Solutions for Session 11

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```
. do solution.do

. set more off

. clear

. cd C:
temp
C:
temp

. sysuse uslifeexp, clear
(U.S. life expectancy, 1900-1999)

. graph twoway scatter le year, name("g1", replace)


. graph export graph1.eps replace
(file graph1.eps written in EPS format)

. graph twoway scatter le year, title("U.S. Life Expectancy") name("g2", replace)


. graph export graph2.eps replace
(file graph2.eps written in EPS format)

. graph twoway scatter le year, title("U.S. Life Expectancy") ylabel(0(20)80) name("g3", replace)


. graph export graph3.eps replace,
(file graph3.eps written in EPS format)

. graph twoway scatter le_male year || scatter le_female year, name("g4", replace)


. graph export graph4.eps replace
(file graph4.eps written in EPS format)

. graph twoway scatter le_male year || scatter le_female year || lfitci        /* */
 le_male year || lfitci le_female year, name("g5", replace)
```
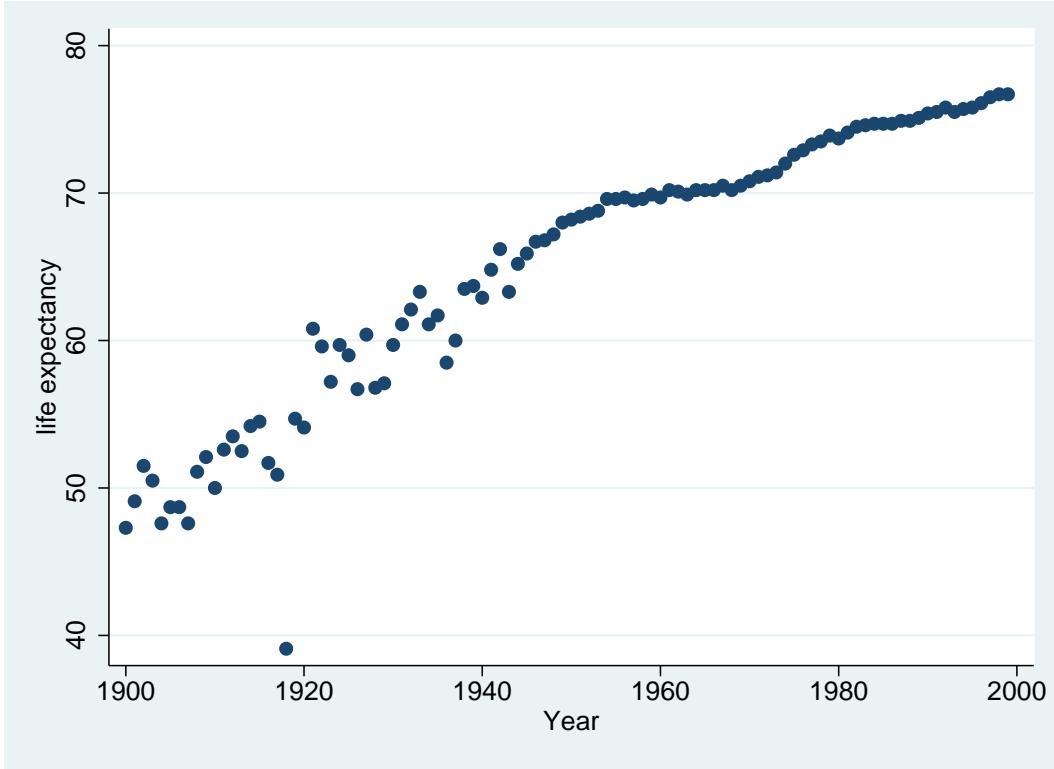
Figure 1: . graph twoway scatter le year, name("g1", replace)

```
. graph export graph5.eps replace
(file graph5.eps written in EPS format)

. graph twoway scatter le_male year || scatter le_female year || lfitci        /* */
 le_male year || lfitci le_female year, ytitle("Life Expecancy") name("g6", replace)


. graph export graph6.eps replace
(file graph6.eps written in EPS format)

