```
      name:  <unnamed>
       log:  /Users/baum/Dropbox/baum/EC 327 S2013/327arch.smcl
  log type:  smcl
 opened on:  18 Mar 2013, 13:26:02

1 . // 327arch  EC327 S2013
2 . webuse wpi1,clear

3 . g t2 = t^2

4 . label var t Quarter

5 . tsline D.ln_wpi, ti(delta log WPI)

6 . graph export a0.pdf, replace
  (file /Users/baum/Dropbox/baum/EC 327 S2013/a0.pdf written in PDF format)

7 . arch D.ln_wpi t t2, arch(1/3) nolog

  ARCH family regression

  Sample: 1960q2 - 1990q4                             Number of obs   =       123
  Distribution: Gaussian                              Wald chi2(2)    =     13.72
  Log likelihood =  384.7913                          Prob > chi2     =    0.0010
```

		OPG				
D.ln_wpi	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ln_wpi						
t	.0004825	.0001345	3.59	0.000	.0002189	.000746
t2	-3.27e-06	9.98e-07	-3.27	0.001	-5.22e-06	-1.31e-06
_cons	-.0041354	.0037849	-1.09	0.275	-.0115537	.0032828
ARCH						
arch						
L1.	.3154317	.1925627	1.64	0.101	-.0619841	.6928476
L2.	.3066475	.1721862	1.78	0.075	-.0308312	.6441262
L3.	.0495786	.113572	0.44	0.662	-.1730185	.2721756
_cons	.0000521	7.49e-06	6.96	0.000	.0000374	.0000667

```
 8 . predict double a1, var

 9 . tsline a1, ti(ARCH(3) conditional variance)

10 . graph export a1.pdf, replace
   (file /Users/baum/Dropbox/baum/EC 327 S2013/a1.pdf written in PDF format)

11 . arch D.ln_wpi t t2, arch(1/2) garch(1) nolog

   ARCH family regression

   Sample: 1960q2 - 1990q4                         Number of obs   =        123
   Distribution: Gaussian                          Wald chi2(2)    =      13.35
   Log likelihood =  384.7846                      Prob > chi2     =     0.0013
```

D.ln_wpi	Coef.	OPG Std. Err.	z	P>|z|	[95% Conf.	Interval]
ln_wpi						
t	.0004775	.0001353	3.53	0.000	.0002124	.0007426
t2	-3.23e-06	1.00e-06	-3.21	0.001	-5.20e-06	-1.26e-06
_cons	-.0040632	.0037916	-1.07	0.284	-.0114946	.0033681
ARCH						
arch						
L1.	.3194581	.1908863	1.67	0.094	-.0546721	.6935883
L2.	.2770548	.2799854	0.99	0.322	-.2717066	.8258162
garch						
L1.	.114156	.3592895	0.32	0.751	-.5900384	.8183505
_cons	.0000462	.0000213	2.17	0.030	4.40e-06	.0000879

```
12 . predict double a2, var

13 . tsline a2, ti(GARCH(2,1) conditional variance)

14 . graph export a2.pdf, replace
   (file /Users/baum/Dropbox/baum/EC 327 S2013/a2.pdf written in PDF format)
```

```
15 . arch D.ln_wpi, ar(1) ma(1 4) arch(1) garch(1) archm dist(t) nolog

   ARCH family regression -- ARMA disturbances

   Sample: 1960q2 - 1990q4                           Number of obs   =        123
   Distribution: t                                   Wald chi2(4)    =     139.83
   Log likelihood =  403.9809                        Prob > chi2     =     0.0000

   ------------------------------------------------------------------------------
                |                 OPG
       D.ln_wpi |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
   -------------+----------------------------------------------------------------
   ln_wpi       |
          _cons |   .0058501   .0031999     1.83   0.068    -.0004216    .0121218
   -------------+----------------------------------------------------------------
   ARCHM        |
         sigma2 |   7.598198   29.54179     0.26   0.797    -50.30265    65.49904
   -------------+----------------------------------------------------------------
   ARMA         |
             ar |
            L1. |   .7563752   .1061037     7.13   0.000     .5484158    .9643346
                |
             ma |
            L1. |   -.311195   .1452882    -2.14   0.032    -.5959546   -.0264353
            L4. |   .2325189   .1026414     2.27   0.023     .0313454    .4336924
   -------------+----------------------------------------------------------------
   ARCH         |
           arch |
            L1. |   .2675286   .1704146     1.57   0.116     -.066478    .6015351
                |
          garch |
            L1. |   .6933458   .1541304     4.50   0.000     .3912557    .9954359
                |
          _cons |   8.24e-06   7.75e-06     1.06   0.288    -6.95e-06    .0000234
   -------------+----------------------------------------------------------------
        /lndfm2 |   1.437649   .6495163     2.21   0.027       .16462    2.710677
   -------------+----------------------------------------------------------------
             df |   6.210783   2.734972                      3.178945    17.03946
   ------------------------------------------------------------------------------

16 . predict double a3, var
```

```
17 . tsline a3, ti("GARCH(1,1)-M conditional variance, t errors")

18 . graph export a3.pdf, replace
   (file /Users/baum/Dropbox/baum/EC 327 S2013/a3.pdf written in PDF format)

19 . label var a1 "ARCH(3)"

20 . label var a3 "GARCH(1,1)-M"

21 . tsline a1 a3, scheme(s2mono)

22 . graph export a4.pdf,replace
   (file /Users/baum/Dropbox/baum/EC 327 S2013/a4.pdf written in PDF format)

23 . log close
         name:  <unnamed>
          log:  /Users/baum/Dropbox/baum/EC 327 S2013/327arch.smcl
     log type:  smcl
    closed on:  18 Mar 2013, 13:26:20
```
