1 Log files from Stata (external links)

SHARE-1-harmon (reshape data)
SHARE-2-harmon-Part5 (generation of disease variables)

2 Sample Selection

```
. tab hacohort wave       if sfull,m

     hacohort: Sample |                                Survey Wave
               cohort | 2004 wave  2006/07 w  2011/12 w  2013 wave  2015 wave  2017 wave  2019/20 w |     Total
----------------------+-------------------------------------------------------------------------------+----------
1.Original sample for |    16,430     16,430     16,430     16,430     16,430     16,430     16,430 |   115,010
2.2006 Refreshment sa |     2,448      2,448      2,448      2,448      2,448      2,448      2,448 |    17,136
----------------------+-------------------------------------------------------------------------------+----------
                Total |    18,878     18,878     18,878     18,878     18,878     18,878     18,878 |   132,146

. tab iwstatr wave        if sfull,m

                      |                                Survey Wave
   r interview status | 2004 wave  2006/07 w  2011/12 w  2013 wave  2015 wave  2017 wave  2019/20 w |     Total
----------------------+-------------------------------------------------------------------------------+----------
              0.inap. |     8,617      3,754      1,463      1,673        758        244         19 |    16,528
        1.resp, alive |    10,261     13,580     14,961     14,708     14,447     13,759     10,389 |    92,105
          4.nr, alive |         0      1,104      1,233        749      1,137      1,026      2,209 |     7,458
   5.nr, died this wv |         0        279        468        593        603        958      1,061 |     3,962
   6.nr, died prev wv |         0          0        660      1,096      1,895      2,799      3,983 |    10,433
9.nr, dk if alive or  |         0        161         93         59         38         92      1,217 |     1,660
----------------------+-------------------------------------------------------------------------------+----------
                Total |    18,878     18,878     18,878     18,878     18,878     18,878     18,878 |   132,146

. sum agemin                      if sfull,

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
      agemin |    132,146    59.61256    6.309033         31         70

. qui log close log
```

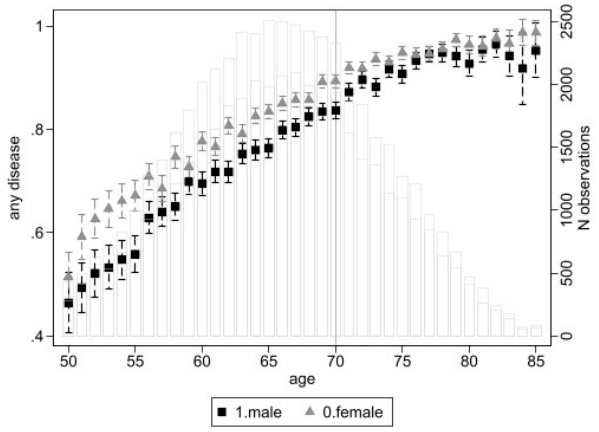
3 Choice of Diseases

```
. codebook d_* timetonextdisease2, compact

Variable         Obs Unique      Mean  Min  Max  Label
-------------------------------------------------------------------------------------------------------------------------------
d_hibp        169620      2  .4831859    0    1  ever had | taking meds for hibp
d_diab        169598      2  .1500018    0    1  ever had | taking meds for diab
d_heart       169596      2  .2217269    0    1  ever had | taking meds for heart
d_lung        169587      2  .0859913    0    1  ever had | taking meds for lung
d_psych       169856      2  .2651246    0    1  ever had | taking meds for psych
d_osteo       169583      2  .0953456    0    1  ever had | taking meds for osteo
d_cancr       169328      2   .082727    0    1  (only) ever had cancr
d_strok       169334      2  .0539053    0    1  (only) ever had strok
d_arthr       169406      2  .3204373    0    1  (only) ever had arthr
d_any         169929      2  .7559922    0    1  any disease
d_miss        169929      9  .0203203    0    8  # miss.diseases
d_count       169261     10  1.758054    0    9  # diseases
d_count_geq2  169261      2  .4889727    0    1  >=2 diseases
d_count_in~x  169261     10  .1953394    0    1  disease index (=count/total diseases)
d_anyatfir~s  399700      2  .6346585    0    1  already has disease at baseline
d_anyever     399700      2  .7874256    0    1  ever reports any disease
d_anyever_g2  400036      2  .4975852    0    1  ever reports having had any disease (g2aging)
timetonext~2   53524    179  54.78008   11  190  time (months) from C to C+1 (or more) diseases
-------------------------------------------------------------------------------------------------------------------------------

. codebook diff_*,compact // assuming the first disease starts with hibp in the dataset

Variable         Obs Unique      Mean  Min  Max  Label
-------------------------------------------------------------------------------------------------------------------------------
diff_d_count   85319      8  .3377091   -1    6  1st diff of # of diseases
diff_miss~nt  110881     11  .3521162   -3    7  1st diff of # of diseases: (L(t-2) used if L(t-1) missing) (=adj. for gaps)
diff_d_hibp    85632      2  .0674631    0    1  1st diff ('ever had' | medication) of d_hibp
diff_d_diab    85628      2  .0281684    0    1  1st diff ('ever had' | medication) of d_diab
diff_d_heart   85627      2  .0567344    0    1  1st diff ('ever had' | medication) of d_heart
diff_d_lung    85626      2  .0220494    0    1  1st diff ('ever had' | medication) of d_lung
diff_d_psych   85656      3  .0203488   -1    1  1st diff ('ever had' | medication) of d_psych
diff_d_osteo   85626      2  .0325485    0    1  1st diff ('ever had' | medication) of d_osteo
```

