Statistics/Data Analysis

```
      name:  <unnamed>
       log:  C:\users\init5\Mis Documentos\stata\interactions.smcl
  log type:  smcl
 opened on:  18 Oct 2020, 17:47:15

1 . do "Z:\home\init5\Documentos\stata\interactions.do"

2 . *local dir `c(pwd)'
3 . //ON
4 . *cd "`c(pwd)'"
5 . *cd "D:\42-tiempoevento"
6 .
7 . **** Base de datos: Cáncer y muerte ****
8 . use "Z:\home\init5\Documentos\stata\bioestadistica\deaths.dta", clear
  (Written by R.              )

9 .
10. codebook
```

---

sexo **sexo**

```
                type:  numeric (long)
               label:  sexo

               range:  [1,2]                        units:  1
        unique values:  2                       missing .:  0/6,566

          tabulation:  Freq.   Numeric  Label
                       3,305         1  Men
                       3,261         2  Women
```

---

edad **edad**

```
                type:  numeric (double)

               range:  [35,108]                     units:  1
        unique values:  69                      missing .:  0/6,566

                mean:   68.5618
           std. dev:    13.895

      percentiles:        10%       25%       50%       75%       90%
                           49        59        70        79        86
```

---

cid10 **cid10**

```
                type:  string (str3)

        unique values:  4                       missing "":  0/6,566

          tabulation:  Freq.  Value
                         674  "I60"
                       1,291  "I61"
                       1,765  "I63"
                       2,836  "I64"
```

---

agecat **agecat**

```
                type:  numeric (long)
               label:  agecat
```

range: [1,3] units: 1
unique values: 3 missing .: 0/6,566

tabulation:

Freq.	Numeric	Label
1,176	1	<55
2,911	2	55-74
2,479	3	75+

---

level **level**

---

type: numeric (long)
label: level

range: [1,2] units: 1
unique values: 2 missing .: 1/6,566

tabulation:

Freq.	Numeric	Label
2,885	1	I, II
3,680	2	III
1	.	

---

regions **regions**

---

type: numeric (long)
label: regions

range: [1,4] units: 1
unique values: 4 missing .: 0/6,566

tabulation:

Freq.	Numeric	Label
3,080	1	Lima/Callao
1,795	2	Resto Costa
1,110	3	Sierra
581	4	Selva

---

condicion **condicion**

---

type: numeric (long)
label: condicion

range: [1,2] units: 1
unique values: 2 missing .: 0/6,566

tabulation:

Freq.	Numeric	Label
5,809	1	Discharged
757	2	Death

---

los **los**

---

type: numeric (double)

range: [1,59] units: 1
unique values: 59 missing .: 0/6,566

mean: 9.43558
std. dev: 8.52819

percentiles:

10%	25%	50%	75%	90%
2	4	7	12	19

---

anio **anio**

```
                 type:  numeric (long)

                range:  [2016,2017]                 units:  1
        unique values:  2                        missing .:  0/6,566

           tabulation:  Freq.  Value
                        3,053  2016
                        3,513  2017
```

---

exposure **exposure**

```
                 type:  numeric (long)
                label:  exposure

                range:  [1,4]                       units:  1
        unique values:  4                        missing .:  0/6,566

           tabulation:  Freq.   Numeric  Label
                        1,765         1  I63
                          674         2  I60
                        1,291         3  I61
                        2,836         4  I64
```

---

survivalobj0 **survivalobj0**

```
                 type:  numeric (double)

                range:  [1,59]                      units:  1
        unique values:  59                       missing .:  0/6,566

                 mean:   9.43558
            std. dev:   8.52819

          percentiles:        10%       25%       50%       75%       90%
                               2         4         7        12        19
```

```
11.
12. sum los, d
```

