```
      name:  <unnamed>
       log:  C:\Users\ramon\Desktop\UZH\Empirical Methods\Problem Sets\Problem Set 3\Stata\log_gmw
  log type:  smcl
 opened on:   2 Dec 2019, 16:01:51

 1 .
 2 . insheet using "C:\Users\ramon\Desktop\UZH\Empirical Methods\Problem Sets\Problem Set 3\Stata\BCH
   (18 vars, 428 obs)

 3 .
 4 . *1)
 5 .
 6 . gen lnearn = log(earning)

 7 . gen agesq = age^2

 8 .
 9 .
10 . **a)
11 .
12 . reg lnearn highqua age agesq
```

Source	SS	df	MS	Number of obs	=	428
				F(3, 424)	=	24.72
Model	20.7258534	3	6.9086178	Prob > F	=	0.0000
Residual	118.492426	424	.279463268	R-squared	=	0.1489
				Adj R-squared	=	0.1429
Total	139.218279	427	.326038124	Root MSE	=	.52864

lnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
highqua	.0767543	.0105917	7.25	0.000	.0559355	.0975731
age	.0778154	.0213949	3.64	0.000	.0357622	.1198687
agesq	-.0009675	.0002658	-3.64	0.000	-.0014899	-.0004451
_cons	-.4282208	.4347756	-0.98	0.325	-1.282805	.4263631

```
13 . outreg2 using "regressiona.doc", replace ctitle(OLS)
   regressiona.doc
   dir : seeout

14 . ivreg lnearn age agesq (highqua = twihigh)

   Instrumental variables (2SLS) regression
```

Source	SS	df	MS	Number of obs	=	428
				F(3, 424)	=	16.40
Model	20.4445064	3	6.81483547	Prob > F	=	0.0000
Residual	118.773773	424	.280126822	R-squared	=	0.1469
				Adj R-squared	=	0.1408
Total	139.218279	427	.326038124	Root MSE	=	.52927

lnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
highqua	.0873817	.0166363	5.25	0.000	.0546818	.1200815
age	.0764781	.0214809	3.56	0.000	.0342558	.1187005
agesq	-.0009428	.0002677	-3.52	0.000	-.0014691	-.0004165
_cons	-.5684209	.4669861	-1.22	0.224	-1.486317	.3494751

```
Instrumented:  highqua
Instruments:   age agesq twihigh
```

```
15 . outreg2 using "regressiona.doc", append ctitle(IV)
   regressiona.doc
   dir : seeout

16 .
17 . **b)
18 .
19 . ***v)
20 . reg highqua twihigh age agesq
```

Source	SS	df	MS	Number of obs	=	428
				F(3, 424)	=	113.80
Model	1190.87218	3	396.957394	Prob > F	=	0.0000
Residual	1478.9666	424	3.48812878	R-squared	=	0.4460
				Adj R-squared	=	0.4421
Total	2669.83879	427	6.25254985	Root MSE	=	1.8677

highqua	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
twihigh	.6312721	.0370589	17.03	0.000	.5584302	.7041141
age	.0531199	.0755603	0.70	0.482	-.0953996	.2016394
agesq	-.0009302	.0009385	-0.99	0.322	-.0027749	.0009144
_cons	4.83493	1.535057	3.15	0.002	1.817661	7.852198

```
21 . outreg2 using "regressionb.doc", replace ctitle(1S)
   regressionb.doc
   dir : seeout

22 . test _b[twihigh]=0

 ( 1)  twihigh = 0

       F(  1,   424) =  290.17
            Prob > F =    0.0000

23 .
24 . **c)
25 .
26 . drop schyear lnandse part full self married own_exp bweight exp_par parted sm16 sm18

27 . reshape wide lnearn highqua twihigh earning, i(family) j(twinno)
   (note: j = 1 2)

   Data                               long   ->   wide
   -----------------------------------------------------------------------------
   Number of obs.                      428   ->     214
   Number of variables                   8   ->      11
   j variable (2 values)            twinno   ->   (dropped)
   xij variables:
                                     lnearn   ->   lnearn1 lnearn2
                                    highqua   ->   highqua1 highqua2
                                    twihigh   ->   twihigh1 twihigh2
                                    earning   ->   earning1 earning2
   -----------------------------------------------------------------------------

28 .
29 . gen dlnearn = lnearn1 - lnearn2

30 . gen dhigh = highqua1 - highqua2
```

```
31 . gen dtwihigh = twihigh1 - twihigh2

32 .
33 . gen dearn = earning1 - earning2

34 . *This one is for d)
35 .
36 . reg dlnearn dhigh, nocons
```