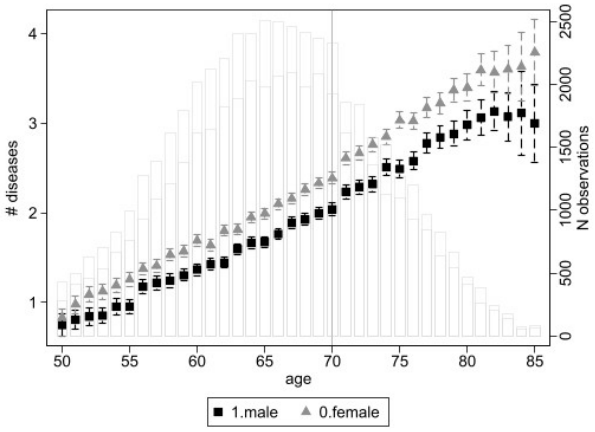
```
diff_d_cancr   85364      2  .0233002    0    1  1st diff ('ever had' | medication) of d_cancr
diff_d_strok   85371      2  .0167856    0    1  1st diff ('ever had' | medication) of d_strok
diff_d_arthr   85430      2  .0697881    0    1  1st diff ('ever had' | medication) of d_arthr
diff_hibper    85467      2  .0667392    0    1  1st diff ('ever had' - raw data) of hibper
diff_diaber    85407      2  .0273865    0    1  1st diff ('ever had' - raw data) of diaber
diff_hearter   85394      2  .0378949    0    1  1st diff ('ever had' - raw data) of hearter
diff_lunger    85371      2  .0207916    0    1  1st diff ('ever had' - raw data) of lunger
diff_psycher   64556      3  .0003563   -1    1  1st diff ('ever had' - raw data) of psycher
diff_osteoer   85355      2  .0087751    0    1  1st diff ('ever had' - raw data) of osteoer
diff_cancrer   85364      2  .0233002    0    1  1st diff ('ever had' - raw data) of cancrer
diff_stroker   85371      2  .0167856    0    1  1st diff ('ever had' - raw data) of stroker
diff_arthrer   85430      2  .0697881    0    1  1st diff ('ever had' - raw data) of arthrer
diff_miss_~p  111212      3  .0775006   -1    1  1st diff ('ever had' | medication) (adj. for gaps) of d_hibp
diff_mis~per  111056      2  .0764119    0    1  1st diff (ever had - raw data) (adj. for gaps) of hibp
diff_miss_~b  111194      3  .0328705   -1    1  1st diff ('ever had' | medication) (adj. for gaps) of d_diab
diff_mis~ber  110986      2  .0320221    0    1  1st diff (ever had - raw data) (adj. for gaps) of diab
diff_miss~rt  111188      3  .0550869   -1    1  1st diff ('ever had' | medication) (adj. for gaps) of d_heart
diff_mis~ter  110967      2  .0405346    0    1  1st diff (ever had - raw data) (adj. for gaps) of heart
diff_miss_~g  111180      3  .0250135   -1    1  1st diff ('ever had' | medication) (adj. for gaps) of d_lung
diff_mis~ger  110943      2  .0242377    0    1  1st diff (ever had - raw data) (adj. for gaps) of lung
diff_miss_~h  111299      3  .0148878   -1    1  1st diff ('ever had' | medication) (adj. for gaps) of d_psych
diff_mis~her   93648      3  .0053391   -1    1  1st diff (ever had - raw data) (adj. for gaps) of psych
diff_miss_~o  111176      3  .0243488   -1    1  1st diff ('ever had' | medication) (adj. for gaps) of d_osteo
diff_mis~oer  110926      2  .0092494    0    1  1st diff (ever had - raw data) (adj. for gaps) of osteo
diff_miss~cr  110934      2  .0264752    0    1  1st diff ('ever had' | medication) (adj. for gaps) of d_cancr
diff_mi~crer  110934      2  .0264752    0    1  1st diff (ever had - raw data) (adj. for gaps) of cancr
diff_miss_~k  110940      2  .0185686    0    1  1st diff ('ever had' | medication) (adj. for gaps) of d_strok
diff_mis~ker  110940      2  .0185686    0    1  1st diff (ever had - raw data) (adj. for gaps) of strok
diff_miss~hr  111016      2  .0769709    0    1  1st diff ('ever had' | medication) (adj. for gaps) of d_arthr
diff_mi~hrer  111016      2  .0769709    0    1  1st diff (ever had - raw data) (adj. for gaps) of arthr
-------------------------------------------------------------------------------------------------------------------------------

. sum d_anyatfirstobs if sfull & wave==inw_first & agemin==50  // ppl w/ >1 conditions at baseline

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
d_anyatfir~s |        713    .4950912    .5003269          0          1

. sum d_anyatfirstobs if sfull & wave==inw_first & inrange(agemin,50,65) // ppl w/ >1 conditions at baseline

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
d_anyatfir~s |     14,087    .6508128    .4767301          0          1

. qui log close log
```