los

Percentiles		Smallest		
1%	1	1		
5%	1	1		
10%	2	1	Obs	6,566
25%	4	1	Sum of Wgt.	6,566
50%	7		Mean	9.435577
		Largest	Std. Dev.	8.528187
75%	12	58		
90%	19	59	Variance	72.72997
95%	26	59	Skewness	2.243973
99%	44	59	Kurtosis	9.611837

```
13.
14. *label define condicion 0 "Discharged" 1 "Death", replace
```

```
15. ******************** KAPLAN MEIER ********************
16. *modificar base a SURVIVAL TIME
17. *SETEAR A SOBREVIDA
18. stset los, failure(condicion==2)

      failure event:  condicion == 2
obs. time interval:  (0, los]
 exit on or before:  failure

------------------------------------------------------------------------------
      6,566  total observations
          0  exclusions
------------------------------------------------------------------------------
      6,566  observations remaining, representing
        757  failures in single-record/single-failure data
     61,954  total analysis time at risk and under observation
                                        at risk from t =         0
                              earliest observed entry t =         0
                                   last observed exit t =        59

19.
20. *listar todos los eventos en tiempo y funcion SOBREVIDA por cada punto en el tiempo
21. *en el que ocurre evento de interes
22. sts list, survival

        failure _d:  condicion == 2
  analysis time _t:  los
```

Time	Beg. Total	Fail	Net Lost	Survivor Function	Std. Error	[95% Conf.	Int.]
1	6566	102	243	0.9845	0.0015	0.9812	0.9872
2	6221	103	376	0.9682	0.0022	0.9636	0.9722
3	5742	96	484	0.9520	0.0027	0.9464	0.9570
4	5162	73	555	0.9385	0.0031	0.9322	0.9443
5	4534	63	514	0.9255	0.0035	0.9184	0.9320
6	3957	48	450	0.9142	0.0038	0.9065	0.9214
7	3459	42	446	0.9031	0.0041	0.8948	0.9109
8	2971	29	335	0.8943	0.0044	0.8854	0.9026
9	2607	21	284	0.8871	0.0046	0.8777	0.8958
10	2302	20	253	0.8794	0.0049	0.8695	0.8886
11	2029	16	240	0.8725	0.0051	0.8620	0.8822
12	1773	21	190	0.8622	0.0056	0.8509	0.8727
13	1562	19	163	0.8517	0.0060	0.8395	0.8630
14	1380	14	159	0.8430	0.0064	0.8301	0.8550
15	1207	7	124	0.8381	0.0066	0.8248	0.8506
16	1076	4	121	0.8350	0.0067	0.8213	0.8478
17	951	7	116	0.8289	0.0071	0.8145	0.8423
18	828	8	94	0.8209	0.0076	0.8055	0.8351
19	726	10	67	0.8096	0.0083	0.7928	0.8251
20	649	2	68	0.8071	0.0084	0.7899	0.8230
21	579	2	48	0.8043	0.0086	0.7867	0.8205
22	529	5	53	0.7967	0.0092	0.7780	0.8140
23	471	5	43	0.7882	0.0098	0.7682	0.8067
24	423	4	40	0.7808	0.0104	0.7595	0.8004
25	379	4	34	0.7725	0.0111	0.7499	0.7934
26	341	1	18	0.7703	0.0113	0.7472	0.7915
27	322	2	23	0.7655	0.0117	0.7416	0.7875
28	297	2	26	0.7603	0.0122	0.7354	0.7832
29	269	1	18	0.7575	0.0125	0.7320	0.7809
30	250	2	23	0.7514	0.0131	0.7247	0.7760
31	225	2	15	0.7448	0.0138	0.7165	0.7706
32	208	3	10	0.7340	0.0149	0.7034	0.7620
33	195	0	14	0.7340	0.0149	0.7034	0.7620
34	181	0	15	0.7340	0.0149	0.7034	0.7620
35	166	3	15	0.7207	0.0165	0.6869	0.7516
36	148	0	10	0.7207	0.0165	0.6869	0.7516
37	138	1	8	0.7155	0.0172	0.6802	0.7477
38	129	3	10	0.6989	0.0193	0.6592	0.7349
39	116	2	13	0.6868	0.0208	0.6442	0.7255
40	101	1	6	0.6800	0.0216	0.6355	0.7203
41	94	1	9	0.6728	0.0226	0.6263	0.7148

42	84	3	5	0.6488	0.0257	0.5959	0.6965
43	76	0	3	0.6488	0.0257	0.5959	0.6965
44	73	0	10	0.6488	0.0257	0.5959	0.6965
45	63	0	11	0.6488	0.0257	0.5959	0.6965
46	52	0	3	0.6488	0.0257	0.5959	0.6965
47	49	0	2	0.6488	0.0257	0.5959	0.6965
48	47	0	2	0.6488	0.0257	0.5959	0.6965
49	45	0	1	0.6488	0.0257	0.5959	0.6965
50	44	1	4	0.6340	0.0290	0.5742	0.6878
51	39	2	7	0.6015	0.0355	0.5283	0.6671
52	30	1	3	0.5815	0.0396	0.4999	0.6544
53	26	1	8	0.5591	0.0439	0.4687	0.6401
54	17	0	2	0.5591	0.0439	0.4687	0.6401
55	15	0	3	0.5591	0.0439	0.4687	0.6401
56	12	0	2	0.5591	0.0439	0.4687	0.6401
57	10	0	4	0.5591	0.0439	0.4687	0.6401
58	6	0	3	0.5591	0.0439	0.4687	0.6401
59	3	0	3	0.5591	0.0439	0.4687	0.6401

