

```
*****
* A Practical Guide to Using Panel Data
* Simonetta Longhi and Alita Nandi
* ISER, University of Essex
* Chapter 13
*****
```

```
-----
name: <unnamed>
log: C:\My Documents\Example_Chapter13.log
log type: text
opened on: 1 Sep 2014, 15:35:07
```

```
.
.
. * Secion 13.1
. *-----
```

```
. use "$datadir/xwavedat", clear
```

```
. keep pid racel doby dobm
```

```
. duplicates report pid
```

```
Duplicates in terms of pid
```

```
-----
copies | observations      surplus
-----+-----
      1 |           43272         0
-----
```

```
. sort pid
```

```
. save temp, replace
(note: file temp.dta not found)
file temp.dta saved
```

```
.
. use "$datadir/bindresp", clear
```

```
. keep pid bsex bdoi bdoim bregion2
```

```
. duplicates report pid
```

```
Duplicates in terms of pid
```

```
-----
copies | observations      surplus
-----+-----
      1 |           9845         0
-----
```

```
. sort pid
```

```
. merge 1:1 pid using temp
```

```
Result                                     # of obs.
-----
not matched                               33,427
  from master                               0  (_merge==1)
  from using                               33,427 (_merge==2)

matched                                   9,845  (_merge==3)
-----
```

```
. keep if _merge==3
(33427 observations deleted)
```

```
. drop _merge
```

```
. save temp, replace
```

file temp.dta saved

```
. use "$datadir/blifemst.dta", clear  
. duplicates report pid
```

Duplicates in terms of pid

copies	observations	surplus
-----+-----		
1	1464	0
2	2982	1491
3	4608	3072
4	6212	4659
5	5305	4244
6	4314	3595
7	3094	2652
8	2288	2002
9	1512	1344
10	1130	1017
11	572	520
12	588	539
13	468	432
14	322	299
15	150	140
16	96	90
17	68	64
18	54	51
20	60	57
21	42	40
25	25	24
26	52	50
30	30	29
38	38	37

```
. duplicates report pid bleshno
```

Duplicates in terms of pid bleshno

copies	observations	surplus
-----+-----		
1	35474	0

```
. describe
```

Contains data from S:\final\blifemst.dta

```
obs:      35,474  
vars:      13  
size:     780,428
```

variable name	storage type	display format	value label	variable label

bhid	long	%12.0g		household identification number
bpno	byte	%8.0g		person number
bleshno	byte	%8.0g		lifetime employment history event number
bleshst	byte	%8.0g	bleshst	lifetime employment history status
bleshem	byte	%8.0g	bleshem	month lifetime emp. hist. status changed
bleshey	byte	%8.0g	bleshey	year lifetime emp. history status change
bleshne	byte	%8.0g	bleshne	lifetime emp. history status not ended
bleshsm	byte	%8.0g	bleshsm	month lifetime emp. hist. status started
bleshsy	byte	%8.0g	bleshsy	year lifetime emp. history status starte
bleslen	int	%8.0g	bleslen	length of emp. history spell (months)
bleshey4	int	%8.0g	bleshey4	year emp. history status changed: 4 digi
bleshsy4	int	%8.0g	bleshsy4	year emp. history status started: 4 digi
pid	long	%12.0g		cross-wave person identifier

Sorted by:

```
. summarize
```

Variable	Obs	Mean	Std. Dev.	Min	Max
bhid	35474	2503447	289763.2	2000024	2994534
bpno	35474	1.598241	.7876311	1	10
bleshno	35474	3.314061	2.548213	1	38
bleshst	35474	4.031516	2.711942	-9	12
bleshem	35474	3.394402	7.780118	-9	16
bleshey	35474	53.75216	38.6545	-9	93
bleshne	35474	-5.711451	3.919353	-9	1
bleshsm	35474	7.120877	4.355543	-9	16
bleshsy	35474	71.7634	17.79221	-9	96
bleslen	35474	88.42411	119.0971	-9	830
bleshey4	35474	1466.406	866.0848	-9	1993
bleshsy4	35474	1965.658	113.0562	-9	1996
pid	35474	1.53e+07	3328086	1.00e+07	2.93e+07

```
. sort pid
```

```
. merge m:1 pid using temp
```

Result	# of obs.
not matched	819
from master	0 (_merge==1)
from using	819 (_merge==2)
matched	35,474 (_merge==3)

```
. keep if _merge==3
(819 observations deleted)
```

```
.
. fre racel
```

```
racel -- ethnic group membership (long version)
```

		Freq.	Percent	Valid	Cum.
Valid	-8 inapplicable	14463	40.77	40.77	40.77
	1 white british	16537	46.62	46.62	87.39
	2 white irish	268	0.76	0.76	88.14
	3 white welsh	889	2.51	2.51	90.65
	4 white scottish	1593	4.49	4.49	95.14
	5 other white b'ground	1071	3.02	3.02	98.16
	6 mix w & b caribbean	35	0.10	0.10	98.26
	7 mixed w & b african	19	0.05	0.05	98.31
	8 mix white and asian	11	0.03	0.03	98.34
	9 other mixed b'ground	21	0.06	0.06	98.40
	10 asian/brit indian	222	0.63	0.63	99.03
	11 asian/brit pakistani	38	0.11	0.11	99.13
	12 asian/brit bangladeshi	7	0.02	0.02	99.15
	13 other asian b'ground	35	0.10	0.10	99.25
	14 black/brit caribbean	66	0.19	0.19	99.44
	15 black/brit african	17	0.05	0.05	99.49
	16 other black b'ground	13	0.04	0.04	99.52
	17 chinese	36	0.10	0.10	99.63
	18 any other	133	0.37	0.37	100.00
	Total	35474	100.00	100.00	

```
. recode racel 1/5=1 6/18=0 -9/-1=., gen(white)
(18937 differences between racel and white)
```

```
. label var white "ethnic group"
```

```
. label define white 1 "white" 0 "non-white"
```

```
. label values white white
```

```
. tabulate racel white, m
```

ethnic group membership (long version)	non-white	white	.	Total
inapplicable	0	0	14,463	14,463
white british	0	16,537	0	16,537
white irish	0	268	0	268
white welsh	0	889	0	889
white scottish	0	1,593	0	1,593
other white b'ground	0	1,071	0	1,071
mix w & b caribbean	35	0	0	35
mixed w & b african	19	0	0	19
mix white and asian	11	0	0	11
other mixed b'ground	21	0	0	21
asian/brit indian	222	0	0	222
asian/brit pakistani	38	0	0	38
asian/brit bangladesh	7	0	0	7
other asian b'ground	35	0	0	35
black/brit caribbean	66	0	0	66
black/brit african	17	0	0	17
other black b'ground	13	0	0	13
chinese	36	0	0	36
any other	133	0	0	133
Total	653	20,358	14,463	35,474

```
.  
. fre bsex
```

```
bsex -- sex
```

		Freq.	Percent	Valid	Cum.
Valid	1 male	13909	39.21	39.21	39.21
	2 female	21565	60.79	60.79	100.00
	Total	35474	100.00	100.00	

```
. recode bsex 1=0 2=1 -9/-1=., gen(female)  
(35474 differences between bsex and female)
```

```
. label var female "gender"
```

```
. label define female 1 "female" 0 "male"
```

```
. label values female female
```

```
. tabulate bsex female, m
```

sex	gender male	female	Total
male	13,909	0	13,909
female	0	21,565	21,565
Total	13,909	21,565	35,474

```
.  
. generate london=bregion2==7  
. generate north=inlist(bregion2,1,2,3)  
. generate midlands=inlist(bregion2,4,5)  
. generate stheast=inlist(bregion2,6,8,9)  
. generate wales=bregion2==10
```

```

. generate scotland=bregion2==11

. foreach v in london north midlands stheast wales scotland {
2.     replace `v'=. if bregion2<0
3.     tabulate bregion2 `v', missing
4.     label var `v' "region of residence: `v'"
5. }
(246 real changes made, 246 to missing)