Source	SS	df	MS	Number of obs	=	214
				F(1, 213)	=	3.04
Model	1.43564569	1	1.43564569	Prob > F	=	0.0826
Residual	100.55228	213	.472076434	R-squared	=	0.0141
				Adj R-squared	=	0.0094
Total	101.987926	214	.476579094	Root MSE	=	.68708

dlnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dhigh	.0393535	.0225666	1.74	0.083	-.0051289	.083836

```
37 . outreg2 using "regressionc.doc", replace ctitle(OLS)
regressionc.doc
dir : seeout

38 . ivreg dlnearn (dhigh = dtwihigh), nocons

Instrumental variables (2SLS) regression
```

Source	SS	df	MS	Number of obs	=	214
				F(1, 213)	=	.
Model	.096383507	1	.096383507	Prob > F	=	.
Residual	101.891543	213	.47836405	R-squared	=	.
				Adj R-squared	=	.
Total	101.987926	214	.476579094	Root MSE	=	.69164

dlnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dhigh	.0773631	.0330598	2.34	0.020	.0121968	.1425294

```
Instrumented:  dhigh
Instruments:   dtwihigh
```

```
39 . outreg2 using "regressionc.doc", append ctitle(IV)
regressionc.doc
dir : seeout

40 .
41 . ***ii)
42 .
43 . reg dlnearn dhigh
```

Source	SS	df	MS	Number of obs	=	214
				F(1, 212)	=	3.01
Model	1.4249932	1	1.4249932	Prob > F	=	0.0844
Residual	100.508895	212	.47409856	R-squared	=	0.0140
				Adj R-squared	=	0.0093
Total	101.933888	213	.478562854	Root MSE	=	.68855

dlnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dhigh	.0392153	.0226195	1.73	0.084	-.0053727	.0838032
_cons	.0142415	.0470778	0.30	0.763	-.0785591	.107042

```
44 . outreg2 using "regressionc2.doc", replace ctitle(OLS)
regressionc2.doc
dir : seeout

45 . ivreg dlnearn (dhigh = dtwihigh)

Instrumental variables (2SLS) regression
```

Source	SS	df	MS		
				Number of obs	= 214
				F(1, 212)	= 5.54
Model	.04558248	1	.04558248	Prob > F	= 0.0195
Residual	101.888306	212	.480605215	R-squared	= 0.0004
				Adj R-squared	= -0.0043
Total	101.933888	213	.478562854	Root MSE	= .69326

dlnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dhigh	.0777982	.0330489	2.35	0.019	.0126517	.1429448
_cons	.0126188	.0474104	0.27	0.790	-.0808375	.1060751

Instrumented: dhigh
Instruments: dtwihigh

```
46 . outreg2 using "regressionc2.doc", append ctitle(IV)
regressionc2.doc
dir : seeout

47 .
48 . **d)
49 .
50 . gen absearn = abs(dearn)

51 . preserve

52 . drop if absearn > 60
(4 observations deleted)

53 .
54 . reg dlnearn dhigh, nocons
```

Source	SS	df	MS		
				Number of obs	= 210
				F(1, 209)	= 2.24
Model	.736676732	1	.736676732	Prob > F	= 0.1361
Residual	68.7836569	209	.329108406	R-squared	= 0.0106
				Adj R-squared	= 0.0059
Total	69.5203336	210	.331049208	Root MSE	= .57368

dlnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dhigh	.0282666	.0188931	1.50	0.136	-.008979	.0655121

```
55 . outreg2 using "regressiond.doc", replace ctitle(OLS)
regressiond.doc
dir : seeout

56 . ivreg dlnearn (dhigh = dtwihigh), nocons

Instrumental variables (2SLS) regression
```

Source	SS	df	MS		
				Number of obs	= 210
				F(1, 209)	= .
Model	.684658057	1	.684658057	Prob > F	= .
Residual	68.8356756	209	.329357299	R-squared	= .
				Adj R-squared	= .
Total	69.5203336	210	.331049208	Root MSE	= .5739

dlnearn	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dhigh	**.0357778**	**.0272474**	**1.31**	**0.191**	**-.0179371**	**.0894928**

Instrumented: dhigh
Instruments: dtwihigh

```
57 . outreg2 using "regressiond.doc", append ctitle(IV)
   regressiond.doc
   dir : seeout

58 .
59 . restore

60 .
   end of do-file
```