23. sts list, failure

failure _d: **condicion == 2**
analysis time _t: **los**

Time	Beg. Total	Fail	Net Lost	Failure Function	Std. Error	[95% Conf.	Int.]
1	6566	102	243	0.0155	0.0015	0.0128	0.0188
2	6221	103	376	0.0318	0.0022	0.0278	0.0364
3	5742	96	484	0.0480	0.0027	0.0430	0.0536
4	5162	73	555	0.0615	0.0031	0.0557	0.0678
5	4534	63	514	0.0745	0.0035	0.0680	0.0816
6	3957	48	450	0.0858	0.0038	0.0786	0.0935
7	3459	42	446	0.0969	0.0041	0.0891	0.1052
8	2971	29	335	0.1057	0.0044	0.0974	0.1146
9	2607	21	284	0.1129	0.0046	0.1042	0.1223
10	2302	20	253	0.1206	0.0049	0.1114	0.1305
11	2029	16	240	0.1275	0.0051	0.1178	0.1380
12	1773	21	190	0.1378	0.0056	0.1273	0.1491
13	1562	19	163	0.1483	0.0060	0.1370	0.1605
14	1380	14	159	0.1570	0.0064	0.1450	0.1699
15	1207	7	124	0.1619	0.0066	0.1494	0.1752
16	1076	4	121	0.1650	0.0067	0.1522	0.1787
17	951	7	116	0.1711	0.0071	0.1577	0.1855
18	828	8	94	0.1791	0.0076	0.1649	0.1945
19	726	10	67	0.1904	0.0083	0.1749	0.2072
20	649	2	68	0.1929	0.0084	0.1770	0.2101
21	579	2	48	0.1957	0.0086	0.1795	0.2133
22	529	5	53	0.2033	0.0092	0.1860	0.2220
23	471	5	43	0.2118	0.0098	0.1933	0.2318
24	423	4	40	0.2192	0.0104	0.1996	0.2405
25	379	4	34	0.2275	0.0111	0.2066	0.2501
26	341	1	18	0.2297	0.0113	0.2085	0.2528
27	322	2	23	0.2345	0.0117	0.2125	0.2584
28	297	2	26	0.2397	0.0122	0.2168	0.2646
29	269	1	18	0.2425	0.0125	0.2191	0.2680
30	250	2	23	0.2486	0.0131	0.2240	0.2753
31	225	2	15	0.2552	0.0138	0.2294	0.2835
32	208	3	10	0.2660	0.0149	0.2380	0.2966
33	195	0	14	0.2660	0.0149	0.2380	0.2966
34	181	0	15	0.2660	0.0149	0.2380	0.2966
35	166	3	15	0.2793	0.0165	0.2484	0.3131
36	148	0	10	0.2793	0.0165	0.2484	0.3131
37	138	1	8	0.2845	0.0172	0.2523	0.3198
38	129	3	10	0.3011	0.0193	0.2651	0.3408
39	116	2	13	0.3132	0.0208	0.2745	0.3558
40	101	1	6	0.3200	0.0216	0.2797	0.3645
41	94	1	9	0.3272	0.0226	0.2852	0.3737
42	84	3	5	0.3512	0.0257	0.3035	0.4041
43	76	0	3	0.3512	0.0257	0.3035	0.4041
44	73	0	10	0.3512	0.0257	0.3035	0.4041