```

government office region	london		.	Total
	0	1		
missing	0	0	246	246
north east	1,764	0	0	1,764
north west	4,535	0	0	4,535
yorkshire & humber	3,541	0	0	3,541
east midlands	2,652	0	0	2,652
west midlands	2,994	0	0	2,994
east of england	2,927	0	0	2,927
london	0	3,485	0	3,485
south east	4,745	0	0	4,745
south west	3,317	0	0	3,317
wales	1,939	0	0	1,939
scotland	3,329	0	0	3,329
Total	31,743	3,485	246	35,474

(246 real changes made, 246 to missing)

government office region	north		.	Total
	0	1		
missing	0	0	246	246
north east	0	1,764	0	1,764
north west	0	4,535	0	4,535
yorkshire & humber	0	3,541	0	3,541
east midlands	2,652	0	0	2,652
west midlands	2,994	0	0	2,994
east of england	2,927	0	0	2,927
london	3,485	0	0	3,485
south east	4,745	0	0	4,745
south west	3,317	0	0	3,317
wales	1,939	0	0	1,939
scotland	3,329	0	0	3,329
Total	25,388	9,840	246	35,474

(246 real changes made, 246 to missing)

government office region	midlands		.	Total
	0	1		
missing	0	0	246	246
north east	1,764	0	0	1,764
north west	4,535	0	0	4,535
yorkshire & humber	3,541	0	0	3,541
east midlands	0	2,652	0	2,652
west midlands	0	2,994	0	2,994
east of england	2,927	0	0	2,927
london	3,485	0	0	3,485
south east	4,745	0	0	4,745
south west	3,317	0	0	3,317
wales	1,939	0	0	1,939
scotland	3,329	0	0	3,329
Total	29,582	5,646	246	35,474

(246 real changes made, 246 to missing)

government office region	stheast		.	Total
	0	1		

missing	0	0	246	246
north east	1,764	0	0	1,764
north west	4,535	0	0	4,535
yorkshire & humber	3,541	0	0	3,541
east midlands	2,652	0	0	2,652
west midlands	2,994	0	0	2,994
east of england	0	2,927	0	2,927
london	3,485	0	0	3,485
south east	0	4,745	0	4,745
south west	0	3,317	0	3,317
wales	1,939	0	0	1,939
scotland	3,329	0	0	3,329
Total	24,239	10,989	246	35,474

(246 real changes made, 246 to missing)

government office region	0	wales 1	.	Total
missing	0	0	246	246
north east	1,764	0	0	1,764
north west	4,535	0	0	4,535
yorkshire & humber	3,541	0	0	3,541
east midlands	2,652	0	0	2,652
west midlands	2,994	0	0	2,994
east of england	2,927	0	0	2,927
london	3,485	0	0	3,485
south east	4,745	0	0	4,745
south west	3,317	0	0	3,317
wales	0	1,939	0	1,939
scotland	3,329	0	0	3,329
Total	33,289	1,939	246	35,474

(246 real changes made, 246 to missing)

government office region	0	scotland 1	.	Total
missing	0	0	246	246
north east	1,764	0	0	1,764
north west	4,535	0	0	4,535
yorkshire & humber	3,541	0	0	3,541
east midlands	2,652	0	0	2,652
west midlands	2,994	0	0	2,994
east of england	2,927	0	0	2,927
london	3,485	0	0	3,485
south east	4,745	0	0	4,745
south west	3,317	0	0	3,317
wales	1,939	0	0	1,939
scotland	0	3,329	0	3,329
Total	31,899	3,329	246	35,474

```
.
. rename bleshsy4 start_year
. rename bleshtm start_month
. rename bleshey4 end_year
. rename bleshem end_month
. rename bleshno spellno
. rename bleshst activity_status
. rename bleshne spell_ongoing
. rename bdoiyear intv_year
```

```

. rename bdoim      intv_month

.
. label copy bleshsy4 start_year
. label copy bleshsm  start_month
. label copy bleshey4 end_year
. label copy bleshem  end_month
. label copy bleshst  activity_status
. label copy bleshne  spell_ongoing
. label copy bdoi_y  intv_year
. label copy bdoim  intv_month

.
. foreach v in start_year start_month end_year end_month activity_status ///
>     spell_ongoing intv_year intv_month {
  2.         lab val `v' `v'
  3. }

. drop bleshey bleshsy bhid bpno _merge bleslen

. describe

```

Contains data from S:\final\blifemst.dta

```

obs:      35,474
vars:      23
size:     1,667,278

```

variable name	storage type	display format	value label	variable label
spellno	byte	%8.0g		lifetime employment history event number
activity_status	byte	%23.0g	activity_status	lifetime employment history status
end_month	byte	%15.0g	end_month	month lifetime emp. hist. status changed
spell_ongoing	byte	%15.0g	spell_ongoing	lifetime emp. history status not ended
start_month	byte	%15.0g	start_month	month lifetime emp. hist. status started
end_year	int	%23.0g	end_year	year emp. history status changed: 4 digi
start_year	int	%23.0g	start_year	year emp. history status started: 4 digi
pid	long	%12.0g		cross-wave person identifier
intv_month	byte	%15.0g	intv_month	date of interview: month
intv_year	byte	%15.0g	intv_year	date of interview: year
bsex	byte	%8.0g	bsex	sex
bregion2	byte	%8.0g	bregion2	government office region
dobm	byte	%8.0g	dobm	month of birth
doby	int	%8.0g	doby	year of birth
racel	byte	%8.0g	racel	ethnic group membership (long version)
white	byte	%9.0g	white	ethnic group
female	byte	%9.0g	female	gender
london	float	%9.0g		region of residence: london
north	float	%9.0g		region of residence: north
midlands	float	%9.0g		region of residence: midlands
stheast	float	%9.0g		region of residence: stheast
wales	float	%9.0g		region of residence: wales
scotland	float	%9.0g		region of residence: scotland

Sorted by:

Note: dataset has changed since last saved

```

. summarize

```

Variable	Obs	Mean	Std. Dev.	Min	Max
spellno	35474	3.314061	2.548213	1	38
activity_s~s	35474	4.031516	2.711942	-9	12
end_month	35474	3.394402	7.780118	-9	16
spell_ongo~g	35474	-5.711451	3.919353	-9	1
start_month	35474	7.120877	4.355543	-9	16
end_year	35474	1466.406	866.0848	-9	1993
start_year	35474	1965.658	113.0562	-9	1996
pid	35474	1.53e+07	3328086	1.00e+07	2.93e+07
intv_month	35474	9.543328	1.361254	1	12
intv_year	35474	92.02534	.1571654	92	93
bsex	35474	1.60791	.4882235	1	2
bregion2	35474	5.936742	3.289755	-9	11
dobm	35474	6.459069	3.391969	1	12
doby	35474	1944.427	25.18917	-9	1976
racel	35474	-2.143739	5.181514	-8	18
white	21011	.968921	.1735353	0	1
female	35474	.60791	.4882235	0	1
london	35228	.098927	.2985682	0	1
north	35228	.2793233	.448673	0	1
midlands	35228	.1602702	.3668617	0	1
stheast	35228	.3119394	.4632918	0	1
wales	35228	.0550414	.2280644	0	1
scotland	35228	.0944987	.2925254	0	1

```
.
. sort pid spellno
```

```
. save duration, replace
file duration.dta saved
```

```
.
. replace intv_year=intv_year+1900
intv_year was byte now int
(35474 real changes made)
```

```
.
. replace end_month=intv_month if spell_ongoing==1
(9021 real changes made)
```

```
. replace end_year=intv_year if spell_ongoing==1
(9021 real changes made)
```

```
.
. foreach v in start end {
2.     replace `v'_month = 1 if `v'_month==13 & `v'_year<. & `v'_year>0
3.     replace `v'_month = 4 if `v'_month==14 & `v'_year<. & `v'_year>0
4.     replace `v'_month = 7 if `v'_month==15 & `v'_year<. & `v'_year>0
5.     replace `v'_month = 10 if `v'_month==16 & `v'_year<. & `v'_year>0
6.     replace `v'_month = 6 if `v'_month== -1 & `v'_year<. & `v'_year>0
7. }
(772 real changes made)
(1005 real changes made)
(1660 real changes made)
(808 real changes made)
(2208 real changes made)
(736 real changes made)
(907 real changes made)
(1410 real changes made)
(794 real changes made)
(1750 real changes made)
```

```
.
. fre activity_status
```

```
activity_status -- lifetime employment history status
```

