Stata log to approximate pages 72-73 of Diggle et al. using OLS.

timebloc is blocked time.
chamber is chamber setting as described in the text.

gen bloc1 = timebloc==1

gen bloc2 = timebloc==2

gen bloc3 = timebloc==3

gen bloc4 = timebloc==4

gen bloc5 = timebloc==5

gen bloc6 = timebloc==6

gen bloc7 = timebloc==7

gen bloc8 = timebloc==8

gen bloc9 = timebloc==9

gen bloc10 = timebloc==10

gen bloc11 = timebloc==11

gen chamber1 = chamber==1

gen chamber2 = chamber==2

gen chamber3 = chamber==3

. keep if timebloc>4
(395 observations deleted)

. regress size bloc5 bloc6 bloc7 bloc8 bloc9 bloc10 bloc11 bloc12 chamber1 cha
> mber2 chamber3, noconst

Source	SS	df	MS
Model	22741.0373	11	2067.36703
Residual	253.451873	621	.408135062
Total	22994.4892	632	36.3836855

Number of obs = 632
F(11, 621) = 5065.40
Prob > F = 0.0000
R-squared = 0.9890
Adj R-squared = 0.9888
Root MSE = .63885

size	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
bloc5	5.51575	.0800625	68.893	0.000	5.358524 5.672976
bloc6	5.528029	.0800625	69.046	0.000	5.370803 5.685255
bloc7	5.691699	.0800625	71.091	0.000	5.534474 5.848925
bloc8	5.913092	.0800625	73.856	0.000	5.755866 6.070318
bloc9	6.052459	.0800625	75.597	0.000	5.895233 6.209685

```
. predict bigres, residuals

. keep id bigres timebloc

. reshape group timebloc 5-12

. reshape var bigres

. reshape cons id

. corr bigres*, cov
(obs=79)

            | bigres5  bigres6  bigres7  bigres8  bigres9 bigres10 bigres11
------------+---------------------------------------------------------------
   bigres5  | .44092
   bigres6  | .437783  .434827
   bigres7  | .411266  .408877  .393794
   bigres8  | .401039  .399     .381939  .381191
   bigres9  | .415954  .413668  .39539   .394462  .417485
  bigres10  | .405304  .403217  .388032  .386797  .405836  .400631
  bigres11  | .391773  .389845  .37396   .372669  .38922   .384984  .378867
  bigres12  | .401795  .399752  .385074  .384585  .402006  .397063  .38734

            | bigres12
------------+---------
  bigres12  | .401668

. gen totfit0 = fit if chamber ==0 & timebloc<5
(892 missing values generated)

. gen totfit1 = fit if chamber ==1 & timebloc<5
(892 missing values generated)

. gen totfit2 = fit if chamber ==2 & timebloc<5
(967 missing values generated)

. gen totfit3 = fit if chamber ==3 & timebloc<5
(962 missing values generated)

. regress size bloc5 bloc6 bloc7 bloc8 bloc9 bloc10 bloc11 bloc12 chamber1 cham
> ber2 chamber3 if timebloc>4, noconst

      Source |       SS       df       MS              Number of obs =      632
-------------+------------------------------           F( 11,   621) =  5065.40
       Model |  22741.0373    11  2067.36703           Prob > F      =   0.0000
```

bloc10	6.139041	.0800625	76.678	0.000	5.981815	6.296267
bloc11	6.14018	.0800625	76.692	0.000	5.982955	6.297406
bloc12	6.142712	.0800625	76.724	0.000	5.985486	6.299938
chamber1	-.0234722	.0614738	-0.382	0.703	-.1441939	.0972495
chamber2	.2765047	.078364	3.528	0.000	.1226141	.4303953
chamber3	.4031873	.0762489	5.288	0.000	.2534505	.5529242

```
  Residual |  253.451873   621  .408135062                    R-squared     =  0.9890
-----------+------------------------------                    Adj R-squared =  0.9888
     Total |  22994.4892   632  36.3836855                    Root MSE      =  .63885
```

```
       size |      Coef.   Std. Err.      t     P>|t|     [95% Conf. Interval]
------------+----------------------------------------------------------------
      bloc5 |   5.51575   .0800625   68.893    0.000    5.358524    5.672976
      bloc6 |  5.528029   .0800625   69.046    0.000    5.370803    5.685255
      bloc7 |  5.691699   .0800625   71.091    0.000    5.534474    5.848925
      bloc8 |  5.913092   .0800625   73.856    0.000    5.755866    6.070318
      bloc9 |  6.052459   .0800625   75.597    0.000    5.895233    6.209685
     bloc10 |  6.139041   .0800625   76.678    0.000    5.981815    6.296267
     bloc11 |   6.14018   .0800625   76.692    0.000    5.982955    6.297406
     bloc12 |  6.142712   .0800625   76.724    0.000    5.985486    6.299938
   chamber1 | -.0234722   .0614738   -0.382    0.703   -.1441939    .0972495
   chamber2 |  .2765047    .078364    3.528    0.000    .1226141    .4303953
   chamber3 |  .4031873   .0762489    5.288    0.000    .2534505    .5529242
```

```
. predict fit2
(option xb assumed; fitted values)

. regress size bloc0 bloc1 bloc2 bloc3 bloc4 chamber1 chamber2 chamber3 if tim
> ebloc<5, noconst
```

```
      Source |       SS       df       MS              Number of obs =     395
-------------+------------------------------           F(  8,   387) = 2969.99
       Model |  9346.70658     8  1168.33832           Prob > F      =  0.0000
    Residual |  152.238328   387  .393380694           R-squared     =  0.9840
-------------+------------------------------           Adj R-squared =  0.9836
       Total |  9498.94491   395  24.0479618           Root MSE      =  .6272
```

```
       size |      Coef.   Std. Err.      t     P>|t|     [95% Conf. Interval]
------------+----------------------------------------------------------------
      bloc0 |  3.969343   .0830514   47.794    0.000    3.806054    4.132631
      bloc1 |  4.407191   .0830514   53.066    0.000    4.243902    4.570479
      bloc2 |  4.797317   .0830514   57.763    0.000    4.634029    4.960606
      bloc3 |  5.151115   .0830514   62.023    0.000    4.987826    5.314403
      bloc4 |  5.309849   .0830514   63.935    0.000    5.146561    5.473137
   chamber1 |  .0865926   .0763404    1.134    0.257   -.0635013    .2366865
   chamber2 |  .1672037   .0973153    1.718    0.087   -.0241292    .3585366
   chamber3 |  .3421139   .0946887    3.613    0.000    .1559454    .5282825
```

```
. predict fit
(option xb assumed; fitted values)

. gen totfit0 = fit if chamber ==0 & timebloc<5
(892 missing values generated)

. gen totfit1 = fit if chamber ==1 & timebloc<5
(892 missing values generated)

. gen totfit2 = fit if chamber ==2 & timebloc<5
(967 missing values generated)
```