. sysuse cancer, clear
(Patient Survival in Drug Trial)
```
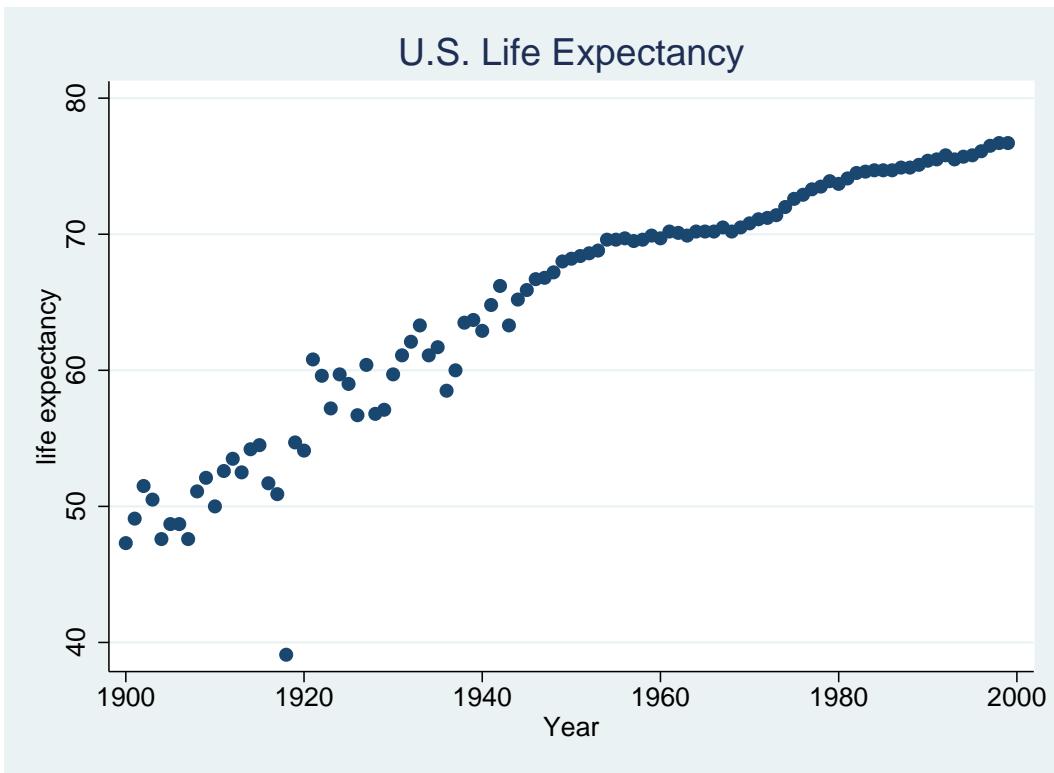
Figure 2: . graph twoway scatter le year, title("U.S. Life Expectancy") name("g2", replace)

```
. describe

Contains data from M:
stata13
ado
base/c/cancer.dta
  obs:            48                          Patient Survival in Drug Trial
 vars:             8                          3 Mar 2011 16:09
 size:           576

              storage   display    value
variable name   type    format     label      variable label

studytime       int     %8.0g                 Months to death or end of exp.
died            int     %8.0g                 1 if patient died
drug            int     %8.0g                 Drug type (1=placebo)
age             int     %8.0g                 Patient´s age at start of exp.
_st             byte    %8.0g
_d              byte    %8.0g
_t              byte    %10.0g
_t0             byte    %10.0g