	Freq.	Percent	Valid	Cum.
--	-------	---------	-------	------

Valid	-9 missing or wild	8	0.02	0.02	0.02
	-2 refused	1	0.00	0.00	0.03
	-1 can't remember	1	0.00	0.00	0.03
	1 self-employed	1555	4.38	4.38	4.41
	2 f/t paid employment	14397	40.58	40.58	45.00
	3 p/t paid employment	4451	12.55	12.55	57.54
	4 unemployed	4252	11.99	11.99	69.53
	5 retired	1568	4.42	4.42	73.95
	6 maternity leave	678	1.91	1.91	75.86
	7 family care	5053	14.24	14.24	90.11
	8 ft studt, school	829	2.34	2.34	92.44
	9 lt sick, disabl	512	1.44	1.44	93.89
	10 gvt trng scheme	681	1.92	1.92	95.81
	11 national/war service	806	2.27	2.27	98.08
	12 something else	682	1.92	1.92	100.00
	Total	35474	100.00	100.00	

```
. generate unempdur=((end_year-start_year)*12) + ///
> (end_month-start_month) if activity_status==4 ///
> & start_year>0 & end_year>0 & start_month>0 & end_month>0 ///
> & start_year<. & end_year<. & start_month<. & end_month<.
(31242 missing values generated)
```

```
.
. generate censored=1 if spell_ongoing==1
(26453 missing values generated)
```

```
. replace censored=0 if spell_ongoing== -8
(26448 real changes made)
```

```
.
. tabulate unempdur if unempdur<0
```

unempdur	Freq.	Percent	Cum.
-9	11	24.44	24.44
-6	18	40.00	64.44
-5	4	8.89	73.33
-4	1	2.22	75.56
-3	2	4.44	80.00
-2	4	8.89	88.89
-1	5	11.11	100.00
Total	45	100.00	

```
.
. * browse pid spellno activity_status unempdur activity_status start_year ///
> start_month end_year end_month if unempdur<0
.
. fre activity_status if unempdur==.
```

activity_status -- lifetime employment history status

		Freq.	Percent	Valid	Cum.
Valid	-9 missing or wild	8	0.03	0.03	0.03
	-2 refused	1	0.00	0.00	0.03
	-1 can't remember	1	0.00	0.00	0.03
	1 self-employed	1555	4.98	4.98	5.01
	2 f/t paid employment	14397	46.08	46.08	51.09
	3 p/t paid employment	4451	14.25	14.25	65.34
	4 unemployed	20	0.06	0.06	65.40
	5 retired	1568	5.02	5.02	70.42
	6 maternity leave	678	2.17	2.17	72.59
	7 family care	5053	16.17	16.17	88.77
	8 ft studt, school	829	2.65	2.65	91.42
	9 lt sick, disabl	512	1.64	1.64	93.06
	10 gvt trng scheme	681	2.18	2.18	95.24
	11 national/war service	806	2.58	2.58	97.82
	12 something else	682	2.18	2.18	100.00
	Total	31242	100.00	100.00	

```

. drop if unempdur<0
(45 observations deleted)

. drop if unempdur==.
(31242 observations deleted)

. keep if activity_status==4
(0 observations deleted)

. bysort pid (spellno): keep if _n==1
(1500 observations deleted)

. list pid spellno unempdur activity_status censored in 1/10, sepby(pid)

```

	pid	spellno	unempdur	activity~s	censored
1.	10004491	2	22	unemployed	1
2.	10004521	2	19	unemployed	1
3.	10016813	3	5	unemployed	0
4.	10017968	2	3	unemployed	0
5.	10020179	2	12	unemployed	0
6.	10020233	3	2	unemployed	0
7.	10024646	2	24	unemployed	0
8.	10028005	2	12	unemployed	0
9.	10029133	3	3	unemployed	0
10.	10040366	2	4	unemployed	0

```

. duplicates report pid

```

Duplicates in terms of pid

copies	observations	surplus
1	2687	0

```

. generate age=(start_year-doby)+((start_month-dobm)*12) ///
> if start_year>=0 & doby>=0 & start_month>=0 & dobm>=0 ///
> & start_year<. & doby<. & start_month<. & dobm<.

```

```

. save duration_continuous, replace
file duration_continuous.dta saved

```

```

. expand unempdur
(88 zero counts ignored; observations not deleted)
(33475 observations created)

```

```

. bysort pid: generate monthid=_n

```

```

. generate spellended=0

```

```

. bysort pid (monthid): replace spellended =1 if _n==_N & censored==0
(2403 real changes made)

```

```

.
. save duration_discrete, replace
file duration_discrete.dta saved

.
. erase temp.dta

.
.
. * Secion 13.2.1
. *-----
.
. use duration_continuous, clear

. stset unempdur, failure(censored==0)

      failure event:  censored == 0
obs. time interval:  (0, unempdur]
exit on or before:  failure

-----
      2687  total observations
           88  observations end on or before enter()
-----
      2599  observations remaining, representing
      2335  failures in single-record/single-failure data
      36074 total analysis time at risk and under observation
                                at risk from t =          0
                                earliest observed entry t =      0
                                last observed exit t =         504

. st
-> stset unempdur, failure(censored==0)

      failure event:  censored == 0
obs. time interval:  (0, unempdur]
exit on or before:  failure

.
. * Secion 13.2.2
. *-----
.
. sts list

      failure _d:  censored == 0
analysis time _t:  unempdur


```

Time	Beg. Total	Fail	Net Lost	Survivor Function	Std. Error	[95% Conf. Int.]
1	2599	211	16	0.9188	0.0054	0.9076 0.9287
2	2372	326	32	0.7925	0.0080	0.7764 0.8077
3	2014	320	17	0.6666	0.0093	0.6480 0.6845
4	1677	183	13	0.5939	0.0097	0.5745 0.6126
5	1481	109	12	0.5502	0.0099	0.5306 0.5693
6	1360	155	10	0.4875	0.0099	0.4678 0.5068
7	1195	87	8	0.4520	0.0099	0.4324 0.4713
8	1100	79	8	0.4195	0.0099	0.4001 0.4388
9	1013	77	9	0.3876	0.0098	0.3685 0.4067
10	927	48	5	0.3676	0.0097	0.3486 0.3865
11	874	40	10	0.3507	0.0096	0.3320 0.3695
12	824	164	8	0.2809	0.0091	0.2632 0.2989
13	652	27	4	0.2693	0.0090	0.2518 0.2870
14	621	33	3	0.2550	0.0089	0.2378 0.2725
15	585	39	4	0.2380	0.0087	0.2212 0.2552
16	542	25	5	0.2270	0.0085	0.2105 0.2439
17	512	19	4	0.2186	0.0084	0.2023 0.2353
18	489	33	3	0.2038	0.0083	0.1879 0.2202
19	453	14	2	0.1975	0.0082	0.1818 0.2138
20	437	18	2	0.1894	0.0081	0.1739 0.2054
21	417	17	6	0.1817	0.0079	0.1664 0.1975
22	394	14	5	0.1752	0.0078	0.1601 0.1909