4 Figures and Tables

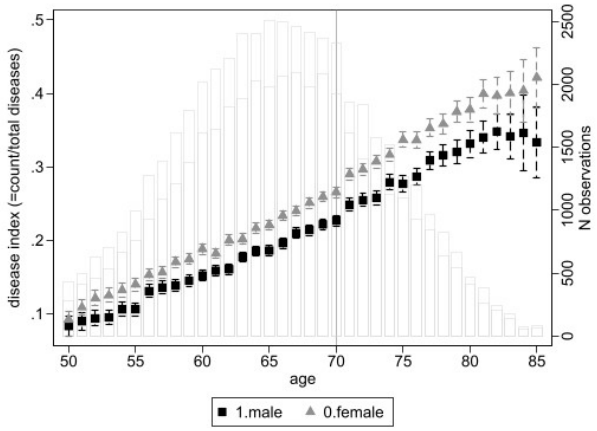
Figure 1: Variables by age (pooled sample) with 95% CI



(a) d_any (Any Disease)



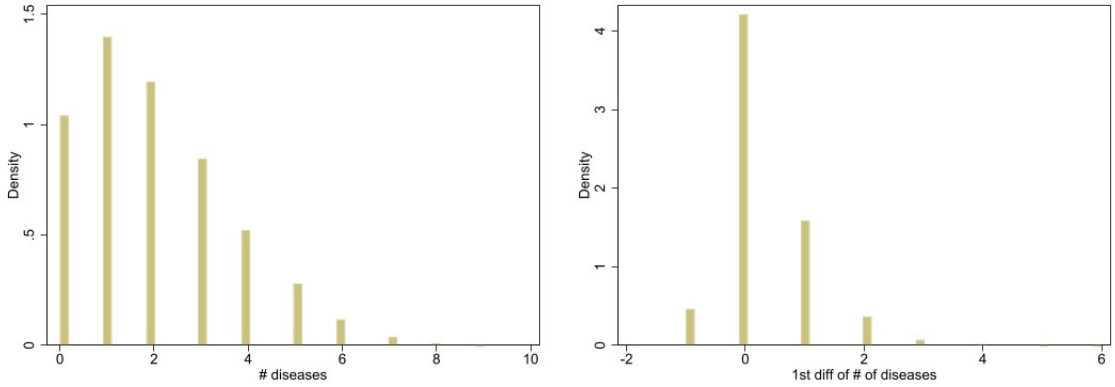
(b) d_count (number of diseases)



(c) d_count_index (count / considered diseases)

Note: ...

Figure 2: Distributions of variables

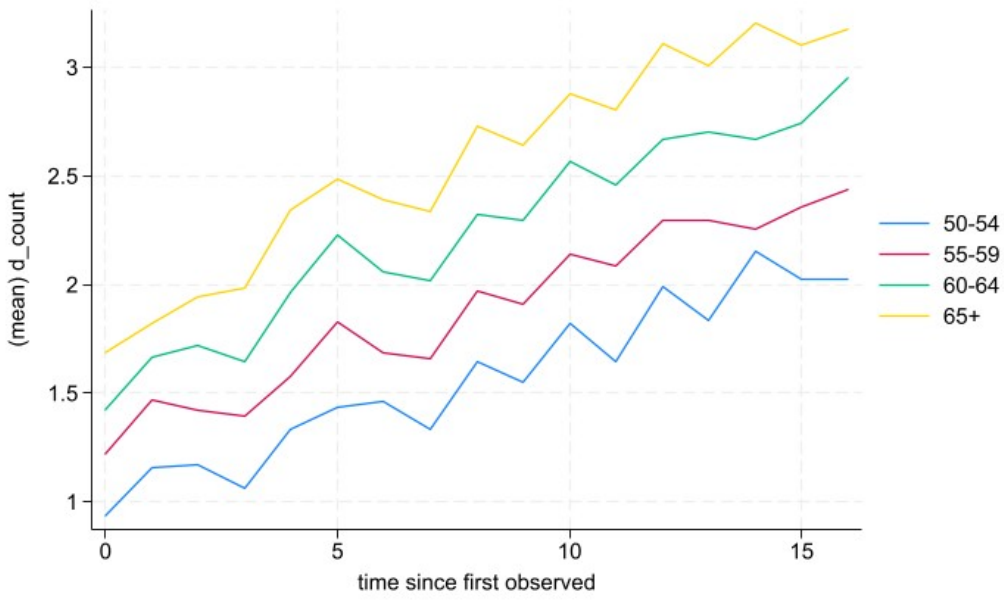


(a) d_count

(b) diff_d_count (1st difference in count)

```
------------------------------------------------------------------------------------------------------------------------------------------------
      name:  log
       log:  C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/logs/log-g_bytime-cohortmin5.txt
  log type:  text
 opened on:   3 Feb 2024, 23:16:00

. ** xtline by age group **
.
. loc      y              "d_count"

. loc      sample "sfull"

. loc      timevar "timesincefirstobs" // timesincefirstobs_yr | time

. collapse (mean) `y'_mean = `y'  (count) `y'_freq = `y' if `sample'==1 , by(cohortmin5 `timevar')

. xtset    cohortmin5 `timevar'

Panel variable: cohortmin5 (unbalanced)
 Time variable: timesincefirstobs, 0 to 16
         Delta: 1 unit

. loc       y2    "`y'_mean"

. xtline   `y2', overlay

. gr export       "$outpath/fig/supplement/g_by`timevar'-cohortmin5_`sample'_d_count.jpg", replace
(file C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/fig/supplement/g_bytimesincefirstobs-cohortmin5_sfull_d_count.jpg
>  not found)
file C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/fig/supplement/g_bytimesincefirstobs-cohortmin5_sfull_d_count.jpg
> written in JPEG format

. qui log close log
```