Sorted by:
```

3
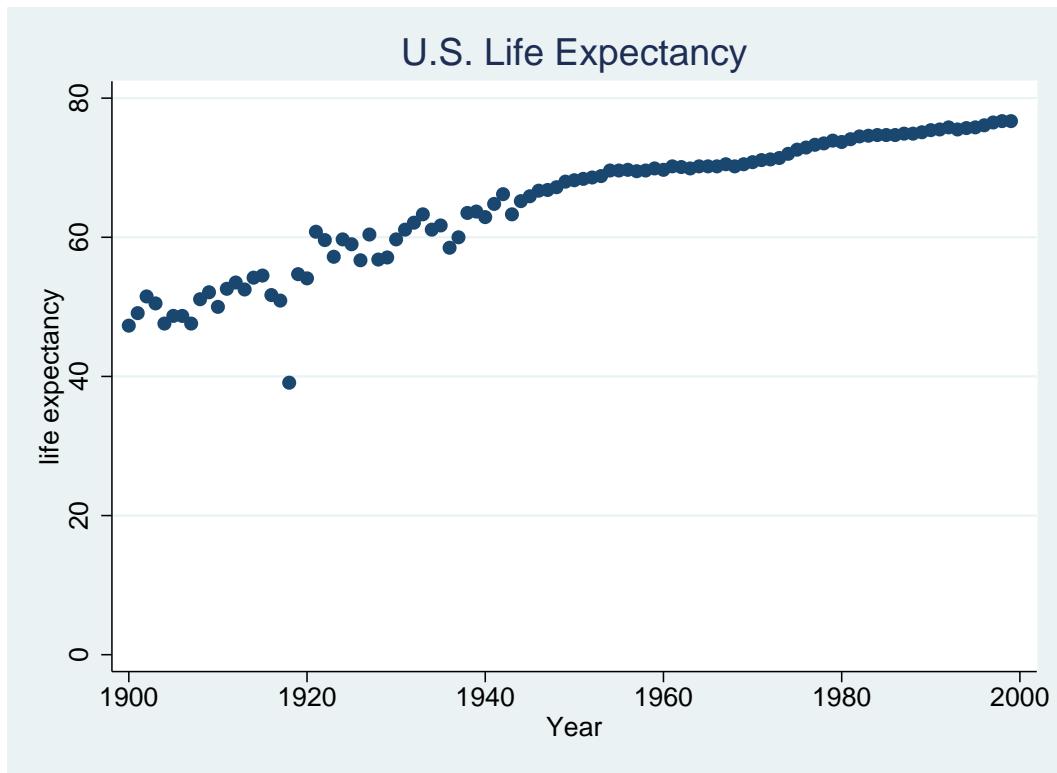
Figure 3: . graph twoway scatter le year, title("U.S. Life Expectancy") ylabel(0(20)80) name("g3", replace)

2.1 There are 48 observations
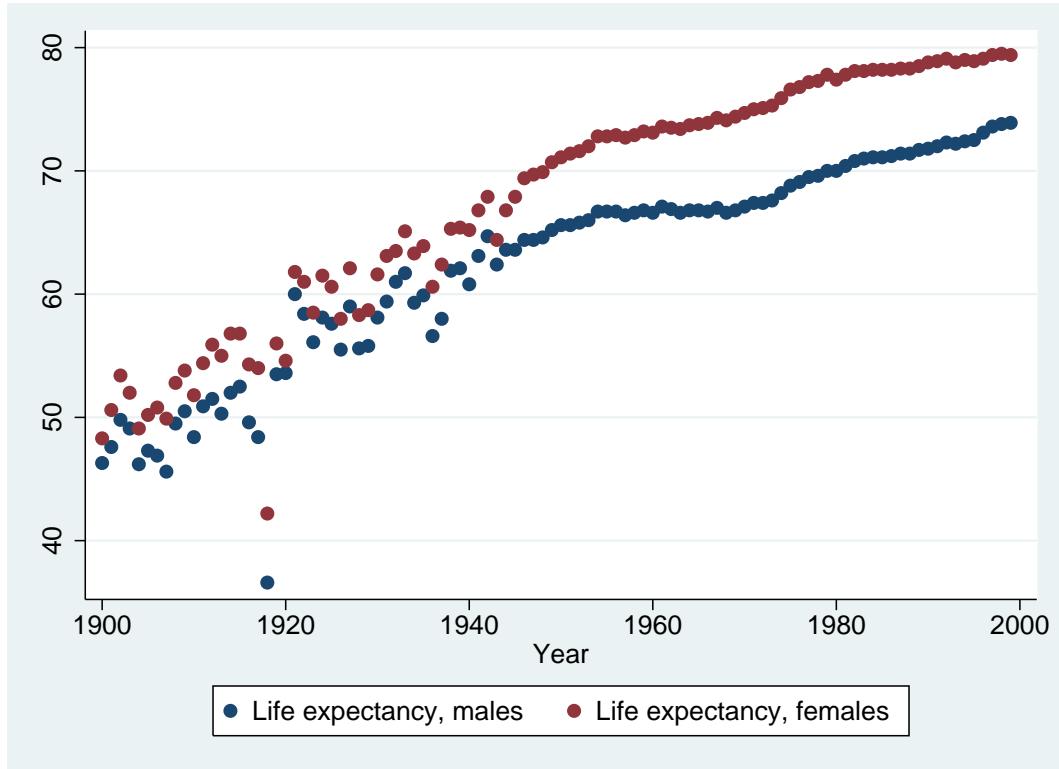
Figure 4: . graph twoway scatter le˙male year —— scatter le˙female year, name("g4", replace)