23	375	16	0	0.1677	0.0077	0.1529	0.1832
24	359	41	2	0.1486	0.0074	0.1344	0.1634
25	316	8	4	0.1448	0.0073	0.1308	0.1595
26	304	7	0	0.1415	0.0073	0.1276	0.1561
27	297	8	2	0.1377	0.0072	0.1239	0.1521
28	287	4	3	0.1358	0.0072	0.1221	0.1502
29	280	10	2	0.1309	0.0071	0.1174	0.1451
30	268	14	0	0.1241	0.0069	0.1109	0.1380
31	254	6	4	0.1211	0.0069	0.1081	0.1350
32	244	8	0	0.1172	0.0068	0.1043	0.1309
33	236	7	3	0.1137	0.0067	0.1010	0.1273
34	226	6	2	0.1107	0.0066	0.0981	0.1241
35	218	3	2	0.1092	0.0066	0.0966	0.1225
36	213	15	2	0.1015	0.0064	0.0893	0.1145
37	196	4	0	0.0994	0.0064	0.0873	0.1124
38	192	6	2	0.0963	0.0063	0.0844	0.1091
39	184	4	5	0.0942	0.0063	0.0824	0.1069
40	175	5	0	0.0915	0.0062	0.0798	0.1041
41	170	2	0	0.0904	0.0062	0.0788	0.1030
43	168	3	0	0.0888	0.0061	0.0773	0.1013
44	165	4	0	0.0867	0.0061	0.0752	0.0991
45	161	3	1	0.0850	0.0060	0.0737	0.0974
46	157	0	1	0.0850	0.0060	0.0737	0.0974
47	156	6	1	0.0818	0.0059	0.0706	0.0939
48	149	10	0	0.0763	0.0058	0.0654	0.0882
49	139	3	0	0.0746	0.0057	0.0639	0.0864
50	136	2	1	0.0735	0.0057	0.0629	0.0853
51	133	4	1	0.0713	0.0057	0.0608	0.0829
52	128	2	0	0.0702	0.0056	0.0597	0.0818
53	126	3	0	0.0685	0.0056	0.0582	0.0800
54	123	3	1	0.0669	0.0055	0.0566	0.0782
55	119	1	0	0.0663	0.0055	0.0561	0.0776
56	118	2	0	0.0652	0.0055	0.0550	0.0764
57	116	2	0	0.0641	0.0054	0.0540	0.0753
59	114	3	0	0.0624	0.0054	0.0524	0.0735
60	111	8	0	0.0579	0.0052	0.0482	0.0687
61	103	1	0	0.0573	0.0052	0.0477	0.0681
62	102	2	0	0.0562	0.0051	0.0467	0.0669
63	100	1	0	0.0556	0.0051	0.0462	0.0663
64	99	2	2	0.0545	0.0051	0.0451	0.0651
65	95	2	0	0.0534	0.0050	0.0441	0.0639
66	93	2	0	0.0522	0.0050	0.0430	0.0626
67	91	1	1	0.0516	0.0050	0.0425	0.0620
68	89	1	2	0.0511	0.0050	0.0420	0.0614
69	86	0	1	0.0511	0.0050	0.0420	0.0614
72	85	1	1	0.0505	0.0049	0.0414	0.0607
73	83	0	2	0.0505	0.0049	0.0414	0.0607
74	81	3	0	0.0486	0.0049	0.0397	0.0588
75	78	0	1	0.0486	0.0049	0.0397	0.0588
76	77	1	1	0.0480	0.0048	0.0391	0.0581
77	75	1	0	0.0473	0.0048	0.0385	0.0574
79	74	1	1	0.0467	0.0048	0.0379	0.0567
80	72	0	2	0.0467	0.0048	0.0379	0.0567
81	70	2	0	0.0453	0.0048	0.0367	0.0553
82	68	1	0	0.0447	0.0047	0.0361	0.0546
83	67	1	1	0.0440	0.0047	0.0354	0.0539
84	65	1	1	0.0433	0.0047	0.0348	0.0532
85	63	1	0	0.0426	0.0047	0.0342	0.0525
86	62	2	0	0.0413	0.0046	0.0329	0.0510
87	60	1	0	0.0406	0.0046	0.0323	0.0503
88	59	1	0	0.0399	0.0046	0.0316	0.0495
89	58	0	1	0.0399	0.0046	0.0316	0.0495
90	57	1	1	0.0392	0.0045	0.0310	0.0488
91	55	2	0	0.0378	0.0045	0.0297	0.0473
93	53	1	0	0.0371	0.0044	0.0290	0.0465
95	52	1	0	0.0363	0.0044	0.0284	0.0457
96	51	2	1	0.0349	0.0044	0.0271	0.0442
98	48	1	0	0.0342	0.0043	0.0264	0.0434
100	47	1	0	0.0335	0.0043	0.0258	0.0427
101	46	0	1	0.0335	0.0043	0.0258	0.0427
103	45	1	0	0.0327	0.0043	0.0251	0.0419
104	44	1	0	0.0320	0.0042	0.0244	0.0411
105	43	2	1	0.0305	0.0042	0.0231	0.0395

106	40	1	1	0.0297	0.0041	0.0224	0.0386
108	38	2	0	0.0282	0.0041	0.0210	0.0369
110	36	1	0	0.0274	0.0040	0.0203	0.0361
111	35	1	0	0.0266	0.0040	0.0196	0.0353
114	34	1	1	0.0258	0.0039	0.0189	0.0344
118	32	0	1	0.0258	0.0039	0.0189	0.0344
121	31	0	1	0.0258	0.0039	0.0189	0.0344
122	30	0	1	0.0258	0.0039	0.0189	0.0344
123	29	0	1	0.0258	0.0039	0.0189	0.0344
126	28	2	1	0.0240	0.0039	0.0172	0.0325
128	25	1	0	0.0230	0.0038	0.0164	0.0315
129	24	0	1	0.0230	0.0038	0.0164	0.0315
133	23	0	2	0.0230	0.0038	0.0164	0.0315
139	21	0	1	0.0230	0.0038	0.0164	0.0315
144	20	1	0	0.0219	0.0038	0.0153	0.0303
147	19	1	0	0.0207	0.0038	0.0142	0.0291
149	18	1	1	0.0196	0.0037	0.0132	0.0280
159	16	0	1	0.0196	0.0037	0.0132	0.0280
160	15	0	1	0.0196	0.0037	0.0132	0.0280
161	14	0	1	0.0196	0.0037	0.0132	0.0280
163	13	1	0	0.0181	0.0037	0.0118	0.0266
175	12	1	0	0.0166	0.0037	0.0104	0.0251
183	11	0	1	0.0166	0.0037	0.0104	0.0251
198	10	1	0	0.0149	0.0037	0.0089	0.0236
248	9	1	0	0.0132	0.0036	0.0075	0.0220
255	8	1	0	0.0116	0.0035	0.0061	0.0203
279	7	1	0	0.0099	0.0034	0.0048	0.0185
301	6	1	0	0.0083	0.0032	0.0036	0.0167
304	5	0	1	0.0083	0.0032	0.0036	0.0167
371	4	1	0	0.0062	0.0030	0.0022	0.0147
397	3	0	1	0.0062	0.0030	0.0022	0.0147
408	2	1	0	0.0031	0.0027	0.0004	0.0133
504	1	1	0	0.0000	.	.	.

```
. sts graph
```

```
    failure _d: censored == 0
analysis time _t: unempdur
```

```
. sts graph, saving(surv1, replace) scheme(s2mono)
```

```
    failure _d: censored == 0
analysis time _t: unempdur
(file surv1.gph saved)
```

```
. sts graph, failure saving(faill1, replace) scheme(s2mono)
```

```
    failure _d: censored == 0
analysis time _t: unempdur
(file faill1.gph saved)
```

```
. sts graph, cumhaz saving(cumhaz1, replace) scheme(s2mono)
```

```
    failure _d: censored == 0
analysis time _t: unempdur
(file cumhaz1.gph saved)
```

```
. sts graph, hazard saving(haz1, replace) scheme(s2mono)
```

```
    failure _d: censored == 0
analysis time _t: unempdur
(file haz1.gph saved)
```

```
.
. ltable unempdur
```