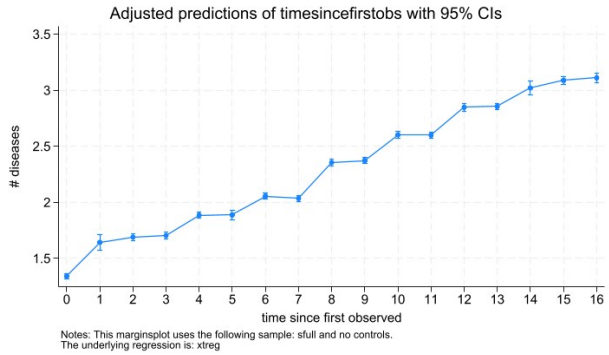
Figure 3: Count of Diseases by age at baseline



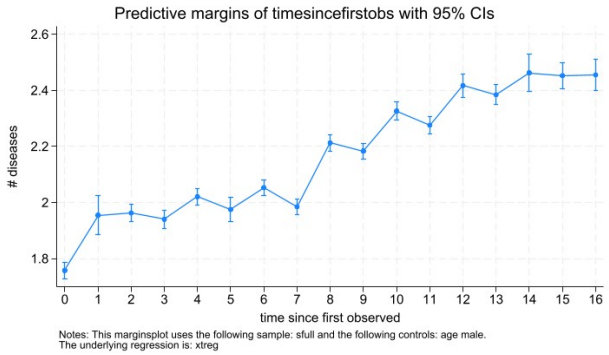
```
------------------------------------------------------------------------------------------------------------------------------------
      name:  log
       log:  C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/logs/log-g_bytime.txt
  log type:  text
 opened on:   3 Feb 2024, 23:07:27

. **graph by time**
. **# Bookmark #1 Can I do this here with xtologit?
. loc     timevar         "timesincefirstobs"

. loc     ctrls           "age male"

. loc     y                       "d_count"

. loc     ylist           "d_count d_count_index   timetonextdisease2" //

. loc     reg             "xtreg" // xtreg | xtologit is very slow; choice may depend on distribution of dependent variable; u
> sing index may indeed be the most appropriate.

. loc     sample          "sfull"

. foreach sample in       "sfull" "sneverdead" "shealthyatfirstobs"  {
  2.         di "Sample is: `sample' and variables are:"
  3.         sum `ylist' `ctrls' if `sample'
  4.         foreach y of local ylist { /*repeat graph for each selected variable*/
  5. loc     ylabel : variable label `y'             /*uses variable label of y*/
  6. qui {
  7. **without controls**
.         *qui log using "$outpath/logs/log-g_bytime.txt", text replace name(log) // put here if want to close it everytime re
> gardless of running loop
.         *di     "timevar: `timevar' | ctrls `ctrls' | y: `y' | ylist `ylist' | sample `sample'"
. `reg'   `y' i.`timevar'                if `sample' // without controls
  8. margins         `timevar', noestimcheck // atmeans
  9. marginsplot, xdimension(`timevar') ytitle("`ylabel'") note("Notes: This marginsplot uses the following sample: `sample' a
> nd no controls." "The underlying regression is: `reg'")  // xla(, ang(45))  ytitle("`ylabel'")
 10. gr export       "$outpath/fig/`saveloc'/g_bytime_`sample'_`y'.jpg", replace
 11. **with controls**
. `reg'   `y' i.`timevar' `ctrls' if `sample' // with controls
 12. margins         `timevar', noestimcheck
 13. marginsplot, xdimension(`timevar') ytitle("`ylabel'") note("Notes: This marginsplot uses the following sample: `sample' a
> nd the following controls: `ctrls'." "The underlying regression is: `reg'") // xla(, ang(45))
 14. gr export       "$outpath/fig/`saveloc'/g_bytime_`sample'_`y'_withctrls.jpg", replace
 15.         *qui log close log
. }
 16. }
 17. }
Sample is: sfull and variables are:

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
     d_count |     88,666     1.99303    1.615312          0          9
d_count_in~x |     88,666    .2214478    .1794791          0          1
timetonext~2 |     35,824    57.22898    34.91639         11        190
         age |     88,818    65.91678    7.248936         50         86
        male |    127,946    .4714411    .4991857          0          1
--Break--
r(1);

end of do-file

--Break--
r(1);

. do "C:\Users\User\AppData\Local\Temp\STD4fb8_000000.tmp"

. pause on

. pause off

. log close _all  /*closes all open log files*/
      name:  log
       log:  C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/logs/log-g_bytime.txt
  log type:  text
 closed on:   3 Feb 2024, 23:07:56
------------------------------------------------------------------------------------------------------------------------------------
```

Figure 4: Predictions of d_count adjusted by time without (left) and with (right - age, gender) control variables (number of diseases by time of followup)

Panel A: Full Sample



(a) without controls



(b) with controls

Notes: timesincefirstobs refers to year at interview rather than survey year/wave

