

**MP - Parallel Edition**

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Serial number: 10699393

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 Student

Notes:

1. Unicode is supported; see [help unicode advice](#).
2. More than 2 billion observations are allowed; see [help obs advice](#).
3. Maximum number of variables is set to 5000; see [help set maxvar](#).

```
1 . webuse nlswork.dta
   (National Longitudinal Survey. Young Women 14–26 years of age in 1968)

2 . *Describe data

3 . describe
```

Contains data from <http://www.stata-press.com/data/r14/nlswork.dta>

```
obs:          28,534      National Longitudinal Survey. Young
                             Women 14–26 years of age in 1968
vars:           21
size:          941,622    27 Nov 2014 08:14
```

variable name	storage type	display format	value label	variable label
idcode	int	%8.0g		NLS ID
year	byte	%8.0g		interview year
birth_yr	byte	%8.0g		birth year
age	byte	%8.0g		age in current year
race	byte	%8.0g	racelbl	race
msp	byte	%8.0g		1 if married, spouse present
nev_mar	byte	%8.0g		1 if never married
grade	byte	%8.0g		current grade completed
collgrad	byte	%8.0g		1 if college graduate
not_smsa	byte	%8.0g		1 if not SMSA
c_city	byte	%8.0g		1 if central city
south	byte	%8.0g		1 if south
ind_code	byte	%8.0g		industry of employment
occ_code	byte	%8.0g		occupation
union	byte	%8.0g		1 if union
wks_ue	byte	%8.0g		weeks unemployed last year

t1l_exp	float	%9.0g	total work experience
tenure	float	%9.0g	job tenure, in years
hours	int	%8.0g	usual hours worked
wks_work	int	%8.0g	weeks worked last year
ln_wage	float	%9.0g	ln(wage/GNP deflator)

Sorted by: **idcode year**

```

4 .
5 . *Browse data

6 . browse

7 .
8 . *Set panel data

9 . xtset idcode year
    panel variable: idcode (unbalanced)
    time variable: year, 68 to 88, but with gaps
                  delta: 1 unit

10 .
11 . *Examine time

12 . tab year

```

interview year	Freq.	Percent	Cum.
68	1,375	4.82	4.82
69	1,232	4.32	9.14
70	1,686	5.91	15.05
71	1,851	6.49	21.53
72	1,693	5.93	27.47
73	1,981	6.94	34.41
75	2,141	7.50	41.91
77	2,171	7.61	49.52
78	1,964	6.88	56.40
80	1,847	6.47	62.88
82	2,085	7.31	70.18
83	1,987	6.96	77.15
85	2,085	7.31	84.45
87	2,164	7.58	92.04
88	2,272	7.96	100.00
Total	28,534	100.00	

```

13 . xtdescribe

```

idcode:	1, 2, ..., 5159	n =	4711
year:	68, 69, ..., 88	T =	15
	Delta(year) = 1 unit		
	Span(year) = 21 periods		

(idcode*year uniquely identifies each observation)

Distribution of T_i: min 5% 25% 50% 75% 95% max
 1 1 3 5 9 13 15

Freq.	Percent	Cum.	Pattern
136	2.89	2.89	1.....
114	2.42	5.311
89	1.89	7.201.11
87	1.85	9.0411
86	1.83	10.87	111111.1.11.1.11.1.11
61	1.29	12.1611.1.11
56	1.19	13.35	11.....
54	1.15	14.501.1.11
54	1.15	15.641.11.1.11.1.11
3974	84.36	100.00	(other patterns)
4711	100.00		XXXXXX.X.XX.X.XX.X.XX

14 .

15 . *Regression analysis without time

16 . reg ln_wage south grade age, cluster(idcode)

Linear regression	Number of obs	=	28,500
	F(3, 4707)	=	924.33
	Prob > F	=	0.0000
	R-squared	=	0.2547
	Root MSE	=	.41282

(Std. Err. adjusted for 4,708 clusters in idcode)

ln_wage	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
south	-.1445938	.0098876	-14.62	0.000	-.1639781	-.1252095
grade	.0782238	.0021664	36.11	0.000	.0739766	.082471
age	.015156	.0005771	26.26	0.000	.0140246	.0162874
_cons	.3135758	.0294599	10.64	0.000	.2558205	.371331

17 .