Interval	Beg. Total	Deaths	Lost	Survival	Std. Error	[95% Conf. Int.]		
0	1	2687	88	0	0.9672	0.0034	0.9598	0.9733
1	2	2599	227	0	0.8828	0.0062	0.8700	0.8944
2	3	2372	358	0	0.7495	0.0084	0.7327	0.7655

3	4	2014	337	0	0.6241	0.0093	0.6055	0.6421
4	5	1677	196	0	0.5512	0.0096	0.5322	0.5698
5	6	1481	121	0	0.5061	0.0096	0.4871	0.5249
6	7	1360	165	0	0.4447	0.0096	0.4259	0.4634
7	8	1195	95	0	0.4094	0.0095	0.3907	0.4279
8	9	1100	87	0	0.3770	0.0093	0.3587	0.3953
9	10	1013	86	0	0.3450	0.0092	0.3271	0.3630
10	11	927	53	0	0.3253	0.0090	0.3076	0.3430
11	12	874	50	0	0.3067	0.0089	0.2893	0.3242
12	13	824	172	0	0.2426	0.0083	0.2266	0.2590
13	14	652	31	0	0.2311	0.0081	0.2154	0.2472
14	15	621	36	0	0.2177	0.0080	0.2023	0.2335
15	16	585	43	0	0.2017	0.0077	0.1868	0.2171
16	17	542	30	0	0.1905	0.0076	0.1759	0.2056
17	18	512	23	0	0.1820	0.0074	0.1676	0.1968
18	19	489	36	0	0.1686	0.0072	0.1547	0.1830
19	20	453	16	0	0.1626	0.0071	0.1490	0.1769
20	21	437	20	0	0.1552	0.0070	0.1418	0.1692
21	22	417	23	0	0.1466	0.0068	0.1336	0.1603
22	23	394	19	0	0.1396	0.0067	0.1268	0.1530
23	24	375	16	0	0.1336	0.0066	0.1211	0.1468
24	25	359	43	0	0.1176	0.0062	0.1058	0.1301
25	26	316	12	0	0.1131	0.0061	0.1015	0.1255
26	27	304	7	0	0.1105	0.0060	0.0990	0.1227
27	28	297	10	0	0.1068	0.0060	0.0955	0.1188
28	29	287	7	0	0.1042	0.0059	0.0930	0.1161
29	30	280	12	0	0.0997	0.0058	0.0888	0.1114
30	31	268	14	0	0.0945	0.0056	0.0838	0.1060
31	32	254	10	0	0.0908	0.0055	0.0803	0.1020
32	33	244	8	0	0.0878	0.0055	0.0775	0.0989
33	34	236	10	0	0.0841	0.0054	0.0740	0.0950
34	35	226	8	0	0.0811	0.0053	0.0712	0.0918
35	36	218	5	0	0.0793	0.0052	0.0695	0.0899
36	37	213	17	0	0.0729	0.0050	0.0635	0.0832
37	38	196	4	0	0.0715	0.0050	0.0621	0.0816
38	39	192	8	0	0.0685	0.0049	0.0593	0.0784
39	40	184	9	0	0.0651	0.0048	0.0562	0.0749
40	41	175	5	0	0.0633	0.0047	0.0545	0.0729
41	42	170	2	0	0.0625	0.0047	0.0538	0.0721
43	44	168	3	0	0.0614	0.0046	0.0528	0.0709
44	45	165	4	0	0.0599	0.0046	0.0514	0.0693
45	46	161	4	0	0.0584	0.0045	0.0500	0.0677
46	47	157	1	0	0.0581	0.0045	0.0496	0.0673
47	48	156	7	0	0.0555	0.0044	0.0472	0.0645
48	49	149	10	0	0.0517	0.0043	0.0438	0.0606
49	50	139	3	0	0.0506	0.0042	0.0428	0.0594
50	51	136	3	0	0.0495	0.0042	0.0417	0.0582
51	52	133	5	0	0.0476	0.0041	0.0400	0.0562
52	53	128	2	0	0.0469	0.0041	0.0394	0.0553
53	54	126	3	0	0.0458	0.0040	0.0383	0.0541
54	55	123	4	0	0.0443	0.0040	0.0370	0.0525
55	56	119	1	0	0.0439	0.0040	0.0366	0.0521
56	57	118	2	0	0.0432	0.0039	0.0359	0.0513
57	58	116	2	0	0.0424	0.0039	0.0353	0.0505
59	60	114	3	0	0.0413	0.0038	0.0342	0.0493
60	61	111	8	0	0.0383	0.0037	0.0315	0.0461
61	62	103	1	0	0.0380	0.0037	0.0312	0.0457
62	63	102	2	0	0.0372	0.0037	0.0305	0.0449
63	64	100	1	0	0.0368	0.0036	0.0302	0.0445
64	65	99	4	0	0.0354	0.0036	0.0288	0.0428
65	66	95	2	0	0.0346	0.0035	0.0282	0.0420
66	67	93	2	0	0.0339	0.0035	0.0275	0.0412
67	68	91	2	0	0.0331	0.0035	0.0268	0.0404
68	69	89	3	0	0.0320	0.0034	0.0258	0.0392
69	70	86	1	0	0.0316	0.0034	0.0255	0.0388
72	73	85	2	0	0.0309	0.0033	0.0248	0.0379
73	74	83	2	0	0.0301	0.0033	0.0242	0.0371
74	75	81	3	0	0.0290	0.0032	0.0232	0.0359
75	76	78	1	0	0.0287	0.0032	0.0228	0.0355
76	77	77	2	0	0.0279	0.0032	0.0222	0.0347
77	78	75	1	0	0.0275	0.0032	0.0218	0.0342
79	80	74	2	0	0.0268	0.0031	0.0212	0.0334
80	81	72	2	0	0.0261	0.0031	0.0205	0.0326