5 Ordered Response Models

```
------------------------------------------------------------------------------------------------------------------------------------------
      name:  log
       log:  C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/logs/log-t-regd_count-cohort.txt
  log type:  text
 opened on:   4 Feb 2024, 15:41:05

.         *sample 5 // select a ## % random subsample to speed up computation
. loc sample              "sfull  & d_count<8" // & d_count<8

. loc agectrls     "age" // age c.age##c.age, leaving out cross term solves the issue

. loc ctrls               "i.male married i.raeducl i.cohortmin5" // i.wave

. loc y                   "d_count"

. sum `y' `ctrls' if `sample'==1 & wave==1

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
     d_count |     10,231    1.202815    1.235598          0          7
             |
        male |
   0.female  |     10,231    .5417848    .4982753          0          1
     1.male  |     10,231    .4582152    .4982753          0          1
             |
    marriedr |     10,230    .7985337    .4011151          0          1
             |
     raeducl |
1.less th..  |     10,231    .4474636    .4972566          0          1
-------------+---------------------------------------------------------
2.upper s..  |     10,231    .3211807    .4669529          0          1
3.tertiar..  |     10,231    .2313557    .4217198          0          1
             |
  cohortmin5 |
      50-54  |      9,468    .2369033    .4252049          0          1
      55-59  |      9,468    .2730249    .4455371          0          1
      60-64  |      9,468    .2554922    .4361605          0          1
-------------+---------------------------------------------------------
        65+  |      9,468    .2345796    .4237582          0          1

.
.
. **# Bookmark #1
.         drop if agemin<50
(17,451 observations deleted)

. /*** ols (suitable only if assuming count approximates unobserved health reasonably well) ***
> xtreg `y' `ctrls' if `sample'==1 , re
> STOP
> */
.
. *** ologit (wave 1 only) note: this is not considering the panel dimension ***
. eststo m1: ologit       `y' `agectrls' `ctrls'  if `sample'==1, vce(robust)

Iteration 0:  Log pseudolikelihood = -150807.27
Iteration 1:  Log pseudolikelihood = -143461.27
Iteration 2:  Log pseudolikelihood =  -143378.2
Iteration 3:  Log pseudolikelihood =  -143378.1
Iteration 4:  Log pseudolikelihood =  -143378.1

Ordered logistic regression                           Number of obs =   84,923
                                                      Wald chi2(8)  = 14270.45
                                                      Prob > chi2   =   0.0000
Log pseudolikelihood = -143378.1                      Pseudo R2     =   0.0493

------------------------------------------------------------------------------
             |               Robust
     d_count | Coefficient  std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
         age |   .1149442   .0013085    87.84   0.000     .1123795    .1175089
             |
        male |
      1.male |  -.3286282   .0125839   -26.11   0.000    -.3532922   -.3039641
```

```
                     marriedr |  -.1887724   .0150957   -12.51   0.000    -.2183595   -.1591853
                              |
                      raeducl |
2.upper secondary or vocational  |  -.3127262   .0142281   -21.98   0.000    -.3406129   -.2848396
          3.tertiary education  |  -.6689294   .0162643   -41.13   0.000    -.7008069   -.6370519
                              |
                    cohortmin5 |
                        55-59  |  -.1472491   .0182118    -8.09   0.000    -.1829436   -.1115547
                        60-64  |  -.3125041   .0212326   -14.72   0.000    -.3541192    -.270889
                          65+  |  -.5451087   .0255699   -21.32   0.000    -.5952248   -.4949927
---------------------------------+------------------------------------------------------------------
                         /cut1 |   5.138158   .0790814                      4.983161    5.293155
                         /cut2 |   6.518929   .0799738                      6.362183    6.675674
                         /cut3 |    7.54489   .0809125                      7.386304    7.703475
                         /cut4 |   8.480449   .0817512                       8.32022    8.640679
                         /cut5 |   9.446869   .0825869                      9.285002    9.608736
                         /cut6 |   10.57117   .0840808                      10.40638    10.73597
                         /cut7 |   12.03472   .0914497                      11.85549    12.21396
------------------------------------------------------------------------------------------------

. *brant, detail // brant only works on ologit; ologit and xtologit are not identical when only 1 time period is used // brant
>  does not work with d_count>=8 because of perfect prediction (too few observations fall into this category)
.
. *** gologit2 ***
. log using       "$outpath/logs/log-t-regd_count-cohort-gologit2.txt", text replace name(gologit2)
-------------------------------------------------------------------------------------------------------------------------------
      name:  gologit2
       log:  C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/logs/log-t-regd_count-cohort-gologit2.txt
  log type:  text
 opened on:   4 Feb 2024, 15:41:11

. eststo m2: gologit2 ‘y’ ‘agectrls’ ‘ctrls’      if ‘sample’==1, vce(cluster ID) autofit gamma // cutpoints (intercept) are i
> dentical to ologit (but not xtologit)

------------------------------------------------------------------------------