45	63	0	11	0.3512	0.0257	0.3035	0.4041
46	52	0	3	0.3512	0.0257	0.3035	0.4041
47	49	0	2	0.3512	0.0257	0.3035	0.4041
48	47	0	2	0.3512	0.0257	0.3035	0.4041
49	45	0	1	0.3512	0.0257	0.3035	0.4041
50	44	1	4	0.3660	0.0290	0.3122	0.4258
51	39	2	7	0.3985	0.0355	0.3329	0.4717
52	30	1	3	0.4185	0.0396	0.3456	0.5001
53	26	1	8	0.4409	0.0439	0.3599	0.5313
54	17	0	2	0.4409	0.0439	0.3599	0.5313
55	15	0	3	0.4409	0.0439	0.3599	0.5313
56	12	0	2	0.4409	0.0439	0.3599	0.5313
57	10	0	4	0.4409	0.0439	0.3599	0.5313
58	6	0	3	0.4409	0.0439	0.3599	0.5313
59	3	0	3	0.4409	0.0439	0.3599	0.5313

```
24.
25. ************************************************
26. *************** WEIBULL MODEL ******************
27. **********A: xLEVEL**********
28. *AM:
29. *Y=B0 + B1.Level + B2.Exposure + B3.confusores
30. streg level i.exposure edad sexo, strata(level) d(weibull)

          failure _d:  condicion == 2
    analysis time _t:  los
  note: 2.level omitted because of collinearity

  Fitting constant-only model:

  Iteration 0:   log likelihood = -2929.1917
  Iteration 1:   log likelihood = -2919.8551
  Iteration 2:   log likelihood = -2880.9267
  Iteration 3:   log likelihood = -2880.2076
  Iteration 4:   log likelihood = -2880.2059
  Iteration 5:   log likelihood = -2880.2059

  Fitting full model:

  Iteration 0:   log likelihood = -2880.2059
  Iteration 1:   log likelihood = -2829.8715
  Iteration 2:   log likelihood = -2826.6585
  Iteration 3:   log likelihood = -2826.6474
  Iteration 4:   log likelihood = -2826.6474

  Weibull PH regression

  No. of subjects =        6,565                 Number of obs    =        6,565
  No. of failures =          757
  Time at risk    =        61951
                                                 LR chi2(6)       =       107.12
  Log likelihood  =   -2826.6474                 Prob > chi2      =       0.0000
```

_t	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_t						
level	-.5810809	.1680366	-3.46	0.001	-.9104265	-.2517353
exposure						
I60	.9539742	.1257204	7.59	0.000	.7075668	1.200382
I61	.6755038	.1160174	5.82	0.000	.4481138	.9028938
I64	.3350364	.1122188	2.99	0.003	.1150915	.5549813
edad	.0122876	.0027535	4.46	0.000	.0068908	.0176844
sexo	.1880531	.0744249	2.53	0.012	.042183	.3339232
level						
III	0	(omitted)				
_cons	-5.076846	.3560285	-14.26	0.000	-5.774649	-4.379043

ln_p						
level						
III	**-.0770105**	**.0577707**	**-1.33**	**0.183**	**-.190239**	**.036218**
_cons	**.0517473**	**.0392261**	**1.32**	**0.187**	**-.0251344**	**.128629**

```
31.
32. *AM + Interaction:
33. *Y = B0 + B1.Level + B2.Exposure + B3.Level.Exposure + B4.confusores
34. streg level i.exposure i.level#i.exposure edad sexo, strata(level) d(weibull)

          failure _d:  condicion == 2
    analysis time _t:  los
note: 2.level omitted because of collinearity

Fitting constant-only model:

Iteration 0:   log likelihood = -2929.1917
Iteration 1:   log likelihood = -2919.8551
Iteration 2:   log likelihood = -2880.9267
Iteration 3:   log likelihood = -2880.2076
Iteration 4:   log likelihood = -2880.2059
Iteration 5:   log likelihood = -2880.2059

Fitting full model:

Iteration 0:   log likelihood = -2880.2059
Iteration 1:   log likelihood = -2828.3126
Iteration 2:   log likelihood = -2824.6827
Iteration 3:   log likelihood = -2824.6734
Iteration 4:   log likelihood = -2824.6734

Weibull PH regression

No. of subjects =        6,565                 Number of obs    =        6,565
No. of failures =          757
Time at risk    =        61951
                                               LR chi2(9)       =       111.07
Log likelihood  =   -2824.6734                 Prob > chi2      =       0.0000
```