81	82	70	2	0	0.0253	0.0030	0.0199	0.0318
82	83	68	1	0	0.0249	0.0030	0.0195	0.0314
83	84	67	2	0	0.0242	0.0030	0.0189	0.0305
84	85	65	2	0	0.0234	0.0029	0.0182	0.0297
85	86	63	1	0	0.0231	0.0029	0.0179	0.0293
86	87	62	2	0	0.0223	0.0029	0.0172	0.0284
87	88	60	1	0	0.0220	0.0028	0.0169	0.0280
88	89	59	1	0	0.0216	0.0028	0.0166	0.0276
89	90	58	1	0	0.0212	0.0028	0.0163	0.0272
90	91	57	2	0	0.0205	0.0027	0.0156	0.0264
91	92	55	2	0	0.0197	0.0027	0.0150	0.0255
93	94	53	1	0	0.0194	0.0027	0.0146	0.0251
95	96	52	1	0	0.0190	0.0026	0.0143	0.0247
96	97	51	3	0	0.0179	0.0026	0.0134	0.0234
98	99	48	1	0	0.0175	0.0025	0.0130	0.0230
100	101	47	1	0	0.0171	0.0025	0.0127	0.0226
101	102	46	1	0	0.0167	0.0025	0.0124	0.0222
103	104	45	1	0	0.0164	0.0024	0.0121	0.0217
104	105	44	1	0	0.0160	0.0024	0.0118	0.0213
105	106	43	3	0	0.0149	0.0023	0.0108	0.0200
106	107	40	2	0	0.0141	0.0023	0.0102	0.0192
108	109	38	2	0	0.0134	0.0022	0.0096	0.0183
110	111	36	1	0	0.0130	0.0022	0.0093	0.0179
111	112	35	1	0	0.0127	0.0022	0.0089	0.0175
114	115	34	2	0	0.0119	0.0021	0.0083	0.0166
118	119	32	1	0	0.0115	0.0021	0.0080	0.0162
121	122	31	1	0	0.0112	0.0020	0.0077	0.0157
122	123	30	1	0	0.0108	0.0020	0.0074	0.0153
123	124	29	1	0	0.0104	0.0020	0.0071	0.0148
126	127	28	3	0	0.0093	0.0019	0.0062	0.0135
128	129	25	1	0	0.0089	0.0018	0.0059	0.0131
129	130	24	1	0	0.0086	0.0018	0.0056	0.0126
133	134	23	2	0	0.0078	0.0017	0.0050	0.0118
139	140	21	1	0	0.0074	0.0017	0.0047	0.0113
144	145	20	1	0	0.0071	0.0016	0.0044	0.0109
147	148	19	1	0	0.0067	0.0016	0.0041	0.0104
149	150	18	2	0	0.0060	0.0015	0.0036	0.0095
159	160	16	1	0	0.0056	0.0014	0.0033	0.0090
160	161	15	1	0	0.0052	0.0014	0.0030	0.0086
161	162	14	1	0	0.0048	0.0013	0.0027	0.0081
163	164	13	1	0	0.0045	0.0013	0.0025	0.0076
175	176	12	1	0	0.0041	0.0012	0.0022	0.0072
183	184	11	1	0	0.0037	0.0012	0.0019	0.0067
198	199	10	1	0	0.0033	0.0011	0.0017	0.0062
248	249	9	1	0	0.0030	0.0011	0.0014	0.0057
255	256	8	1	0	0.0026	0.0010	0.0012	0.0052
279	280	7	1	0	0.0022	0.0009	0.0010	0.0047
301	302	6	1	0	0.0019	0.0008	0.0007	0.0042
304	305	5	1	0	0.0015	0.0007	0.0005	0.0037
371	372	4	1	0	0.0011	0.0006	0.0003	0.0032
397	398	3	1	0	0.0007	0.0005	0.0002	0.0026
408	409	2	1	0	0.0004	0.0004	0.0000	0.0021
504	505	1	1	0	0.0000	.	.	.

```

.
. * Secion 13.2.3
. *-----
.
. streg age female white north midlands stheast wales scotland, ///
>      distribution(weibull)

      failure _d:  censored == 0
      analysis time _t:  unempdur

Fitting constant-only model:

Iteration 0:  log likelihood = -2578.099
Iteration 1:  log likelihood = -2499.6539
Iteration 2:  log likelihood = -2499.6204
Iteration 3:  log likelihood = -2499.6204

Fitting full model:

```

```

Iteration 0: log likelihood = -2499.6204
Iteration 1: log likelihood = -2481.1111
Iteration 2: log likelihood = -2480.9469
Iteration 3: log likelihood = -2480.9468

```

Weibull regression -- log relative-hazard form

```

No. of subjects =      1518      Number of obs   =      1518
No. of failures =      1391
Time at risk    =      18355

Log likelihood   =   -2480.9468      LR chi2(8)      =      37.35
                                      Prob > chi2      =      0.0000

```

_t	Haz. Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
age	.9992463	.0004714	-1.60	0.110	.9983227	1.000171
female	.9967321	.0545715	-0.06	0.952	.8953128	1.10964
white	1.413103	.2031441	2.41	0.016	1.066123	1.873011
north	.7468838	.0775322	-2.81	0.005	.6093852	.9154069
midlands	.7286552	.0809123	-2.85	0.004	.5861407	.9058207
stheast	1.03511	.1062957	0.34	0.737	.8464013	1.265892
wales	.8521687	.119173	-1.14	0.253	.6478699	1.120891
scotland	.9809616	.1208389	-0.16	0.876	.7705441	1.248839
_cons	.1137205	.018722	-13.21	0.000	.0823576	.1570268
/ln_p	-.1969252	.0187625	-10.50	0.000	-.233699	-.1601514
p	.8212521	.0154087			.7916001	.8520148
1/p	1.217653	.0228462			1.173689	1.263264

```

. stcurve, hazard saving(haz2, replace)
(file haz2.gph saved)

.
. stcurve, at1(female=1) at2(female=0) cumhaz saving(cumhaz3, replace) ///
> scheme(s2mono)
(file cumhaz3.gph saved)

. stcurve, at1(female=1) at2(female=0) survival saving(surv3, replace) ///
> scheme(s2mono)
(file surv3.gph saved)

. stcurve, at1(female=1) at2(female=0) hazard saving(haz3, replace) ///
> scheme(s2mono)
(file haz3.gph saved)

.
. stcurve, at1(white=1) at2(white=0) cumhaz saving(cumhaz4, replace) ///
> scheme(s2mono)
(file cumhaz4.gph saved)

. stcurve, at1(white=1) at2(white=0) survival saving(surv4, replace) ///
> scheme(s2mono)
(file surv4.gph saved)

. stcurve, at1(white=1) at2(white=0) hazard saving(haz4, replace) scheme(s2mono)
(file haz4.gph saved)

.
. predict predHaz, hazard
(1169 missing values generated)

. predict survMd, median time
(1169 missing values generated)

.
. list unempdur _t survMd if female==1 & age==30 & white==1

```

```

+-----+
| unempdur _t survMd |

```


321.	36	36	5.867148
338.	5	5	5.867148
762.	1	1	5.867148
1773.	5	5	8.729897
2048.	10	10	8.729897
2083.	4	4	8.729897
2502.	5	5	5.867148

```
. list unempdur _t survMd if female==1 & age==30 & white==1 & north==1
```

1773.	5	5	8.729897
2048.	10	10	8.729897
2083.	4	4	8.729897

```
. list unempdur _t survMd if female==1 & age==30 & white==1 & stheast==1
```

321.	36	36	5.867148
338.	5	5	5.867148
762.	1	1	5.867148
2502.	5	5	5.867148

```
. summarize survMd if female==1 & age==30 & white==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
survMd	7	7.09404	1.530204	5.867148	8.729897

```
. list unempdur _t survMd if female==0 & age==30 & white==1
```

434.	3	3	5.84381
1074.	9	9	8.960757
1079.	7	7	8.960757
1264.	21	21	8.960757
1673.	2	2	8.695171
1677.	1	1	8.695171
2251.	1	1	6.238917
2473.	4	4	6.238917

```
. summarize survMd if female==0 & age==30 & white==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
survMd	8	7.824282	1.431316	5.84381	8.960757

```
. * Secion 13.2.4
```

```
. streg age female white, distribution(weibull) frailty(gamma)
```

```
    failure _d:  censored == 0
analysis time _t:  unempdur
```

Fitting Weibull model:

Fitting constant-only model:

```
Iteration 0: log likelihood = -2370.9808
Iteration 1: log likelihood = -2287.0636
Iteration 2: log likelihood = -2277.0558
Iteration 3: log likelihood = -2276.8787
Iteration 4: log likelihood = -2276.8785
```

Fitting full model:

```
Iteration 0: log likelihood = -2365.1358
Iteration 1: log likelihood = -2278.6773
Iteration 2: log likelihood = -2276.0481
Iteration 3: log likelihood = -2276.0266
Iteration 4: log likelihood = -2276.0266
```

Weibull regression -- log relative-hazard form
Gamma frailty

```
No. of subjects = 1530 Number of obs = 1530
No. of failures = 1402
Time at risk = 18503
Log likelihood = -2276.0266 LR chi2(3) = 1.70
Prob > chi2 = 0.6361
```

_t	Haz. Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
age	.9999022	.0012408	-0.08	0.937	.9974733	1.002337
female	1.112312	.1474802	0.80	0.422	.8577618	1.442402
white	1.421474	.4703961	1.06	0.288	.7431189	2.719066
_cons	.0262451	.0092419	-10.34	0.000	.0131615	.0523347
/ln_p	.8643937	.0660156	13.09	0.000	.7350054	.993782
/ln_the	.9727421	.1088915	8.93	0.000	.7593187	1.186166
p	2.373567	.1566925			2.085493	2.701432
1/p	.4213069	.0278128			.3701741	.4795029
theta	2.645188	.2880385			2.13682	3.274501