```
. codebook
```

```
─────────────────────────────────────────────────────────────────────────────
studytime                                          Months to death or end of exp.
─────────────────────────────────────────────────────────────────────────────

                type:  numeric (int)
               range:  [1,39]                      units:  1
       unique values:  28                      missing .:  0/48

                mean:       15.5
            std. dev:    10.2563

         percentiles:         10%       25%       50%       75%       90%
                                4       7.5      12.5        23        32

─────────────────────────────────────────────────────────────────────────────
died                                                          1 if patient died
─────────────────────────────────────────────────────────────────────────────

                type:  numeric (int)
               range:  [0,1]                       units:  1
       unique values:  2                       missing .:  0/48

          tabulation:  Freq.  Value
                          17  0
                          31  1

─────────────────────────────────────────────────────────────────────────────
drug                                                        Drug type (1=placebo)
─────────────────────────────────────────────────────────────────────────────

                type:  numeric (int)  5
               range:  [1,3]                       units:  1
       unique values:  3                       missing .:  0/48

          tabulation:  Freq.  Value
                          20  1
                          14  2
                          14  3

─────────────────────────────────────────────────────────────────────────────
age                                                  Patient´s age at start of exp.
─────────────────────────────────────────────────────────────────────────────
```
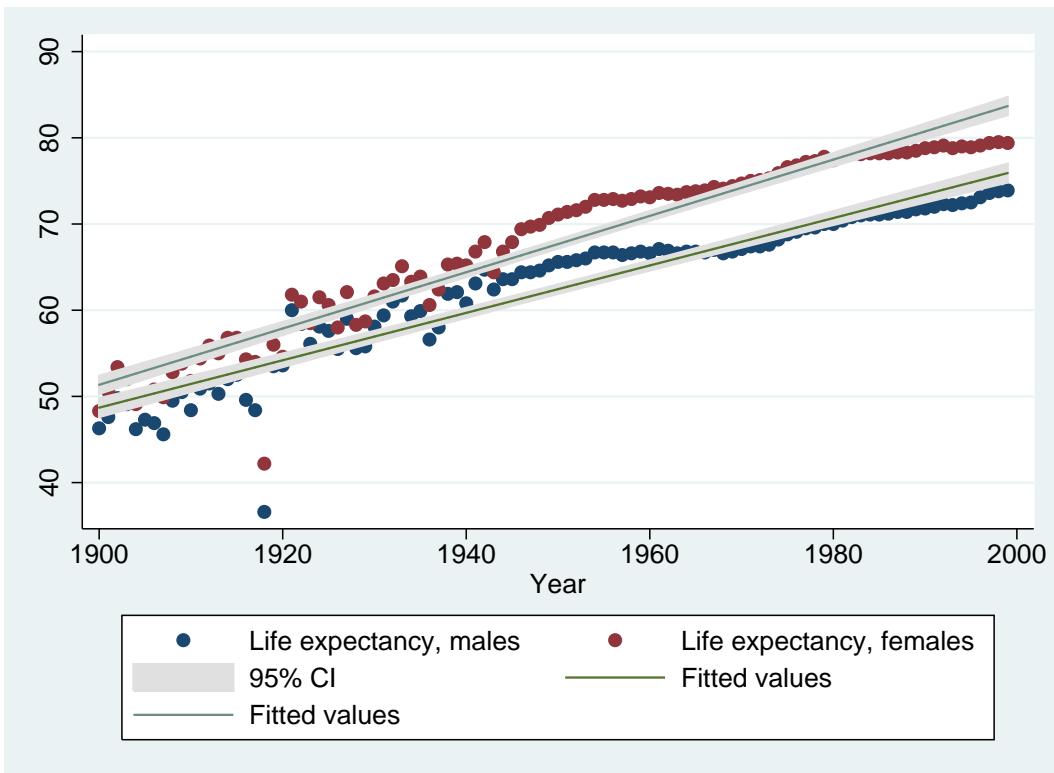
Figure 5: . graph twoway scatter le˙male year —— scatter le˙female year —— lfitci   /*

2.2 the longest followup time is 39 months
2.3 There were 3 different treatments in the study (1 being a placebo)
2.4 The ages ranged from 47 to 67
2.5 The mean age at the start of the study was 55.875
2.6 The SD of the followup time was 10.26
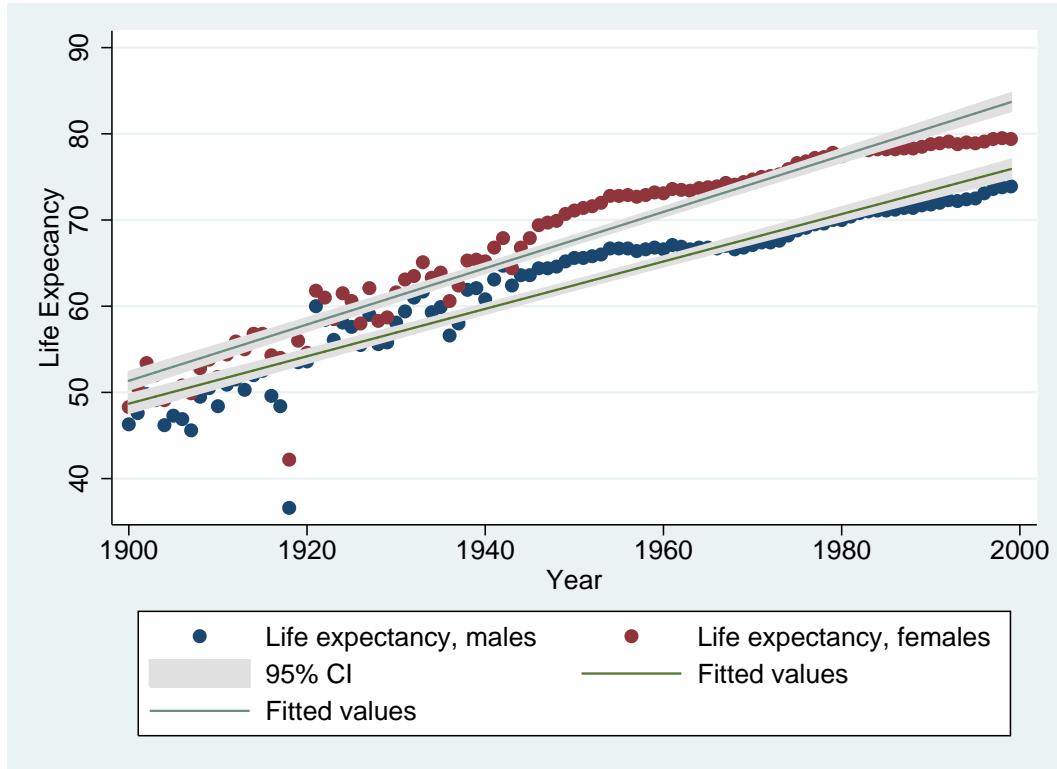
Figure 6: . graph twoway scatter le˙male year —— scatter le˙female year —— lfitci   /*

```
. tab drug died, row
```

```
  ┌─────────────────┐
  │ Key             │
  ├─────────────────┤
  │     frequency   │
  │ row percentage  │
  └─────────────────┘
```