_t	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_t						
level	**-.8360862**	**.2357232**	**-3.55**	**0.000**	**-1.298095**	**-.3740773**
exposure						
I60	**.6228911**	**.2085521**	**2.99**	**0.003**	**.2141364**	**1.031646**
I61	**.4972224**	**.1844539**	**2.70**	**0.007**	**.1356995**	**.8587454**
I64	**.1627237**	**.1594525**	**1.02**	**0.307**	**-.1497975**	**.4752449**
level# exposure						
III#I60	**.5130759**	**.2586223**	**1.98**	**0.047**	**.0061855**	**1.019966**
III#I61	**.2806803**	**.2368669**	**1.18**	**0.236**	**-.1835703**	**.744931**
III#I64	**.2662403**	**.2276128**	**1.17**	**0.242**	**-.1798726**	**.7123532**
edad	**.0124547**	**.0027615**	**4.51**	**0.000**	**.0070422**	**.0178671**
sexo	**.1849271**	**.0744413**	**2.48**	**0.013**	**.0390249**	**.3308293**
level						
III	**0**	(omitted)				
_cons	**-4.661452**	**.4455211**	**-10.46**	**0.000**	**-5.534657**	**-3.788246**
ln_p						
level						
III	**-.0839551**	**.0579952**	**-1.45**	**0.148**	**-.1976237**	**.0297134**
_cons	**.0543198**	**.0392487**	**1.38**	**0.166**	**-.0226063**	**.131246**

```
35.
36. **********B: xREGIONS********
37. *AM: Y = B0 + B1.Level + B2.Exposure + B3.confusores
38. streg regions i.exposure edad sexo, strata(regions) d(weibull)

          failure _d:  condicion == 2
    analysis time _t:  los
  note: 4.regions omitted because of collinearity

  Fitting constant-only model:

  Iteration 0:   log likelihood = -2929.2295
  Iteration 1:   log likelihood =  -2884.267
  Iteration 2:   log likelihood = -2878.7732
  Iteration 3:   log likelihood =  -2878.743
  Iteration 4:   log likelihood =  -2878.743

  Fitting full model:

  Iteration 0:   log likelihood =  -2878.743
  Iteration 1:   log likelihood = -2834.7389
  Iteration 2:   log likelihood = -2832.7016
  Iteration 3:   log likelihood = -2832.6961
  Iteration 4:   log likelihood = -2832.6961

  Weibull PH regression

  No. of subjects =        6,566                 Number of obs    =        6,566
  No. of failures =          757
  Time at risk    =        61954
                                                 LR chi2(8)       =        92.09
  Log likelihood  =   -2832.6961                 Prob > chi2      =       0.0000

------------------------------------------------------------------------------
          _t |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
_t           |
     regions |   .1075709   .0954743     1.13   0.260    -.0795553    .2946972
             |
    exposure |
         I60 |   .8937682   .1265529     7.06   0.000      .645729    1.141807
         I61 |   .6868551   .1165561     5.89   0.000     .4584094    .9153009
         I64 |   .4743609   .1100115     4.31   0.000     .2587423    .6899794
             |
        edad |   .0125628   .0027703     4.53   0.000     .0071332    .0179924
        sexo |   .2012924   .0743657     2.71   0.007     .0555383    .3470465
             |
     regions |
Resto Costa  |   .0781794   .1985869     0.39   0.694    -.3110437    .4674025
      Sierra |   .2278856   .2414104     0.94   0.345    -.2452701    .7010413
       Selva |           0  (omitted)
             |
       _cons |  -6.319792    .298832   -21.15   0.000    -6.905492   -5.734092
-------------+----------------------------------------------------------------
ln_p         |
     regions |
Resto Costa  |   .0113906   .0731346     0.16   0.876    -.1319506    .1547318
      Sierra |   .1487783   .0736181     2.02   0.043     .0044895    .2930671
       Selva |   .1812636   .1001554     1.81   0.070    -.0150374    .3775645
             |
       _cons |  -.0433108   .0463453    -0.93   0.350     -.134146    .0475244
------------------------------------------------------------------------------
```

```
39.
40. *AM + Interaction: Y = B0 + B1.regions + B2.Exposure + B3.regions.Exposure + B4.conf
  > usores
41. streg regions i.exposure i.level#i.exposure edad sexo, strata(regions) d(weibull)

          failure _d:  condicion == 2
    analysis time _t:  los
  note: 4.regions omitted because of collinearity

  Fitting constant-only model:

  Iteration 0:   log likelihood = -2929.1917
  Iteration 1:   log likelihood = -2884.2214
  Iteration 2:   log likelihood = -2878.7258
  Iteration 3:   log likelihood = -2878.6955
  Iteration 4:   log likelihood = -2878.6955

  Fitting full model:

  Iteration 0:   log likelihood = -2878.6955
  Iteration 1:   log likelihood =  -2813.517
  Iteration 2:   log likelihood = -2808.7138
  Iteration 3:   log likelihood = -2808.7042
  Iteration 4:   log likelihood = -2808.7042

  Weibull PH regression

  No. of subjects =        6,565                 Number of obs    =       6,565
  No. of failures =          757
  Time at risk    =        61951
                                                 LR chi2(12)      =      139.98
  Log likelihood  =   -2808.7042                 Prob > chi2      =      0.0000
```