Likelihood-ratio test of theta=0: chibar2(01) = 484.86 Prob>=chibar2 = 0.000

```
. streg age female white north midlands stheast wales scotland, ///
> distribution(weibull) frailty(gamma)

failure _d: censored == 0
analysis time _t: unempdur
```

Fitting Weibull model:

Fitting constant-only model:

```
Iteration 0: log likelihood = -2350.9182
Iteration 1: log likelihood = -2266.9769
Iteration 2: log likelihood = -2257.5748
Iteration 3: log likelihood = -2257.5218
Iteration 4: log likelihood = -2257.5218
```

Fitting full model:

```
Iteration 0: log likelihood = -2338.1931
Iteration 1: log likelihood = -2252.4494
Iteration 2: log likelihood = -2249.6643
Iteration 3: log likelihood = -2249.625
Iteration 4: log likelihood = -2249.625
```

Weibull regression -- log relative-hazard form
Gamma frailty

```
No. of subjects = 1518 Number of obs = 1518
```

```

No. of failures =      1391
Time at risk   =      18355

Log likelihood =      -2249.625

LR chi2(8) =      15.79
Prob > chi2 =      0.0454

```

_t	Haz. Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
age	.9997252	.0012321	-0.22	0.824	.9973132	1.002143
female	1.105371	.145839	0.76	0.448	.8535	1.431571
white	1.425484	.4656287	1.09	0.278	.7514857	2.703983
north	.778096	.1831065	-1.07	0.286	.4905948	1.23408
midlands	.6871682	.1760256	-1.46	0.143	.4159284	1.135292
stheast	1.267106	.2987059	1.00	0.315	.7982733	2.011287
wales	.7596392	.258767	-0.81	0.420	.389628	1.481032
scotland	1.175706	.3433751	0.55	0.579	.6632819	2.084009
_cons	.0277925	.0107252	-9.28	0.000	.0130451	.0592118
/ln_p	.8590572	.0661397	12.99	0.000	.7294257	.9886887
/ln_the	.9524716	.1101693	8.65	0.000	.7365437	1.1684
p	2.360934	.1561515			2.073889	2.687708
1/p	.4235612	.0280142			.3720643	.4821858
theta	2.592108	.2855709			2.088704	3.21684

```

Likelihood-ratio test of theta=0: chibar2(01) = 462.64 Prob>=chibar2 = 0.000

```

```

.
.
. * Secion 13.2.5
. *-----
.
. sts generate baselinesurv1=s
.
. stcox, estimate

      failure _d: censored == 0
      analysis time _t: unempdur

```

```

Iteration 0: log likelihood = -16304.351
Refining estimates:
Iteration 0: log likelihood = -16304.351

```

```

Cox regression -- Breslow method for ties

```

```

No. of subjects =      2599
No. of failures =      2335
Time at risk   =      36074

Log likelihood =      -16304.351

Number of obs =      2599

LR chi2(0) =      0.00
Prob > chi2 =      .

```

_t	Haz. Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
----	------------	-----------	---	------	----------------------	--

```

. predict baselinesurv2, basesurv
(88 missing values generated)

```

```

. list baselinesurv1 baselinesurv2 in 1/10

```

	baselin~1	baseli~2
1.	.17521803	.175218
2.	.19753083	.1975308
3.	.55016064	.5501606
4.	.66661169	.6666117
5.	.28092439	.2809244
6.	.79253598	.792536
7.	.14858489	.1485849
8.	.28092439	.2809244
9.	.66661169	.6666117

```

10. | .59386874   .5938687 |
    +-----+

.
. stcox age female white north midlands stheast wales scotland, ///
>      basesurv(baseline1)

      failure _d:  censored == 0
      analysis time _t:  unempdur

Iteration 0:   log likelihood = -8958.1018
Iteration 1:   log likelihood = -8948.9096
Iteration 2:   log likelihood = -8948.8935
Iteration 3:   log likelihood = -8948.8935
Refining estimates:
Iteration 0:   log likelihood = -8948.8935

Cox regression -- Breslow method for ties

No. of subjects =          1518                Number of obs   =          1518
No. of failures =          1391
Time at risk    =          18355

LR chi2(8)      =          18.42
Prob > chi2     =          0.0183
Log likelihood   =   -8948.8935

-----+-----
      _t | Haz. Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
      age |   .999646   .0004755    -0.74   0.457     .9987146   1.000578
    female |   1.055755   .0577613     0.99   0.321     .9484036   1.175258
      white |   1.28588    .1839285     1.76   0.079     .9715095   1.701978
      north |   .8401644   .086903    -1.68   0.092     .6859929   1.028985
midlands   |   .8131374   .0898658    -1.87   0.061     .6547739   1.009803
    stheast |   1.042128   .10702     0.40   0.688     .852134   1.274483
      wales |   .9025372   .1260886    -0.73   0.463     .6863542   1.186812
    scotland |   .9852311   .1213103    -0.12   0.904     .7739818   1.254139
-----+-----

. stcox age white north midlands stheast wales scotland, basesurv(baseline2) ///
>      strata(female) nolog

      failure _d:  censored == 0
      analysis time _t:  unempdur

Stratified Cox regr. -- Breslow method for ties

No. of subjects =          1518                Number of obs   =          1518
No. of failures =          1391
Time at risk    =          18355

LR chi2(7)      =          17.21
Prob > chi2     =          0.0161
Log likelihood   =   -8005.3278

-----+-----
      _t | Haz. Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
      age |   .9996126   .0004765    -0.81   0.416     .9986793   1.000547
      white |   1.29252    .1854231     1.79   0.074     .9757194   1.71218
      north |   .836367    .0865662    -1.73   0.084     .6828028   1.024468
midlands   |   .8118454   .0897863    -1.88   0.059     .6536336   1.008352
    stheast |   1.038813   .106732     0.37   0.711     .84934    1.270555
      wales |   .8994849   .1257549    -0.76   0.449     .683895   1.183037
    scotland |   .9792639   .1206687    -0.17   0.865     .7691505   1.246775
-----+-----
                                             Stratified by female

.
. label var _t "time"

. twoway line baseline2 _t if female==1 & e(sample) & _t<30, sort || ///
>      line baseline2 _t if female==0 & e(sample) & _t<30, sort || ///
>      line baseline1 _t if female!=. & e(sample) & _t<30, sort ///
>      legend(label(1 women) label(2 men) label(3 all)) scheme(s2mono)

```

```

.
.
. * Section 13.3
. *-----
.
. use duration_discrete, clear

.
. generate logdur=log(monthid)

. logit spellended logdur age female white north midlands ///
>      stheast wales scotland

Iteration 0:   log likelihood = -5008.4638
Iteration 1:   log likelihood = -4783.3483
Iteration 2:   log likelihood = -4768.2073
Iteration 3:   log likelihood =  -4768.17
Iteration 4:   log likelihood =  -4768.17

Logistic regression               Number of obs   =       18396
                                LR chi2(9)        =       480.59
                                Prob > chi2        =       0.0000
Log likelihood =  -4768.17        Pseudo R2      =       0.0480

```

spellended	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
logdur	-.4249297	.0219809	-19.33	0.000	-.4680115	-.3818479
age	-.0006812	.0004948	-1.38	0.169	-.001651	.0002885
female	.0192601	.0570202	0.34	0.736	-.0924975	.1310177
white	.3245344	.1490394	2.18	0.029	.0324225	.6166463
north	-.2124501	.1086396	-1.96	0.051	-.4253797	.0004795
midlands	-.2639251	.1161745	-2.27	0.023	-.491623	-.0362273
stheast	.055605	.1081671	0.51	0.607	-.1563987	.2676087
wales	-.1276934	.1467027	-0.87	0.384	-.4152254	.1598385
scotland	-.0027928	.1296715	-0.02	0.983	-.2569442	.2513586
_cons	-1.78081	.169664	-10.50	0.000	-2.113345	-1.448274

```

. margins, dydx(*)

Average marginal effects               Number of obs   =       18396
Model VCE      : OIM

Expression      : Pr(spellended), predict()
dy/dx w.r.t.    : logdur age female white north midlands stheast wales scotland