```
Drug type  │
(1=placebo │    1 if patient died
        )  │        0          1 │     Total
───────────┼─────────────────────┼──────────
         1 │        1         19 │        20
           │     5.00      95.00 │    100.00
───────────┼─────────────────────┼──────────
         2 │        8          6 │        14
           │    57.14      42.86 │    100.00
───────────┼─────────────────────┼──────────
         3 │        8          6 │        14
           │    57.14      42.86 │    100.00
───────────┼─────────────────────┼──────────
     Total │       17         31 │        48
           │    35.42      64.58 │    100.00
```

2.7 19 subjects on placebo died
2.8 43% of subjects on treatment 2 died

```
. summarize age if died == 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         age |         31    56.80645    5.647533         47         67
```

3.1 Mean age = 56.8

```
. summarize studytime if drug == 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
   studytime |         20           9    6.448174          1         23
```

3.2 Mean age of those on placebo = 56.1

```
. summarize age if drug == 1 & died == 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         age |         19    55.94737    5.690867         49         67
```

3.3 Mean age of those on placebo who died = 55.9

```
. bysort died: summ age
------------------------------------------------------------------------------
-> died = 0
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         age |         17    54.17647    5.434097         48         65
------------------------------------------------------------------------------
-> died = 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         age |         31    56.80645    5.647533         47         67
```

```
. bysort drug: summ age
```

```
-> drug = 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |         20       56.05    5.558067        49         67
```

```
-> drug = 2
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |         14    56.92857    6.787594        47         67
```

```
-> drug = 3
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |         14    54.57143    4.636217        48         62
```

```
. bysort drug died: summ age
```

```
-> drug = 1, died = 0
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |          1          58           .        58         58
```

```
-> drug = 1, died = 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |         19    55.94737    5.690867        49         67
```

```
-> drug = 2, died = 0
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |          8       54.75    5.750776        49         65
```

```
-> drug = 2, died = 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |          6    59.83333    7.467708        47         67
```

```
-> drug = 3, died = 0
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |          8      53.125    5.540436        48         62
```

```
-> drug = 3, died = 1
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |          6        56.5    2.258318        54         60
```

```
. egen agegrp = cut(age), group(2)
```

```
. bysort agegrp: summ age
```

```
-> agegrp = 0
    Variable │        Obs        Mean    Std. Dev.        Min         Max
─────────────┼─────────────────────────────────────────────────────────
         age │         23          51     2.486326         47          55
```

```
-> agegrp = 1
    Variable │        Obs        Mean    Std. Dev.        Min         Max
─────────────┼─────────────────────────────────────────────────────────
         age │         25       60.36     3.650114         56          67
```

3.4 The group would be split at the median age, which according to codebook was 56

```
. label define agegrp 0 "47-55" 1 "56-67"
```

```
. label values agegrp agegrp
```

```
. tab agegrp died
```

	1 if patient died		
agegrp	0	1	Total
47-55	10	13	23
56-67	7	18	25
Total	17	31	48

```
. bysort agegrp: gen group_size = _N
```

```
. tab group_size
```

group_size	Freq.	Percent	Cum.
23	23	47.92	47.92
25	25	52.08	100.00
Total	48	100.00	

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

```
. foreach x in one two three {
  2. display " `x´ "
  3. }
 one
 two
 three
```

```
. foreach x in drug agegrp {
  2. tab `x´ died, row
  3. }
```

```
┌─────────────────┐
│ Key             │
├─────────────────┤
│    frequency    │
│  row percentage │
└─────────────────┘
```

Drug type (1=placebo)	1 if patient died 0	1	Total
1	1 5.00	19 95.00	20 100.00
2	8 57.14	6 42.86	14 100.00
3	8 57.14	6 42.86	14 100.00
Total	17 35.42	31 64.58	48 100.00

```
┌─────────────────┐
│ Key             │
├─────────────────┤
│    frequency    │
│  row percentage │
└─────────────────┘
```

agegrp	1 if patient died 0	1	Total
47-55	10 43.48	13 56.52	23 100.00
56-67	7 28.00	18 72.00	25 100.00
Total	17 35.42	31 64.58	48 100.00