18 . *Regression analysis with time as an explanatory variable

19 . reg ln_wage south grade age year, cluster(idcode)

Linear regression	Number of obs	=	28,500
	F(4, 4707)	=	709.07
	Prob > F	=	0.0000
	R-squared	=	0.2549
	Root MSE	=	.41277

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1._at	: year	=	68
2._at	: year	=	69
3._at	: year	=	70
4._at	: year	=	71
5._at	: year	=	72
6._at	: year	=	73
7._at	: year	=	74
8._at	: year	=	75
9._at	: year	=	76
10._at	: year	=	77
11._at	: year	=	78
12._at	: year	=	79
13._at	: year	=	80
14._at	: year	=	81
15._at	: year	=	82
16._at	: year	=	83
17._at	: year	=	84

```

18._at      : year      =      85
19._at      : year      =      86
20._at      : year      =      87
21._at      : year      =      88

```

	Delta-method					
	Margin	Std. Err.	t	P> t	[95% Conf. Interval]	
_at						
1	1.651325	.0184044	89.72	0.000	1.615243	1.687406
2	1.653697	.0167241	98.88	0.000	1.62091	1.686484
3	1.656069	.0150606	109.96	0.000	1.626543	1.685595
4	1.658441	.0134201	123.58	0.000	1.632132	1.684751
5	1.660814	.0118123	140.60	0.000	1.637656	1.683971
6	1.663186	.0102524	162.22	0.000	1.643086	1.683285
7	1.665558	.0087661	190.00	0.000	1.648372	1.682744
8	1.66793	.007398	225.46	0.000	1.653427	1.682434
9	1.670302	.0062265	268.26	0.000	1.658096	1.682509
10	1.672675	.0053813	310.83	0.000	1.662125	1.683225
11	1.675047	.00503	333.01	0.000	1.665186	1.684908
12	1.677419	.005272	318.17	0.000	1.667084	1.687755
13	1.679791	.0060365	278.27	0.000	1.667957	1.691626
14	1.682164	.0071581	235.00	0.000	1.66813	1.696197
15	1.684536	.0084963	198.27	0.000	1.667879	1.701193
16	1.686908	.0099644	169.29	0.000	1.667373	1.706443
17	1.68928	.0115127	146.73	0.000	1.66671	1.711851
18	1.691653	.0131129	129.01	0.000	1.665945	1.71736
19	1.694025	.0147481	114.86	0.000	1.665112	1.722938
20	1.696397	.0164078	103.39	0.000	1.66423	1.728564
21	1.698769	.0180853	93.93	0.000	1.663314	1.734225

```
21 . marginsplot
```

Variables that uniquely identify margins: year

```
22 .
```

```
23 . reg ln_wage south grade age i.year, cluster(idcode)
```

```

Linear regression              Number of obs      =      28,500
                               F(17, 4707)         =      181.12
                               Prob > F            =      0.0000
                               R-squared           =      0.2568
                               Root MSE        =      .41233

```

(Std. Err. adjusted for 4,708 clusters in idcode)

	Robust					
ln_wage	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	

south	-.1449364	.0099022	-14.64	0.000	-.1643493	-.1255235
grade	.0779333	.0021695	35.92	0.000	.07368	.0821866
age	.0134291	.0017685	7.59	0.000	.0099621	.0168962
year						
69	.0829856	.0108061	7.68	0.000	.0618005	.1041707
70	.0432946	.0109298	3.96	0.000	.021867	.0647222
71	.070872	.0115366	6.14	0.000	.048255	.0934891
72	.078062	.0125525	6.22	0.000	.0534533	.1026708
73	.066934	.0130057	5.15	0.000	.0414367	.0924313
75	.0383487	.0146308	2.62	0.009	.0096654	.0670319
77	.0735034	.0173303	4.24	0.000	.0395278	.107479
78	.1082175	.0188854	5.73	0.000	.0711934	.1452417
80	.0854889	.0218975	3.90	0.000	.0425596	.1284182
82	.0562196	.0248152	2.27	0.024	.0075703	.104869
83	.0707402	.0269391	2.63	0.009	.017927	.1235534
85	.098134	.0299302	3.28	0.001	.0394568	.1568112
87	.0767199	.0333405	2.30	0.021	.0113568	.1420829
88	.0986891	.0361683	2.73	0.006	.0277823	.1695958
_cons	.2961905	.0448177	6.61	0.000	.2083269	.3840542

