. *// Added log using command

. log using \Client\C$\Users\lg\Desktop\STATA\seungkilee_exam2.log

```
1       name:   Seung Ki Lee
2       log:   \\Client\C$\Users\lg\Desktop\STATA\seungkilee_exam2.log
```

log type: text opened on: 15 Nov 2017, 16:59:46

. use "\Client\C$\Users\lg\Desktop\STATA\hprice1.dta"

. regress price lotsize sqrft bdrms assess

```
1    Source |       SS           df       MS      Number of obs   =        88
```

------------ + -------------------------------- F(4, 83) = 100.74

```
1     Model |  761089.801         4   190272.45   Prob > F        =    0.0000
2  Residual |  156764.704        83  1888.73138   R-squared       =    0.8292
```

------------+-------------------------------- Adj R-squared = 0.8210

```
1     Total |  917854.506        87  10550.0518   Root MSE        =    43.46
2     price |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
3   lotsize |    .0005867   .0004963    1.18   0.240    -.0004004    .0015738
4     sqrft |   -.0005175   .0170849   -0.03   0.976    -.0344986    .0334636
5     bdrms |    11.60249   6.549515    1.77   0.080    -1.424233    24.62921
6    assess |    .9082991   .1040386    8.73   0.000     .7013706    1.115228
7     _cons |   -38.88702   21.49853   -1.81   0.074    -81.64673    3.872696
```

. . regress price lotsize sqrft bdrms assess, beta

```
1    Source |       SS           df       MS      Number of obs   =        88
```

------------+-------------------------------- F(4, 83) = 100.74

```
1     Model |  761089.801         4   190272.45   Prob > F        =    0.0000
2  Residual |  156764.704        83  1888.73138   R-squared       =    0.8292
```

------------+-------------------------------- Adj R-squared = 0.8210

```
 1       Total |  917854.506          87  10550.0518   Root MSE        =    43.46
 2       price |      Coef.   Std. Err.       t    P>|t|                    Beta
 3     lotsize |   .0005867   .0004963     1.18   0.240                 .0581177
 4       sqrft |  -.0005175   .0170849    -0.03   0.976                -.0029079
 5       bdrms |   11.60249   6.549515     1.77   0.080                 .0950435
 6      assess |   .9082991   .1040386     8.73   0.000                 .8428694
 7       _cons |  -38.88702   21.49853    -1.81   0.074                        .
```

. . generate sqrftbdrms = sqrft*bdrms

. . regress price lotsize sqrft bdrms assess sqrftbdrms

```
 1   Source   |     SS             df        MS       Number of obs   =       88
```

------------+------------------------------ F(5, 82) = 82.92

```
 1      Model  |  766291.045          5  153258.209   Prob > F        =   0.0000
 2   Residual  |  151563.461         82  1848.33489   R-squared       =   0.8349
```

------------+------------------------------ Adj R-squared = 0.8248

```
 1       Total |  917854.506          87  10550.0518   Root MSE        =   42.992
 2       price |      Coef.   Std. Err.       t    P>|t|    [95% Conf. Interval]
 3     lotsize |   .0005909    .000491     1.20   0.232   -.0003858    .0015676
 4       sqrft |  -.0459807   .0319399    -1.44   0.154   -.1095193    .0175578
 5       bdrms |  -14.66388   16.94556    -0.87   0.389     -48.374    19.04625
 6      assess |   .8802809   .1042664     8.44   0.000    .6728617     1.0877
 7  sqrftbdrms |   .0120843   .0072038     1.68   0.097   -.0022462    .0264149
 8       _cons |   65.28181   65.63846     0.99   0.323     -65.294    195.8576
```

. . regress lprice lassess llotsize lsqrft bdrms

```
 1   Source   |     SS             df        MS       Number of obs   =       88
```

------------+------------------------------ F(4, 83) = 70.58

```
 1      Model  |  6.19607473          4  1.54901868   Prob > F        =   0.0000
 2   Residual  |  1.82152879         83   .02194613   R-squared       =   0.7728
```

------------+------------------------------ Adj R-squared = 0.7619

```
 1       Total |  8.01760352          87  .092156362   Root MSE        =   .14814
 2      lprice |      Coef.   Std. Err.       t    P>|t|    [95% Conf. Interval]
 3     lassess |   1.043065    .151446     6.89   0.000    .7418453    1.344285
 4    llotsize |   .0074379   .0385615     0.19   0.848   -.0692593    .0841352
 5      lsqrft |  -.1032384   .1384305    -0.75   0.458    -.378571    .1720942
 6       bdrms |   .0338392   .0220983     1.53   0.129   -.0101135    .0777918

 7       _cons |    .263743   .5696647     0.46   0.645   -.8692972    1.396783
```

