```
──────────────────────────────────────────────────────────────────────
      name:  <unnamed>
       log:  /Volumes/GoogleDrive/내 드라이브/TA work/Fall 2022 – Intro to Eco
  > nometrics/Recitation/Recitation 1/demo/log_demo.smcl
  log type:  smcl
 opened on:  15 Sep 2022, 13:53:01
```

```
1 .
2 . ** Summary statistics
3 . summarize /*show summary stats for all variables*/
```

Variable	Obs	Mean	Std. dev.	Min	Max
make	0				
price	74	6165.257	2949.496	3291	15906
mpg	74	21.2973	5.785503	12	41
rep78	69	3.405797	.9899323	1	5
headroom	74	2.993243	.8459948	1.5	5
trunk	74	13.75676	4.277404	5	23
weight	74	3019.459	777.1936	1760	4840
length	74	187.9324	22.26634	142	233
turn	74	39.64865	4.399354	31	51
displacement	74	197.2973	91.83722	79	425
gear_ratio	74	3.014865	.4562871	2.19	3.89
foreign	74	.2972973	.4601885	0	1

```
4 . summarize price /*for just one variable*/
```

Variable	Obs	Mean	Std. dev.	Min	Max
price	74	6165.257	2949.496	3291	15906

```
5 . summarize price if weight>2000  /*only for cars weighing above 2000*/
```

Variable	Obs	Mean	Std. dev.	Min	Max
price	67	6320.582	3045.116	3291	15906

6 . summarize price if foreign==1 /*only for foreign cars*/

Variable	Obs	Mean	Std. dev.	Min	Max
price	22	6384.682	2621.915	3748	12990

7 .
8 . summarize price if foreign==1 & weight>2000

Variable	Obs	Mean	Std. dev.	Min	Max
price	17	6854.529	2762.253	3748	12990

9 . summarize price if foreign==1 | weight>2000

Variable	Obs	Mean	Std. dev.	Min	Max
price	72	6214.097	2975.747	3291	15906

10 .
11 . sort foreign

12 . by foreign: summarize price /*summarize separately by foreign/domestic categ
   > ories*/

-> foreign = Domestic

Variable	Obs	Mean	Std. dev.	Min	Max
price	52	6072.423	3097.104	3291	15906

-> foreign = Foreign

Variable	Obs	Mean	Std. dev.	Min	Max
price	22	6384.682	2621.915	3748	12990

```
13 .
14 . * Tabulate: A command that spits out frequency tables
15 . tabulate foreign /* oneway frequency table for domestic vs foreign*/
```

Car origin	Freq.	Percent	Cum.
Domestic	52	70.27	70.27
Foreign	22	29.73	100.00
Total	74	100.00	

```
16 . tabulate trunk foreign /* twoway frequency table for domestic vs foreign and
   >  various trunk sizes*/
```

Trunk space (cu. ft.)	Car origin		Total
	Domestic	Foreign	
5	0	1	1
6	0	1	1
7	3	0	3
8	2	3	5
9	3	1	4
10	3	2	5
11	4	4	8
12	1	2	3
13	4	0	4
14	1	3	4
15	2	3	5
16	10	2	12
17	8	0	8
18	1	0	1
20	6	0	6
21	2	0	2
22	1	0	1
23	1	0	1
Total	52	22	74

```
17 .
18 . tabulate trunk foreign, row /*percentage for each row variable*/
```

Key
frequency
row percentage

Trunk space (cu. ft.)	Car origin Domestic	Foreign	Total
5	0	1	1
	0.00	100.00	100.00
6	0	1	1
	0.00	100.00	100.00
7	3	0	3
	100.00	0.00	100.00
8	2	3	5
	40.00	60.00	100.00
9	3	1	4
	75.00	25.00	100.00
10	3	2	5
	60.00	40.00	100.00
11	4	4	8
	50.00	50.00	100.00
12	1	2	3
	33.33	66.67	100.00
13	4	0	4
	100.00	0.00	100.00
14	1	3	4
	25.00	75.00	100.00
15	2	3	5
	40.00	60.00	100.00
16	10	2	12
	83.33	16.67	100.00

17	**8** **100.00**	**0** **0.00**	**8** **100.00**
18	**1** **100.00**	**0** **0.00**	**1** **100.00**
20	**6** **100.00**	**0** **0.00**	**6** **100.00**
21	**2** **100.00**	**0** **0.00**	**2** **100.00**
22	**1** **100.00**	**0** **0.00**	**1** **100.00**
23	**1** **100.00**	**0** **0.00**	**1** **100.00**
Total	**52** **70.27**	**22** **29.73**	**74** **100.00**