```
. sysuse uslifeexp
(U.S. life expectancy, 1900-1999)

. foreach x of varlist le* {
  2. graph twoway scatter `x´ year, name("`x´", replace)
  3. }


. graph export graph7.eps replace
(file graph7.eps written in EPS format)

. sysuse bplong
(fictional blood-pressure data)
```
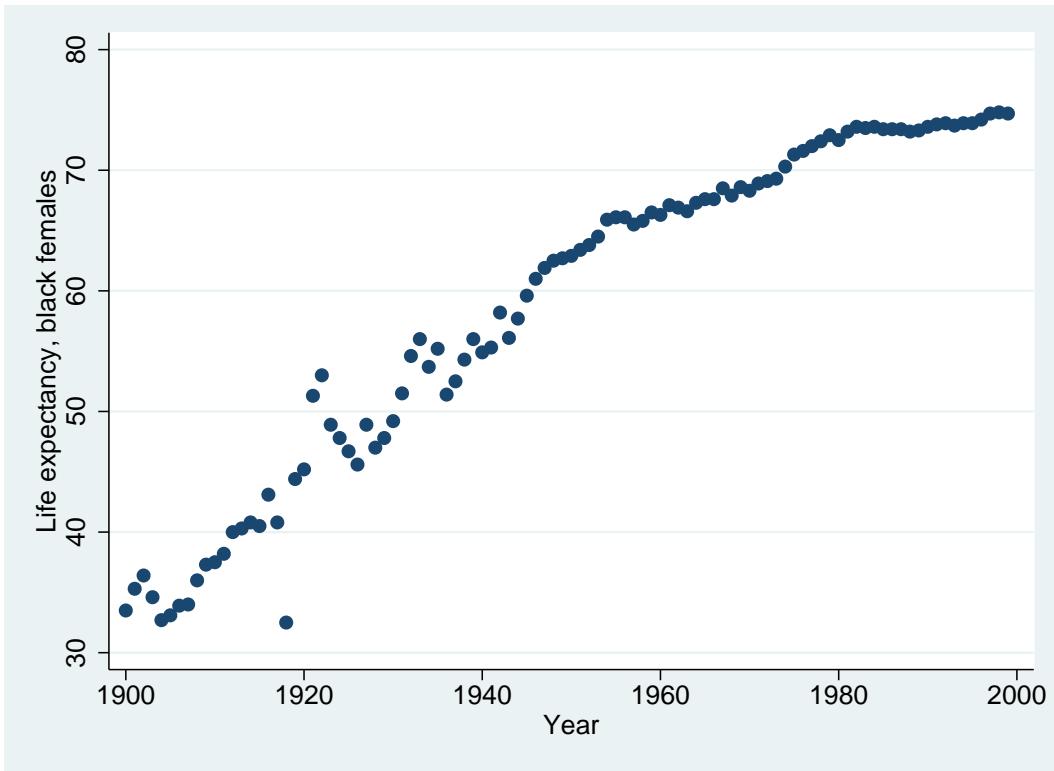
Figure 7: . foreach x of varlist le* {

```
. bysort when: summ bp

-> when = Before
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
          bp |        120      156.45    11.38985        138        185