. gen totfit2 = fit if chamber ==2 & timebloc<5
totfit2 already defined
r(110);

.

. gen totfit3 = fit if chamber ==3 & timebloc<5
(962 missing values generated)

. gen totfit4 = fit2 if chamber ==0 & timebloc>4
(811 missing values generated)

. gen totfit5 = fit2 if chamber ==1 & timebloc>4
(811 missing values generated)

. gen totfit6 = fit2 if chamber ==2 & timebloc>4
(931 missing values generated)

. gen totfit7 = fit2 if chamber ==3 & timebloc>4
(923 missing values generated)
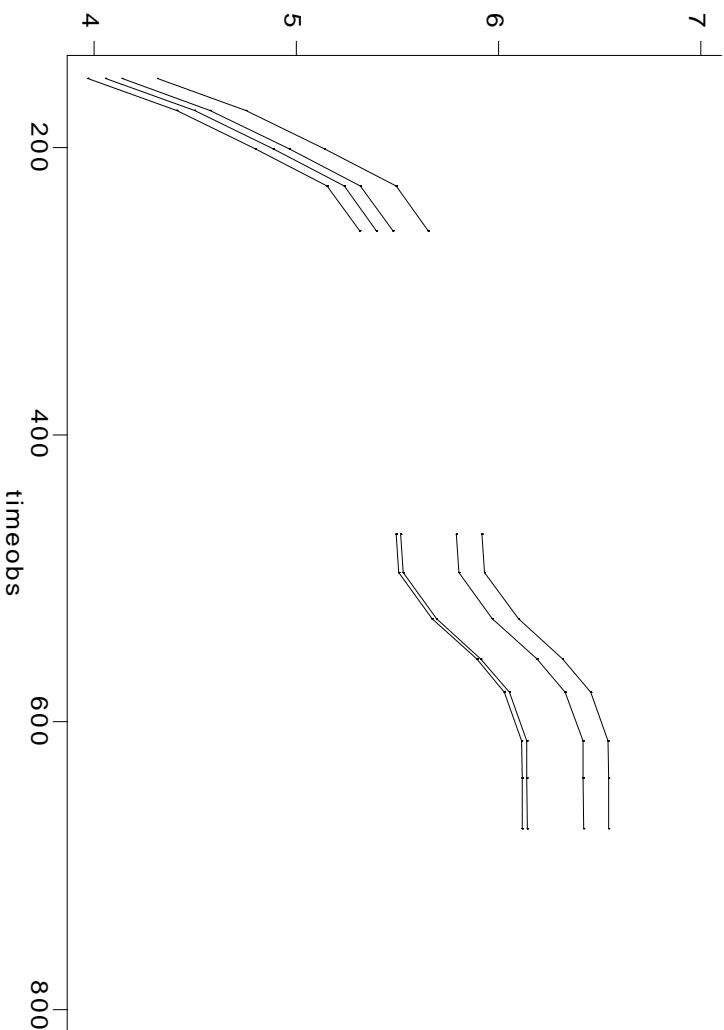
. graph totfit* timeobs, c(llllllll) xlab ylab s(iiiiiiii)

. egen mean0 = mean(size) if chamber==0 & timebloc<5, by(timebloc)
(892 missing values generated)

. egen mean1 = mean(size) if chamber==1 & timebloc<5, by(timebloc)
(892 missing values generated)

. egen mean2 = mean(size) if chamber==2 & timebloc<5, by(timebloc)
(967 missing values generated)

. egen mean3 = mean(size) if chamber==3 & timebloc<5, by(timebloc)
(962 missing values generated)

. egen mean4 = mean(size) if chamber==0 & timebloc>4, by(timebloc)
(811 missing values generated)

. egen mean5 = mean(size) if chamber==1 & timebloc>4, by(timebloc)
(811 missing values generated)

. egen mean6 = mean(size) if chamber==2 & timebloc>4, by(timebloc)
(931 missing values generated)

. egen mean7 = mean(size) if chamber==3 & timebloc>4, by(timebloc)
(923 missing values generated)

. graph mean* timeobs, c(llllllll) xlab ylab s(iiiiiiii)