



User: Airline Route analysis
Project: Route Analysis

log type: smcl
opened on: 21 Oct 2025, 19:54:56

```

1 .
2 .
3 . *create log variables for regression.
4 . *Note that, capture drop ln_expendA ln_expendB tells
5 . *Stata: "Try to drop them if they exist, but don't stop if they don't.":
6 . capture drop ln_expendA ln_expendB

7 . gen ln_expendA = ln(expendA)

8 . gen ln_expendB = ln(expendB)

9 .
10 . *run regression with vce(robust). It tells Stata to compute robust standard errors,
11 . *hence corrected SEs that stay valid even if the variance
12 . *of the errors changes across observations.
13 . reg voteA ln_expendA ln_expendB prtysrA, vce(robust)

```

```

Linear regression               Number of obs   =       173
                               F(3, 169)         =      184.27
                               Prob > F           =      0.0000
                               R-squared          =      0.7926
                               Root MSE       =      7.7123

```

voteA	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]	
ln_expendA	6.083316	.514596	11.82	0.000	5.067452	7.09918
ln_expendB	-6.615417	.3314586	-19.96	0.000	-7.26975	-5.961085
prtysrA	.1519574	.0560067	2.71	0.007	.0413944	.2625203
_cons	45.07893	4.068348	11.08	0.000	37.0476	53.11026

```

14 .
15 .
16 .
17 . *Now we will test our hypothesis
18 . *High F → low p-value → reject H0.
19 . *Low F → high p-value → fail to reject H0:
20 . test ln_expendA = ln_expendB

```

(1) ln_expendA - ln_expendB = 0

```

      F( 1, 169) = 417.66
      Prob > F = 0.0000

```

```

21 .
22 . *Build the difference regressor
23 . *capture drop lratio → removes the variable if it exists, quietly

```

24 . capture drop lratio

25 . gen lratio = ln_expendA - ln_expendB

26 .

27 . *Estimate again with the reparametrized model. Note that

28 . *the t on lratio is exactly the test for B_1 = B_2.

29 .

33 .

34 . reg bwght cigs parity faminc

Source	SS	df	MS	Number of obs	=	1,388
Model	19996.5211	3	6665.50703	F(3, 1384)	=	16.63
Residual	554615.199	1,384	400.733525	Prob > F	=	0.0000
				R-squared	=	0.0348
				Adj R-squared	=	0.0327
Total	574611.72	1,387	414.283864	Root MSE	=	20.018

bwght	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
cigs	-.4771537	.091518	-5.21	0.000	-.6566827	-.2976247
parity	1.616372	.603955	2.68	0.008	.4316058	2.801138
faminc	.0979201	.0291868	3.35	0.001	.040665	.1551752
_cons	114.2143	1.4693	77.73	0.000	111.3321	117.0966

35 . reg bwght cigs parity faminc motheduc fatheduc

Source	SS	df	MS	Number of obs	=	1,191
Model	18705.5567	5	3741.11135	F(5, 1185)	=	9.55
Residual	464041.135	1,185	391.595895	Prob > F	=	0.0000
				R-squared	=	0.0387
				Adj R-squared	=	0.0347
Total	482746.692	1,190	405.669489	Root MSE	=	19.789

bwght	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
cigs	-.5959362	.1103479	-5.40	0.000	-.8124352	-.3794373
parity	1.787603	.6594055	2.71	0.007	.4938709	3.081336
faminc	.0560414	.0365616	1.53	0.126	-.0156913	.1277742
motheduc	-.3704503	.3198551	-1.16	0.247	-.9979957	.2570951
fatheduc	.4723944	.2826433	1.67	0.095	-.0821426	1.026931
_cons	114.5243	3.728453	30.72	0.000	107.2092	121.8394

36 .

37 . *Using 401k subs data:

```

39 .
40 . keep if fsize == 1
    (0 observations deleted)

```

```

41 . count
    2,017

```

```

42 . keep if fsize == 1
    (0 observations deleted)

```

```

43 . reg nettf a inc age

```

Source	SS	df	MS	Number of obs	=	2,017
Model	544916.989	2	272458.495	F(2, 2014)	=	136.46
Residual	4021048.06	2,014	1996.54819	Prob > F	=	0.0000
				R-squared	=	0.1193
				Adj R-squared	=	0.1185
Total	4565965.05	2,016	2264.86361	Root MSE	=	44.683

nettf a	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
inc	.7993167	.0597307	13.38	0.000	.6821762	.9164572
age	.8426563	.0920169	9.16	0.000	.6621982	1.023115
_cons	-43.03981	4.080393	-10.55	0.000	-51.04204	-35.03758

```

44 . keep if fsize == 1
    (0 observations deleted)

```

```

45 . reg nettf a inc

```

Source	SS	df	MS	Number of obs	=	2,017
Model	377482.064	1	377482.064	F(1, 2015)	=	181.60
Residual	4188482.98	2,015	2078.6516	Prob > F	=	0.0000
				R-squared	=	0.0827
				Adj R-squared	=	0.0822
Total	4565965.05	2,016	2264.86361	Root MSE	=	45.592

nettf a	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
inc	.8206815	.0609	13.48	0.000	.7012479	.940115
_cons	-10.57095	2.060678	-5.13	0.000	-14.61223	-6.529671

```

46 .
    end of do-file

```

```

47 . exit, clear

```