24 . margins year

Predictive margins	Number of obs	=	28,500
Model VCE	: Robust		
Expression	: Linear prediction, predict()		

	Delta-method					
	Margin	Std. Err.	t	P> t	[95% Conf. Interval]	
year						
68	1.603619	.0181614	88.30	0.000	1.568014	1.639224
69	1.686605	.0174892	96.44	0.000	1.652317	1.720892
70	1.646914	.0161138	102.20	0.000	1.615323	1.678504
71	1.674491	.0151867	110.26	0.000	1.644718	1.704264
72	1.681681	.0149922	112.17	0.000	1.652289	1.711073
73	1.670553	.0132981	125.62	0.000	1.644482	1.696623
75	1.641968	.0103947	157.96	0.000	1.621589	1.662346
77	1.677122	.0088701	189.08	0.000	1.659733	1.694512
78	1.711836	.0087855	194.85	0.000	1.694613	1.72906
80	1.689108	.0095122	177.57	0.000	1.670459	1.707756
82	1.659839	.0107185	154.86	0.000	1.638825	1.680852
83	1.674359	.0128712	130.09	0.000	1.649126	1.699593
85	1.701753	.0149107	114.13	0.000	1.672521	1.730985
87	1.680339	.0179133	93.80	0.000	1.64522	1.715457
88	1.702308	.0209063	81.43	0.000	1.661322	1.743294

25 . marginsplot

Variables that uniquely identify margins: year

26 .

27 . *Regression analysis with lags

28 . reg ln_wage l(0/3).south grade age year, cluster(idcode)

Linear regression	Number of obs	=	1,950
	F(7, 1019)	=	46.62
	Prob > F	=	0.0000
	R-squared	=	0.2422
	Root MSE	=	.31663

(Std. Err. adjusted for 1,020 clusters in idcode)

ln_wage	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
south						
--.	-.0852948	.0483319	-1.76	0.078	-.1801363	.0095467
L1.	-.1981113	.0501868	-3.95	0.000	-.2965927	-.09963
L2.	.0307332	.0572015	0.54	0.591	-.081513	.1429795
L3.	.0585834	.0395288	1.48	0.139	-.0189839	.1361506
grade	.0750462	.0069969	10.73	0.000	.0613163	.0887762
age	.0180449	.0043994	4.10	0.000	.009412	.0266778
year	.0088899	.0073364	1.21	0.226	-.0055062	.023286
_cons	-.204653	.5077511	-0.40	0.687	-1.20101	.7917043

29 . lincom south+l1.south+l2.south

(1) south + L.south + L2.south = 0

ln_wage	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
(1)	-.2526729	.0418212	-6.04	0.000	-.3347385	-.1706074

30 .

31 . *Regression analysis with lags

32 . reg d.ln_wage d.south d.grade d.age d.year, cluster(idcode)

note: D.grade omitted because of collinearity

note: D.year omitted because of collinearity

Linear regression	Number of obs	=	10,872
	F(2, 3693)	=	1.83
	Prob > F	=	0.1604
	R-squared	=	0.0006

Root MSE = .31414

(Std. Err. adjusted for 3,694 clusters in idcode)

D.ln_wage	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
south D1.	-.0473376	.0267994	-1.77	0.077	-.0998807	.0052055
grade D1.	0 (omitted)					
age D1.	.0091398	.0125662	0.73	0.467	-.0154976	.0337772
year D1.	0 (omitted)					
_cons	.0441232	.0131513	3.36	0.001	.0183388	.0699077

33 .

34 .