Testing parallel lines assumption using the .05 level of significance...

Step  1:  Constraints for parallel lines imposed for 60.cohortmin5 (P Value = 0.1847)
Step  2:  Constraints for parallel lines imposed for 65.cohortmin5 (P Value = 0.3571)
Step  3:  Constraints for parallel lines imposed for 55.cohortmin5 (P Value = 0.2113)
Step  4:  Constraints for parallel lines imposed for 1.male (P Value = 0.1111)
Step  5:  Constraints for parallel lines imposed for 2.raeducl (P Value = 0.0523)
Step  6:  Constraints for parallel lines are not imposed for
          age (P Value = 0.00230)
          marriedr (P Value = 0.01091)
          3.raeducl (P Value = 0.00625)

Wald test of parallel lines assumption for the final model:

 ( 1)  [0]55.cohortmin5 - [1]55.cohortmin5 = 0
 ( 2)  [0]60.cohortmin5 - [1]60.cohortmin5 = 0
 ( 3)  [0]65.cohortmin5 - [1]65.cohortmin5 = 0
 ( 4)  [0]1.male - [1]1.male = 0
 ( 5)  [0]2.raeducl - [1]2.raeducl = 0
 ( 6)  [0]55.cohortmin5 - [2]55.cohortmin5 = 0
 ( 7)  [0]60.cohortmin5 - [2]60.cohortmin5 = 0
 ( 8)  [0]65.cohortmin5 - [2]65.cohortmin5 = 0
 ( 9)  [0]1.male - [2]1.male = 0
 (10)  [0]2.raeducl - [2]2.raeducl = 0
 (11)  [0]55.cohortmin5 - [3]55.cohortmin5 = 0
 (12)  [0]60.cohortmin5 - [3]60.cohortmin5 = 0
 (13)  [0]65.cohortmin5 - [3]65.cohortmin5 = 0
 (14)  [0]1.male - [3]1.male = 0
 (15)  [0]2.raeducl - [3]2.raeducl = 0
 (16)  [0]55.cohortmin5 - [4]55.cohortmin5 = 0
 (17)  [0]60.cohortmin5 - [4]60.cohortmin5 = 0
 (18)  [0]65.cohortmin5 - [4]65.cohortmin5 = 0
 (19)  [0]1.male - [4]1.male = 0
 (20)  [0]2.raeducl - [4]2.raeducl = 0
 (21)  [0]55.cohortmin5 - [5]55.cohortmin5 = 0
 (22)  [0]60.cohortmin5 - [5]60.cohortmin5 = 0
 (23)  [0]65.cohortmin5 - [5]65.cohortmin5 = 0
 (24)  [0]1.male - [5]1.male = 0
 (25)  [0]2.raeducl - [5]2.raeducl = 0
 (26)  [0]55.cohortmin5 - [6]55.cohortmin5 = 0
 (27)  [0]60.cohortmin5 - [6]60.cohortmin5 = 0
```

```
 (28)  [0]65.cohortmin5 - [6]65.cohortmin5 = 0
 (29)  [0]1.male - [6]1.male = 0
 (30)  [0]2.raeducl - [6]2.raeducl = 0

           chi2( 30) =   46.85
         Prob > chi2 =    0.0258

An insignificant test statistic indicates that the final model
does not violate the proportional odds/ parallel lines assumption

If you re-estimate this exact same model with gologit2, instead
of autofit you can save time by using the parameter

pl(50b.cohortmin5 55.cohortmin5 60.cohortmin5 65.cohortmin5 0b.male 1.male 1b.raeducl 2.raeducl)

------------------------------------------------------------------------------

Generalized Ordered Logit Estimates                   Number of obs =  84,923
                                                      Wald chi2(26) = 6090.51
                                                      Prob > chi2   =  0.0000
Log pseudolikelihood = -143307.41                     Pseudo R2     =  0.0497

 ( 1)  [0]55.cohortmin5 - [1]55.cohortmin5 = 0
 ( 2)  [0]60.cohortmin5 - [1]60.cohortmin5 = 0
 ( 3)  [0]65.cohortmin5 - [1]65.cohortmin5 = 0
 ( 4)  [0]1.male - [1]1.male = 0
 ( 5)  [0]2.raeducl - [1]2.raeducl = 0
 ( 6)  [1]55.cohortmin5 - [2]55.cohortmin5 = 0
 ( 7)  [1]60.cohortmin5 - [2]60.cohortmin5 = 0
 ( 8)  [1]65.cohortmin5 - [2]65.cohortmin5 = 0
 ( 9)  [1]1.male - [2]1.male = 0
 (10)  [1]2.raeducl - [2]2.raeducl = 0
 (11)  [2]55.cohortmin5 - [3]55.cohortmin5 = 0
 (12)  [2]60.cohortmin5 - [3]60.cohortmin5 = 0
 (13)  [2]65.cohortmin5 - [3]65.cohortmin5 = 0
 (14)  [2]1.male - [3]1.male = 0
 (15)  [2]2.raeducl - [3]2.raeducl = 0
 (16)  [3]55.cohortmin5 - [4]55.cohortmin5 = 0
 (17)  [3]60.cohortmin5 - [4]60.cohortmin5 = 0
 (18)  [3]65.cohortmin5 - [4]65.cohortmin5 = 0
 (19)  [3]1.male - [4]1.male = 0
 (20)  [3]2.raeducl - [4]2.raeducl = 0
 (21)  [4]55.cohortmin5 - [5]55.cohortmin5 = 0
 (22)  [4]60.cohortmin5 - [5]60.cohortmin5 = 0
 (23)  [4]65.cohortmin5 - [5]65.cohortmin5 = 0
 (24)  [4]1.male - [5]1.male = 0
 (25)  [4]2.raeducl - [5]2.raeducl = 0
 (26)  [5]55.cohortmin5 - [6]55.cohortmin5 = 0
 (27)  [5]60.cohortmin5 - [6]60.cohortmin5 = 0
 (28)  [5]65.cohortmin5 - [6]65.cohortmin5 = 0
 (29)  [5]1.male - [6]1.male = 0
 (30)  [5]2.raeducl - [6]2.raeducl = 0
                                              (Std. err. adjusted for 17,415 clusters in ID)
------------------------------------------------------------------------------------------
                             |               Robust
                   d_count | Coefficient  std. err.      z    P>|z|     [95% conf. interval]
-----------------------------+------------------------------------------------------------
0                            |
                         age |   .1155052   .0022321    51.75   0.000     .1111303    .1198801
                             |
                        male |
                      1.male |  -.3253926   .0257881   -12.62   0.000    -.3759363    -.274849
                             |
                    marriedr |  -.1266688   .0397224    -3.19   0.001    -.2045233   -.0488143
                             |
                     raeducl |
2.upper secondary or vocational |  -.3077584    .029004   -10.61   0.000    -.3646052   -.2509116
          3.tertiary education |  -.6109739   .0414677   -14.73   0.000    -.6922491   -.5296987
                             |
                  cohortmin5 |
                      55-59  |  -.1439795   .0366286    -3.93   0.000    -.2157702   -.0721887
                      60-64  |  -.3077681   .0389323    -7.91   0.000    -.3840739   -.2314623
                        65+  |  -.5442468   .0427478   -12.73   0.000     -.628031   -.4604626
                             |
                       _cons |  -5.245369   .1385054   -37.87   0.000    -5.516835   -4.973904
-----------------------------+------------------------------------------------------------
```

