000.

60 . gen x=rchi2(5)

61 . hist x, name(histrchi2)
   (bin=50, start=.0262338, width=.56077198)

62 .
```

```
63 . clear

64 . set obs 100000
   Number of observations (_N) was 0, now 100,000.

65 . gen x=rt(10)

66 . hist x, name(ttest)
   (bin=50, start=-7.2048969, width=.29073382)

67 .
68 . clear

69 . set obs 100000
   Number of observations (_N) was 0, now 100,000.

70 . gen x = (rchi2(3)/3)/(rchi2(100)/100)

71 . hist x,name(histftest)
   (bin=50, start=.00067209, width=.18728688)

72 .
73 .
74 .
75 .
76 .
77 .
   end of do-file

78 . log close
       name:  <unnamed>
        log:  C:\Users\kwnabors\Desktop\HW1 Output.smcl
     log type:  smcl
    closed on:   7 Apr 2022, 16:59:12
```