_t	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_t						
regions	-.0470034	.0983707	-0.48	0.633	-.2398065	.1457997
exposure						
I60	.5594234	.209149	2.67	0.007	.1494989	.9693479
I61	.4942215	.1849231	2.67	0.008	.1317789	.8566642
I64	.1878392	.1603953	1.17	0.242	-.1265299	.5022083
level# exposure						
III#I63	-.8786449	.1929721	-4.55	0.000	-1.256863	-.5004265
III#I60	-.3492824	.1902814	-1.84	0.066	-.7222271	.0236623
III#I61	-.5869892	.156903	-3.74	0.000	-.8945134	-.2794651
III#I64	-.6818737	.1440433	-4.73	0.000	-.9641934	-.3995541
edad	.0118124	.0027767	4.25	0.000	.0063702	.0172546
sexo	.1971312	.0744485	2.65	0.008	.0512148	.3430476
regions						
Resto Costa	-.0372562	.2002019	-0.19	0.852	-.4296446	.3551323
Sierra	.1289289	.243525	0.53	0.597	-.3483713	.6062291
Selva	0	(omitted)				
_cons	-5.390329	.3337347	-16.15	0.000	-6.044437	-4.736221
ln_p						
regions						
Resto Costa	.0155264	.0727205	0.21	0.831	-.1270031	.1580559
Sierra	.1675501	.0731081	2.29	0.022	.0242609	.3108393
Selva	.1938713	.0993669	1.95	0.051	-.0008843	.3886268
_cons	-.0327523	.0460896	-0.71	0.477	-.1230863	.0575817

```
42.
43. ********COMPARISONS************
44. *XLEVEL
45. streg level i.exposure i.level#i.exposure edad sexo, strata(level) d(weibull)

          failure _d:  condicion == 2
    analysis time _t:  los
  note: 2.level omitted because of collinearity

  Fitting constant-only model:

  Iteration 0:   log likelihood = -2929.1917
  Iteration 1:   log likelihood = -2919.8551
  Iteration 2:   log likelihood = -2880.9267
  Iteration 3:   log likelihood = -2880.2076
  Iteration 4:   log likelihood = -2880.2059
  Iteration 5:   log likelihood = -2880.2059

  Fitting full model:

  Iteration 0:   log likelihood = -2880.2059
  Iteration 1:   log likelihood = -2828.3126
  Iteration 2:   log likelihood = -2824.6827
  Iteration 3:   log likelihood = -2824.6734
  Iteration 4:   log likelihood = -2824.6734

  Weibull PH regression

  No. of subjects =        6,565                 Number of obs    =        6,565
  No. of failures =          757
  Time at risk    =        61951
                                                 LR chi2(9)       =       111.07
  Log likelihood  =   -2824.6734                 Prob > chi2      =       0.0000
```