-> when = After
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
          bp |        120    151.3583    14.17762        125        185
```

Mean BP before 156.45, after 151.36

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```
. reshape wide bp, i(patient) j(when)
(note: j = 1 2)
Data                                long    ->    wide
─────────────────────────────────────────────────────────────
Number of obs.                       240    ->       120
Number of variables                    5    ->         5
j variable (2 values)               when    ->    (dropped)
xij variables:
                                      bp    ->    bp1 bp2
─────────────────────────────────────────────────────────────

. summ bp1 bp2
    Variable │       Obs        Mean    Std. Dev.       Min        Max
─────────────┼───────────────────────────────────────────────────────
         bp1 │       120      156.45    11.38985        138        185
         bp2 │       120    151.3583    14.17762        125        185

. sysuse uslifeexp, clear
(U.S. life expectancy, 1900-1999)

. rename le le_total

. reshape long le, i(year) j(group) string
(note: j = _b _bfemale _bmale _female _male _total _w _wfemale _wmale)
Data                                wide    ->    long
─────────────────────────────────────────────────────────────
Number of obs.                       100    ->       900
Number of variables                   10    ->         3
j variable (9 values)                       ->    group
xij variables:
        le_b le_bfemale ... le_wmale    ->    le
─────────────────────────────────────────────────────────────

. tab group
       group │      Freq.     Percent        Cum.
─────────────┼───────────────────────────────────
          _b │        100       11.11       11.11
     _bfemale │        100       11.11       22.22
       _bmale │        100       11.11       33.33
      _female │        100       11.11       44.44
        _male │        100       11.11       55.56
       _total │        100       11.11       66.67
           _w │        100       11.11       77.78
     _wfemale │        100       11.11       88.89
       _wmale │        100       11.11      100.00
─────────────┼───────────────────────────────────
       Total │        900      100.00

. graph twoway scatter le year if group == "_male" || scatter le year if group == "_female"


. graph export graph8.eps replace
(file graph8.eps written in EPS format)
end of do-file
```
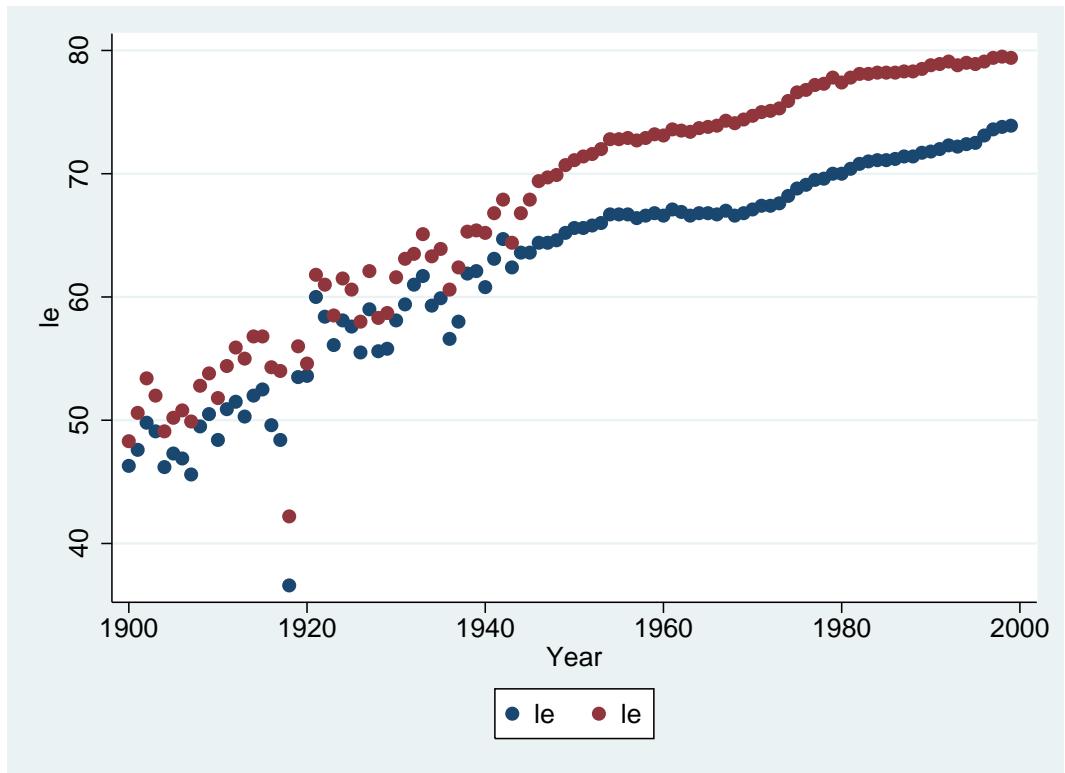
Figure 8: . graph twoway scatter le year if group == "`male" —— scatter le year if group == "`female"