. use "\Client\C$\Users\lg\Desktop\STATA\hprice1.dta", clear

. xi : regress lprice lassess llotsize lsqrft i.bdrms i.bdrms *Ibdrms*2-7 (naturally coded; *Ibdrms*2 omitted)

1	Source	SS	df	MS	Number of obs	=	88

------------+------------------------------ F(8, 79) = 37.86

| 1 | Model | 6.35910406 | 8 | .794888008 | Prob > F | = | 0.0000 |
| 2 | Residual | 1.65849946 | 79 | .020993664 | R-squared | = | 0.7931 |

------------+------------------------------ Adj R-squared = 0.7722

| 1 | Total | 8.01760352 | 87 | .092156362 | Root MSE | = | .14489 |
| 2 | lprice | Coef. | Std. Err. | t | P>|t| | [95% Conf. Interval] | |

------------+--

1	lassess	.9594261	.1542371	6.22	0.000	.6524248	1.266427
2	llotsize	.0198889	.0386145	0.52	0.608	-.0569715	.0967492
3	lsqrft	-.0342931	.1436377	-0.24	0.812	-.3201967	.2516105
4	_Ibdrms_3	.0816087	.0802862	1.02	0.313	-.078197	.2414143
5	_Ibdrms_4	.0422334	.0830461	0.51	0.612	-.1230657	.2075326
6	_Ibdrms_5	.1879371	.1047448	1.79	0.077	-.0205522	.3964265
7	_Ibdrms_6	.3489299	.1641039	2.13	0.037	.0222892	.6755705
8	_Ibdrms_7	.1956565	.1767382	1.11	0.272	-.156132	.547445
9	_cons	.1538384	.6415412	0.24	0.811	-1.123117	1.430794

. use "\Client\C$\Users\lg\Desktop\STATA\charity.dta"

. regress respond avggift propresp resplast

1	Source	SS	df	MS	Number of obs	=	4,268

------------+------------------------------ F(3, 4264) = 360.76

| 1 | Model | 207.349397 | 3 | 69.1164656 | Prob > F | = | 0.0000 |
| 2 | Residual | 816.930594 | 4,264 | .19158785 | R-squared | = | 0.2024 |

------------+------------------------------ Adj R-squared = 0.2019

| 1 | Total | 1024.27999 | 4,267 | .240046869 | Root MSE | = | .43771 |

respond	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
avggift	.000182	.0000852	2.14	0.033	.0000151	.000349
propresp	.7486844	.0336928	22.22	0.000	.682629	.8147397
resplast	.0946678	.0180867	5.23	0.000	.0592085	.1301271
_cons	.002304	.0151179	0.15	0.879	-.027335	.0319431

. regress respond avggift propresp resplast, robust

Linear regression Number of obs = 4,268

						F(3, 4264)	=	437.21
						Prob > F	=	0.0000
						R-squared	=	0.2024
						Root MSE	=	.43771

		Robust				
respond	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
avggift	.000182	.0000302	6.03	0.000	.0001228	.0002412
propresp	.7486844	.0339127	22.08	0.000	.6821978	.8151709
resplast	.0946678	.0200048	4.73	0.000	.0554479	.1338877
_cons	.002304	.0134189	0.17	0.864	-.0240039	.028612

. use "\Client\C$\Users\lg\Desktop\STATA\FERTIL2.DTA"

. regress children agefbrth heduc electric urban frsthalf

Source	SS	df	MS	Number of obs	=	1,829

------------+------------------------------ F(5, 1823) = 49.90

Model	1045.55915	5	209.111829	Prob > F	=	0.0000
Residual	7639.66775	1,823	4.19071188	R-squared	=	0.1204

------------+------------------------------ Adj R-squared = 0.1180

Total	8685.2269	1,828	4.75121822	Root MSE	=	2.0471

children	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
agefbrth	-.0870396	.0150396	-5.79	0.000	-.1165362	-.057543
heduc	-.1063142	.0116707	-9.11	0.000	-.1292036	-.0834248
electric	.1769759	.1486607	1.19	0.234	-.1145873	.4685391
urban	-.6126852	.105892	-5.79	0.000	-.8203675	-.4050028
frsthalf	.1585793	.0976347	1.62	0.105	-.0329084	.350067
_cons	6.107631	.2969519	20.57	0.000	5.525229	6.690033

. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

```
1    Ho: Constant variance
2    Variables: fitted values of children
3
4    chi2(1)     =    70.16
5    Prob > chi2 =   0.0000
```

. . estat hettest, fstat

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

```
1    Ho: Constant variance
2    Variables: fitted values of children
3
4    F(1 , 1827)  =    64.08
5    Prob > F     =   0.0000
```

. . predict e, residual (2,532 missing values generated)

. . generate loge2 = log(e^2) (2,532 missing values generated)

. . regress loge2 agefbrth heduc electric urban frsthalf

```
1    Source |      SS           df       MS      Number of obs   =     1,829
```

------------+-------------------------------- F(5, 1823) = 11.87

```
1     Model |  280.992152        5  56.1984304   Prob > F        =    0.0000
2   Residual |  8629.10876    1,823  4.73346613   R-squared       =    0.0315
```

------------+-------------------------------- Adj R-squared = 0.0289

```
1     Total |  8910.10091    1,828  4.87423463   Root MSE        =    2.1757
2     loge2 |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
3   agefbrth | -.0207735   .0159838   -1.30   0.194    -.0521221    .0105751
4      heduc | -.0505752   .0124035   -4.08   0.000    -.0749017   -.0262487
5   electric | -.4106443   .1579945   -2.60   0.009    -.7205134   -.1007751
6      urban | -.1071428   .1125405   -0.95   0.341    -.3278646     .113579
7   frsthalf |  .0726184   .1037648    0.70   0.484     -.130892    .2761288
8      _cons |  .9293377   .3155962    2.94   0.003     .3103695    1.548306
```

. . predict yhat, xb (2,532 missing values generated)

. . generate hhat = exp(yhat) (2,532 missing values generated)

. . generate invhat = 1/hhat (2,532 missing values generated)

. . wls0 children agefbrth heduc electric urban frsthalf, wvar(invhat) type(abse) (2,532 missing values generated) (2,532 missing values generated)

WLS regression - type: proportional to abs(e)

(sum of wgt is 8.6693e+02)

Source	SS	df	MS	Number of obs	=	1,829

------------+------------------------------ F(5, 1823) = 86.23

Model	1415.86684	5	283.173368	Prob > F	=	0.0000
Residual	5986.7457	1,823	3.28400751	R-squared	=	0.1913

------------+------------------------------ Adj R-squared = 0.1890

Total	7402.61254	1,828	4.04956922	Root MSE	=	1.8122
children	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
agefbrth	-.0586951	.0111472	-5.27	0.000	-.0805578	-.0368325
heduc	-.0899087	.0101908	-8.82	0.000	-.1098955	-.0699218
electric	.122023	.1259765	0.97	0.333	-.1250504	.3690963
urban	-.5182014	.1041625	-4.97	0.000	-.7224918	-.3139109
frsthalf	.1552382	.0883906	1.76	0.079	-.0181193	.3285957
_cons	5.444577	.2248614	24.21	0.000	5.003564	5.88559

(2,532 missing values generated)

. . estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

```
     Ho: Constant variance
     Variables: fitted values of children

     chi2(1)      =    246.77
     Prob > chi2  =    0.0000
```

. . estat hettest, fstat

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

```
     Ho: Constant variance
     Variables: fitted values of children

     F(1 , 1827)  =    187.21
     Prob > F     =    0.0000
```

. . regress children agefbrth heduc electric urban frsthalf, robust

Linear regression Number of obs = 1,829

```
    1  |                                    F(5, 1823)        =        58.82
    2  |                                    Prob > F          =       0.0000
    3  |                                    R-squared         =       0.1204
    4  |                                    Root MSE          =       2.0471
    5  |
    6          |                Robust
    7  children |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
    8  agefbrth |  -.0870396   .0137216    -6.34   0.000    -.1139513   -.0601279
    9     heduc |  -.1063142   .0108055    -9.84   0.000    -.1275067   -.0851218
   10  electric |   .1769759   .1302748     1.36   0.174    -.0785277    .4324795
   11     urban |  -.6126852   .1055862    -5.80   0.000    -.8197678   -.4056025
   12  frsthalf |   .1585793   .0967153     1.64   0.101    -.0311051    .3482636
   13     _cons |   6.107631   .2791021    21.88   0.000     5.560237    6.655024
```

. log close

```
    1     name:  Seung Ki Lee
    2      log:  \\Client\C$\Users\lg\Desktop\STATA\seungkilee_exam2.log
```

log type: text

closed on: 15 Nov 2017, 17:06:33