_t	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_t						
level	-.8360862	.2357232	-3.55	0.000	-1.298095	-.3740773
exposure						
I60	.6228911	.2085521	2.99	0.003	.2141364	1.031646
I61	.4972224	.1844539	2.70	0.007	.1356995	.8587454
I64	.1627237	.1594525	1.02	0.307	-.1497975	.4752449
level# exposure						
III#I60	.5130759	.2586223	1.98	0.047	.0061855	1.019966
III#I61	.2806803	.2368669	1.18	0.236	-.1835703	.744931
III#I64	.2662403	.2276128	1.17	0.242	-.1798726	.7123532
edad	.0124547	.0027615	4.51	0.000	.0070422	.0178671
sexo	.1849271	.0744413	2.48	0.013	.0390249	.3308293
level						
III	0	(omitted)				
_cons	-4.661452	.4455211	-10.46	0.000	-5.534657	-3.788246
ln_p						
level						
III	-.0839551	.0579952	-1.45	0.148	-.1976237	.0297134
_cons	.0543198	.0392487	1.38	0.166	-.0226063	.131246

```
46. estimates store m1

47. streg level i.exposure edad sexo, strata(level) d(weibull)

           failure _d:  condicion == 2
     analysis time _t:  los
  note: 2.level omitted because of collinearity

  Fitting constant-only model:

  Iteration 0:   log likelihood = -2929.1917
  Iteration 1:   log likelihood = -2919.8551
  Iteration 2:   log likelihood = -2880.9267
  Iteration 3:   log likelihood = -2880.2076
  Iteration 4:   log likelihood = -2880.2059
  Iteration 5:   log likelihood = -2880.2059

  Fitting full model:

  Iteration 0:   log likelihood = -2880.2059
  Iteration 1:   log likelihood = -2829.8715
  Iteration 2:   log likelihood = -2826.6585
  Iteration 3:   log likelihood = -2826.6474
  Iteration 4:   log likelihood = -2826.6474

  Weibull PH regression

  No. of subjects =        6,565                 Number of obs    =       6,565
  No. of failures =          757
  Time at risk    =        61951
                                                 LR chi2(6)       =      107.12
  Log likelihood  =   -2826.6474                 Prob > chi2      =      0.0000
```

_t	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_t						
level	-.5810809	.1680366	-3.46	0.001	-.9104265	-.2517353
exposure						
I60	.9539742	.1257204	7.59	0.000	.7075668	1.200382
I61	.6755038	.1160174	5.82	0.000	.4481138	.9028938
I64	.3350364	.1122188	2.99	0.003	.1150915	.5549813
edad	.0122876	.0027535	4.46	0.000	.0068908	.0176844
sexo	.1880531	.0744249	2.53	0.012	.042183	.3339232
level						
III	0	(omitted)				
_cons	-5.076846	.3560285	-14.26	0.000	-5.774649	-4.379043
ln_p						
level						
III	-.0770105	.0577707	-1.33	0.183	-.190239	.036218
_cons	.0517473	.0392261	1.32	0.187	-.0251344	.128629

```
48. lrtest . m1

  Likelihood-ratio test                                 LR chi2(3)  =      3.95
  (Assumption: . nested in m1)                          Prob > chi2 =    0.2671
```

```
49.
50. *xREGIONS
51. streg regions i.exposure i.regions#i.exposure edad sexo, strata(regions) d(weibull)

          failure _d:  condicion == 2
    analysis time _t:  los
  note: 4.regions omitted because of collinearity

  Fitting constant-only model:

  Iteration 0:   log likelihood = -2929.2295
  Iteration 1:   log likelihood =  -2884.267
  Iteration 2:   log likelihood = -2878.7732
  Iteration 3:   log likelihood =  -2878.743
  Iteration 4:   log likelihood =  -2878.743

  Fitting full model:

  Iteration 0:   log likelihood =  -2878.743
  Iteration 1:   log likelihood = -2829.4709
  Iteration 2:   log likelihood = -2826.0603
  Iteration 3:   log likelihood = -2826.0524
  Iteration 4:   log likelihood = -2826.0524

  Weibull PH regression

  No. of subjects =        6,566                 Number of obs    =       6,566
  No. of failures =          757
  Time at risk    =        61954
                                                 LR chi2(17)      =      105.38
  Log likelihood  =   -2826.0524                 Prob > chi2      =      0.0000

------------------------------------------------------------------------------
          _t |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
_t           |
     regions |   .2499301   .1438841     1.74   0.082    -.0320776    .5319379
             |
    exposure |
         I60 |    1.07208   .1672433     6.41   0.000     .7442896    1.399871
         I61 |   .5784299   .1675476     3.45   0.001     .2500427    .9068171
         I64 |   .4859637   .1635551     2.97   0.003     .1654016    .8065258
             |
     regions#|
    exposure |
Resto Costa #|
         I60 |  -.1123341   .3646895    -0.31   0.758    -.8271123    .6024442
Resto Costa #|
         I61 |   .5504854   .3080576     1.79   0.074    -.0532964    1.154267
Resto Costa #|
         I64 |   .3933488   .3003417     1.31   0.190    -.1953102    .9820077
 Sierra#I60  |  -.5001864   .3199727    -1.56   0.118    -1.127321    .1269486
 Sierra#I61  |  -.1316136   .3110648    -0.42   0.672    -.7412895    .4780623
 Sierra#I64  |  -.2883392   .2789699    -1.03   0.301    -.8351102    .2584318
  Selva#I60  |  -.7802749   .4370276    -1.79   0.074    -1.636833    .0762834
  Selva#I61  |  -.0037518   .4683624    -0.01   0.994    -.9217253    .9142216
  Selva#I64  |  -.5193462   .4047307    -1.28   0.199    -1.312604    .2739115
             |
        edad |   .0128441   .0027838     4.61   0.000     .0073881    .0183002
        sexo |   .2010222   .0746955     2.69   0.007     .0546216    .3474227
             |
     regions |
Resto Costa  |  -.4004592    .317383    -1.26   0.207    -1.022518       .2216
     Sierra  |    .184864   .3683894     0.50   0.616     -.537166    .9068939
      Selva  |           0  (omitted)
             |
       _cons |  -6.48459   .3358511   -19.31   0.000    -7.142846   -5.826334
-------------+----------------------------------------------------------------
ln_p         |
     regions |
Resto Costa  |   .0185254   .0736127     0.25   0.801    -.1257528    .1628037
     Sierra  |   .1559464     .07407     2.11   0.035     .0107718    .3011209
------------------------------------------------------------------------------
```