1						
age	.112447	.0018557	60.60	0.000	.10881	.1160841
male						
1.male	-.3253926	.0257881	-12.62	0.000	-.3759363	-.274849
marriedr	-.1665718	.0319044	-5.22	0.000	-.2291034	-.1040402
raeducl						
2.upper secondary or vocational	-.3077584	.029004	-10.61	0.000	-.3646052	-.2509116
3.tertiary education	-.6650196	.0362973	-18.32	0.000	-.736161	-.5938783
cohortmin5						
55-59	-.1439795	.0366286	-3.93	0.000	-.2157702	-.0721887
60-64	-.3077681	.0389323	-7.91	0.000	-.3840739	-.2314623
65+	-.5442468	.0427478	-12.73	0.000	-.628031	-.4604626
_cons	-6.383653	.1178301	-54.18	0.000	-6.614596	-6.15271
2						
age	.1142367	.0019311	59.16	0.000	.1104517	.1180216
male						
1.male	-.3253926	.0257881	-12.62	0.000	-.3759363	-.274849
marriedr	-.1835188	.0326657	-5.62	0.000	-.2475425	-.1194951
raeducl						
2.upper secondary or vocational	-.3077584	.029004	-10.61	0.000	-.3646052	-.2509116
3.tertiary education	-.6986977	.0397992	-17.56	0.000	-.7767026	-.6206927
cohortmin5						
55-59	-.1439795	.0366286	-3.93	0.000	-.2157702	-.0721887
60-64	-.3077681	.0389323	-7.91	0.000	-.3840739	-.2314623
65+	-.5442468	.0427478	-12.73	0.000	-.628031	-.4604626
_cons	-7.507797	.1287648	-58.31	0.000	-7.760171	-7.255422
3						
age	.1166289	.0023114	50.46	0.000	.1120987	.1211591
male						
1.male	-.3253926	.0257881	-12.62	0.000	-.3759363	-.274849
marriedr	-.2516604	.0372694	-6.75	0.000	-.3247071	-.1786138
raeducl						
2.upper secondary or vocational	-.3077584	.029004	-10.61	0.000	-.3646052	-.2509116
3.tertiary education	-.7200224	.0483888	-14.88	0.000	-.8148628	-.6251821
cohortmin5						
55-59	-.1439795	.0366286	-3.93	0.000	-.2157702	-.0721887
60-64	-.3077681	.0389323	-7.91	0.000	-.3840739	-.2314623
65+	-.5442468	.0427478	-12.73	0.000	-.628031	-.4604626
_cons	-8.554732	.1607131	-53.23	0.000	-8.869724	-8.23974
4						
age	.1200388	.0031195	38.48	0.000	.1139247	.1261529
male						
1.male	-.3253926	.0257881	-12.62	0.000	-.3759363	-.274849
marriedr	-.3277274	.0473585	-6.92	0.000	-.4205483	-.2349065
raeducl						
2.upper secondary or vocational	-.3077584	.029004	-10.61	0.000	-.3646052	-.2509116
3.tertiary education	-.7917869	.0666359	-11.88	0.000	-.9223908	-.661183
cohortmin5						
55-59	-.1439795	.0366286	-3.93	0.000	-.2157702	-.0721887
60-64	-.3077681	.0389323	-7.91	0.000	-.3840739	-.2314623
65+	-.5442468	.0427478	-12.73	0.000	-.628031	-.4604626
_cons	-9.698555	.2231467	-43.46	0.000	-10.13591	-9.261196

```
5                               |
                            age |   .1315769   .0047575    27.66   0.000     .1222525    .1409014
                                |
                           male |
                         1.male |  -.3253926   .0257881   -12.62   0.000    -.3759363    -.274849
                                |
                       marriedr |  -.3735562   .0714011    -5.23   0.000    -.5134998   -.2336126
                                |
                        raeducl |
2.upper secondary or vocational |  -.3077584    .029004   -10.61   0.000    -.3646052   -.2509116
          3.tertiary education  |  -1.043973   .1066608    -9.79   0.000    -1.253024   -.8349215
                                |
                     cohortmin5 |
                          55-59 |  -.1439795   .0366286    -3.93   0.000    -.2157702   -.0721887
                          60-64 |  -.3077681   .0389323    -7.91   0.000    -.3840739   -.2314623
                            65+ |  -.5442468   .0427478   -12.73   0.000     -.628031   -.4604626
                                |
                          _cons |  -11.58022   .3488322   -33.20   0.000    -12.26392   -10.89652
--------------------------------+-------------------------------------------------------------
6                               |
                            age |   .1426234   .0090984    15.68   0.000     .1247909    .1604559
                                |
                           male |
                         1.male |  -.3253926   .0257881   -12.62   0.000    -.3759363    -.274849
                                |
                       marriedr |   -.439421   .1250147    -3.51   0.000    -.6844452   -.1943968
                                |
                        raeducl |
2.upper secondary or vocational |  -.3077584    .029004   -10.61   0.000    -.3646052   -.2509116
          3.tertiary education  |  -1.260081   .2050079    -6.15   0.000    -1.661889   -.8582732
                                |
                     cohortmin5 |
                          55-59 |  -.1439795   .0366286    -3.93   0.000    -.2157702   -.0721887
                          60-64 |  -.3077681   .0389323    -7.91   0.000    -.3840739   -.2314623
                            65+ |  -.5442468   .0427478   -12.73   0.000     -.628031   -.4604626
                                |
                          _cons |  -13.77573   .6728946   -20.47   0.000    -15.09458   -12.45688
------------------------------------------------------------------------------------------------


Alternative parameterization: Gammas are deviations from proportionality
------------------------------------------------------------------------------------------------
                      d_count | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
--------------------------------+-------------------------------------------------------------