19 . tabulate trunk foreign, column /*percentage for each column variable*/

Key
frequency *column percentage*

Trunk space (cu. ft.)	Car origin Domestic	Foreign	Total
5	**0** **0.00**	**1** **4.55**	**1** **1.35**
6	**0** **0.00**	**1** **4.55**	**1** **1.35**
7	**3** **5.77**	**0** **0.00**	**3** **4.05**
8	**2** **3.85**	**3** **13.64**	**5** **6.76**
9	**3** **5.77**	**1** **4.55**	**4** **5.41**

10	3	2	5
	5.77	9.09	6.76
11	4	4	8
	7.69	18.18	10.81
12	1	2	3
	1.92	9.09	4.05
13	4	0	4
	7.69	0.00	5.41
14	1	3	4
	1.92	13.64	5.41
15	2	3	5
	3.85	13.64	6.76
16	10	2	12
	19.23	9.09	16.22
17	8	0	8
	15.38	0.00	10.81
18	1	0	1
	1.92	0.00	1.35
20	6	0	6
	11.54	0.00	8.11
21	2	0	2
	3.85	0.00	2.70
22	1	0	1
	1.92	0.00	1.35
23	1	0	1
	1.92	0.00	1.35
Total	52	22	74
	100.00	100.00	100.00

```
20 .
21 . * Simple t-test for means
22 . /*
  > Say you want to compare the price between foreign and domestic cars and conf
  > irm that
  > foreign cars are more expensive
  > */
23 . ttest price, by(foreign)
```

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
Domestic	52	6072.423	429.4911	3097.104	5210.184	6934.662
Foreign	22	6384.682	558.9942	2621.915	5222.19	7547.174
Combined	74	6165.257	342.8719	2949.496	5481.914	6848.6
diff		-312.2587	754.4488		-1816.225	1191.708

```
      diff = mean(Domestic) - mean(Foreign)                         t =  -0.4139
  H0: diff = 0                                      Degrees of freedom =       72

      Ha: diff < 0                   Ha: diff != 0                   Ha: diff > 0
  Pr(T < t) = 0.3401          Pr(|T| > |t|) = 0.6802          Pr(T > t) = 0.6599
```

```
24 . ttest price if length>180, by(foreign) /*only for large cars*/
```

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
Domestic	38	6776.026	544.7065	3357.796	5672.346	7879.706
Foreign	4	10701	1101.184	2202.367	7196.543	14205.46
Combined	42	7149.833	532.0569	3448.123	6075.323	8224.344
diff		-3924.974	1726.924		-7415.218	-434.7295

```
      diff = mean(Domestic) - mean(Foreign)                         t =  -2.2728
  H0: diff = 0                                      Degrees of freedom =       40

      Ha: diff < 0                   Ha: diff != 0                   Ha: diff > 0
  Pr(T < t) = 0.0142          Pr(|T| > |t|) = 0.0285          Pr(T > t) = 0.9858
```

```
25 .
26 . * Graphs
27 . histogram length /*make histogram using headroom */
   (bin=8, start=142, width=11.375)

28 . graph export "$reci1/histogram_length.png", replace /*you can use other exte
   > nsions like .jpg or .gph */
   file /Volumes/GoogleDrive/내 드라이브/TA work/Fall 2022 - Intro to
       Econometrics/Recitation/Recitation 1/demo/histogram_length.png saved as
       PNG format

29 .
30 . * graphs with two variables
31 . /*
   > Useful for summarizing relationship between the two variables visually
   > Say that you want correlation between price and length of cars
   > (i.e. longer cars are more expensive)
   > */
32 . twoway scatter price length /*price in y, length in x */

33 . graph export "$reci1/scatterplot.png", replace
   file /Volumes/GoogleDrive/내 드라이브/TA work/Fall 2022 - Intro to
       Econometrics/Recitation/Recitation 1/demo/scatterplot.png saved as PNG
       format

34 .
35 . * fancier graphs with a line and scatter plot
36 . twoway (scatter price length) (lfit price length)

37 . graph export "$reci1/scatterlineplot.png", replace
   file /Volumes/GoogleDrive/내 드라이브/TA work/Fall 2022 - Intro to
       Econometrics/Recitation/Recitation 1/demo/scatterlineplot.png saved as
       PNG format

38 .
39 . * ends logs (you need this before you move on to other Stata project!)
40 . log close
        name:  <unnamed>
         log:  /Volumes/GoogleDrive/내 드라이브/TA work/Fall 2022 - Intro to Eco
   > nometrics/Recitation/Recitation 1/demo/log_demo.smcl
    log type:  smcl
   closed on:  15 Sep 2022, 13:53:05
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