```

	Delta-method		z	P> z	[95% Conf. Interval]	
	dy/dx	Std. Err.				
logdur	-.0295023	.0015999	-18.44	0.000	-.032638	-.0263667
age	-.0000473	.0000344	-1.38	0.169	-.0001146	.00002
female	.0013372	.0039588	0.34	0.736	-.006422	.0090964
white	.022532	.0103541	2.18	0.030	.0022384	.0428256
north	-.0147501	.0075463	-1.95	0.051	-.0295406	.0000404
midlands	-.018324	.0080711	-2.27	0.023	-.0341431	-.0025049
stheast	.0038606	.0075101	0.51	0.607	-.0108589	.0185801
wales	-.0088656	.0101862	-0.87	0.384	-.0288302	.011099
scotland	-.0001939	.0090029	-0.02	0.983	-.0178393	.0174515

```

.
.
. logit spellended c.logdur##i.female age white north midlands ///
>      stheast wales scotland

Iteration 0:   log likelihood = -5008.4638
Iteration 1:   log likelihood = -4783.2964
Iteration 2:   log likelihood = -4767.4626
Iteration 3:   log likelihood = -4767.4221
Iteration 4:   log likelihood = -4767.4221

Logistic regression               Number of obs   =       18396

```

```

Log likelihood = -4767.4221
LR chi2(10)      = 482.08
Prob > chi2      = 0.0000
Pseudo R2       = 0.0481

```

spellended	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
logdur	-.3992704	.0303012	-13.18	0.000	-.4586598	-.3398811
female						
female	.1128758	.0953895	1.18	0.237	-.0740842	.2998357
female#c.logdur						
female	-.0537299	.0439818	-1.22	0.222	-.1399326	.0324729
age	-.0007182	.0004958	-1.45	0.147	-.0016899	.0002535
white	.3371017	.1493745	2.26	0.024	.044333	.6298704
north	-.2130891	.1086314	-1.96	0.050	-.4260027	-.0001754
midlands	-.2583377	.1162399	-2.22	0.026	-.4861636	-.0305117
stheast	.0565901	.1081531	0.52	0.601	-.1553862	.2685663
wales	-.1243186	.1467364	-0.85	0.397	-.4119167	.1632794
scotland	-.005786	.1296824	-0.04	0.964	-.2599589	.2483869
_cons	-1.836906	.1759215	-10.44	0.000	-2.181706	-1.492106

```
. margins, dydx(*)
```

```

Average marginal effects      Number of obs   =    18396
Model VCE      : OIM

```

```

Expression      : Pr(spellended), predict()
dy/dx w.r.t.    : logdur 1.female age white north midlands stheast wales scotland

```

	Delta-method					
	dy/dx	Std. Err.	z	P> z	[95% Conf. Interval]	
logdur	-.0293117	.0016086	-18.22	0.000	-.0324645	-.0261589
female						
female	.0013125	.00397	0.33	0.741	-.0064684	.0090935
age	-.0000499	.0000344	-1.45	0.148	-.0001173	.0000176
white	.0234038	.0103776	2.26	0.024	.0030641	.0437434
north	-.014794	.0075455	-1.96	0.050	-.0295829	-5.11e-06
midlands	-.0179355	.0080751	-2.22	0.026	-.0337624	-.0021085
stheast	.0039288	.0075089	0.52	0.601	-.0107883	.018646
wales	-.008631	.0101882	-0.85	0.397	-.0285994	.0113374
scotland	-.0004017	.0090034	-0.04	0.964	-.018048	.0172446

Note: dy/dx for factor levels is the discrete change from the base level.

```

.
. xtset pid monthid
      panel variable:  pid (unbalanced)
      time variable:  monthid, 1 to 504
                delta:  1 unit

. xtlogit spellended logdur age female white north midlands ///
>          stheast wales scotland, re

```

Fitting comparison model:

```

Iteration 0:  log likelihood = -5008.4638
Iteration 1:  log likelihood = -4783.3483
Iteration 2:  log likelihood = -4768.2073
Iteration 3:  log likelihood = -4768.17
Iteration 4:  log likelihood = -4768.17

```

Fitting full model:

```

tau = 0.0    log likelihood = -4768.17
tau = 0.1    log likelihood = -4764.963
tau = 0.2    log likelihood = -4774.2245

```

```

Iteration 0: log likelihood = -4764.963
Iteration 1: log likelihood = -4749.0396
Iteration 2: log likelihood = -4733.5687
Iteration 3: log likelihood = -4729.4795
Iteration 4: log likelihood = -4729.399
Iteration 5: log likelihood = -4727.1244
Iteration 6: log likelihood = -4726.7637
Iteration 7: log likelihood = -4726.5519
Iteration 8: log likelihood = -4726.2948
Iteration 9: log likelihood = -4726.231
Iteration 10: log likelihood = -4726.0179
Iteration 11: log likelihood = -4725.9597
Iteration 12: log likelihood = -4725.9597 (backed up)
Iteration 13: log likelihood = -4725.9578
Iteration 14: log likelihood = -4725.9576

Random-effects logistic regression      Number of obs      =      18396
Group variable: pid                    Number of groups   =      1559

Random effects u_i ~ Gaussian          Obs per group: min =          1
                                      avg =         11.8
                                      max =         397

Integration method: mvaghermite        Integration points =         12

Log likelihood = -4725.9576            Wald chi2(9)       =         34.17
                                      Prob > chi2         =         0.0001

```

spellended	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
logdur	1.858135	.3299491	5.63	0.000	1.211447	2.504824
age	-.0014969	.0017551	-0.85	0.394	-.0049369	.0019431
female	.1235313	.1944873	0.64	0.525	-.2576568	.5047194
white	.9025535	.5003579	1.80	0.071	-.07813	1.883237
north	-.4843737	.3663224	-1.32	0.186	-1.202352	.2336049
midlands	-.7634782	.3961922	-1.93	0.054	-1.540001	.0130443
stheast	.3085841	.3642315	0.85	0.397	-.4052966	1.022465
wales	-.4189843	.5029236	-0.83	0.405	-1.404696	.566728
scotland	.0875062	.4382564	0.20	0.842	-.7714605	.946473
_cons	-5.121941	.7868293	-6.51	0.000	-6.664098	-3.579784
/lnsig2u	2.477658	.2565855			1.974759	2.980556
sigma_u	3.451569	.4428114			2.684192	4.43833
rho	.7836068	.0435085			.6865226	.8568916

Likelihood-ratio test of rho=0: chibar2(01) = 84.42 Prob >= chibar2 = 0.000

. margins, dydx(*) predict(pu0)

```

Average marginal effects      Number of obs      =      18396
Model VCE      : OIM

```

```

Expression      : Pr(spellended=1 assuming u_i=0), predict(pu0)
dy/dx w.r.t.    : logdur age female white north midlands stheast wales scotland

```

	Delta-method					
	dy/dx	Std. Err.	z	P> z	[95% Conf. Interval]	
logdur	.2264818	.0108952	20.79	0.000	.2051277	.247836
age	-.0001825	.0002126	-0.86	0.391	-.0005992	.0002343
female	.0150568	.0236406	0.64	0.524	-.0312779	.0613915
white	.1100092	.0593027	1.86	0.064	-.0062219	.2262402
north	-.0590387	.0443257	-1.33	0.183	-.1459154	.0278381
midlands	-.0930578	.0472956	-1.97	0.049	-.1857554	-.0003602
stheast	.0376123	.0440445	0.85	0.393	-.0487134	.1239379
wales	-.0510686	.0611621	-0.83	0.404	-.1709441	.0688069
scotland	.0106658	.05337	0.20	0.842	-.0939374	.1152691

```
.  
.  
. clear  
  
. log close  
    name: <unnamed>  
    log: C:\My Documents\Example_Chapter13.log  
    log type: text  
closed on: 1 Sep 2014, 15:37:04  
-----
```