Selva	.1825722	.1031093	1.77	0.077	-.0195184	.3846628
_cons	-.0490639	.046617	-1.05	0.293	-.1404316	.0423039

52. estimates store m2

53. streg regions i.exposure edad sexo, strata(regions) d(weibull)

```
          failure _d:  condicion == 2
    analysis time _t:  los
note: 4.regions omitted because of collinearity

Fitting constant-only model:

Iteration 0:   log likelihood = -2929.2295
Iteration 1:   log likelihood =  -2884.267
Iteration 2:   log likelihood = -2878.7732
Iteration 3:   log likelihood =  -2878.743
Iteration 4:   log likelihood =  -2878.743

Fitting full model:

Iteration 0:   log likelihood =  -2878.743
Iteration 1:   log likelihood = -2834.7389
Iteration 2:   log likelihood = -2832.7016
Iteration 3:   log likelihood = -2832.6961
Iteration 4:   log likelihood = -2832.6961

Weibull PH regression

No. of subjects =        6,566                 Number of obs    =        6,566
No. of failures =          757
Time at risk    =        61954
                                               LR chi2(8)       =        92.09
Log likelihood  =   -2832.6961                 Prob > chi2      =       0.0000
```

_t	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_t						
regions	.1075709	.0954743	1.13	0.260	-.0795553	.2946972
exposure						
I60	.8937682	.1265529	7.06	0.000	.645729	1.141807
I61	.6868551	.1165561	5.89	0.000	.4584094	.9153009
I64	.4743609	.1100115	4.31	0.000	.2587423	.6899794
edad	.0125628	.0027703	4.53	0.000	.0071332	.0179924
sexo	.2012924	.0743657	2.71	0.007	.0555383	.3470465
regions						
Resto Costa	.0781794	.1985869	0.39	0.694	-.3110437	.4674025
Sierra	.2278856	.2414104	0.94	0.345	-.2452701	.7010413
Selva	0	(omitted)				
_cons	-6.319792	.298832	-21.15	0.000	-6.905492	-5.734092
ln_p						
regions						
Resto Costa	.0113906	.0731346	0.16	0.876	-.1319506	.1547318
Sierra	.1487783	.0736181	2.02	0.043	.0044895	.2930671
Selva	.1812636	.1001554	1.81	0.070	-.0150374	.3775645
_cons	-.0433108	.0463453	-0.93	0.350	-.134146	.0475244

```
54. lrtest . m2, force

  Likelihood-ratio test                                 LR chi2(9)  =     13.29
  (Assumption: . nested in m2)                          Prob > chi2 =    0.1500

55.
56.
57. *streg i.exposure edad sexo regions#exposure level#exposure, strata(regions) d(weibu
  > ll)
58. *streg i.exposure edad sexo regions#exposure level#exposure, strata(level) d(weibull
  > )
59.
60.
  end of do-file

61. log off
        name:  <unnamed>
         log:  C:\users\init5\Mis Documentos\stata\interactions.smcl
    log type:  smcl
   paused on:  18 Oct 2020, 17:47:51
```