Beta                            |
                            age |   .1155052   .0022321    51.75   0.000     .1111303    .1198801
                                |
                           male |
                         1.male |  -.3253926   .0257881   -12.62   0.000    -.3759363    -.274849
                                |
                       marriedr |  -.1266688   .0397224    -3.19   0.001    -.2045233   -.0488143
                                |
                        raeducl |
2.upper secondary or vocational |  -.3077584    .029004   -10.61   0.000    -.3646052   -.2509116
          3.tertiary education  |  -.6109739   .0414677   -14.73   0.000    -.6922491   -.5296987
                                |
                     cohortmin5 |
                          55-59 |  -.1439795   .0366286    -3.93   0.000    -.2157702   -.0721887
                          60-64 |  -.3077681   .0389323    -7.91   0.000    -.3840739   -.2314623
                            65+ |  -.5442468   .0427478   -12.73   0.000     -.628031   -.4604626
--------------------------------+-------------------------------------------------------------
Gamma_2                         |
                            age |  -.0030582   .0017897    -1.71   0.087    -.0065659    .0004495
                       marriedr |   -.039903   .0310121    -1.29   0.198    -.1006855    .0208795
                                |
                        raeducl |
          3.tertiary education  |  -.0540457   .0308482    -1.75   0.080    -.1145071    .0064156
--------------------------------+-------------------------------------------------------------
Gamma_3                         |
                            age |  -.0012685   .0022521    -0.56   0.573    -.0056826    .0031456
                       marriedr |    -.05685   .0392856    -1.45   0.148    -.1338485    .0201484
                                |
                        raeducl |
          3.tertiary education  |  -.0877238    .040665    -2.16   0.031    -.1674256   -.0080219
--------------------------------+-------------------------------------------------------------
Gamma_4                         |
```

```
                           age |   .0011237   .0027249     0.41   0.680     -.004217    .0064644
                      marriedr |  -.1249917   .0457627    -2.73   0.006    -.2146849   -.0352984
                               |
                       raeducl |
          3.tertiary education |  -.1090485   .0510318    -2.14   0.033     -.209069    -.009028
-------------------------------+------------------------------------------------------------------
Gamma_5                        |
                           age |   .0045336   .0035035     1.29   0.196    -.0023332    .0114003
                      marriedr |  -.2010586   .0554595    -3.63   0.000    -.3097573     -.09236
                               |
                       raeducl |
          3.tertiary education |   -.180813   .0693835    -2.61   0.009    -.3168021    -.044824
-------------------------------+------------------------------------------------------------------
Gamma_6                        |
                           age |   .0160717   .0050633     3.17   0.002     .0061478    .0259957
                      marriedr |  -.2468874   .0773667    -3.19   0.001    -.3985234   -.0952514
                               |
                       raeducl |
          3.tertiary education |  -.4329989   .1087106    -3.98   0.000    -.6460678   -.2199301
-------------------------------+------------------------------------------------------------------
Gamma_7                        |
                           age |   .0271182   .0092786     2.92   0.003     .0089325    .0453039
                      marriedr |  -.3127522   .1286914    -2.43   0.015    -.5649827   -.0605217
                               |
                       raeducl |
          3.tertiary education |  -.6491074   .2060489    -3.15   0.002    -1.052956   -.2452589
-------------------------------+------------------------------------------------------------------
Alpha                          |
                        _cons_1 |  -5.245369   .1385054   -37.87   0.000    -5.516835   -4.973904
                        _cons_2 |  -6.383653   .1178301   -54.18   0.000    -6.614596    -6.15271
                        _cons_3 |  -7.507797   .1287648   -58.31   0.000    -7.760171   -7.255422
                        _cons_4 |  -8.554732   .1607131   -53.23   0.000    -8.869724    -8.23974
                        _cons_5 |  -9.698555   .2231467   -43.46   0.000    -10.13591   -9.261196
                        _cons_6 |  -11.58022   .3488322   -33.20   0.000    -12.26392   -10.89652
                        _cons_7 |  -13.77573   .6728946   -20.47   0.000    -15.09458   -12.45688
------------------------------------------------------------------------------------------------

. qui log close gologit2

.
. *** xt-ordered logit ***
. eststo m3: xtologit ‘y’ ‘agectrls’ ‘ctrls’      if ‘sample’==1, //  vce(cluster ID) // -vce(cl ID)- is equivalent to -robust
> -

Fitting comparison model:

Iteration 0:  Log likelihood = -150807.27
Iteration 1:  Log likelihood = -143461.27
Iteration 2:  Log likelihood =  -143378.2
Iteration 3:  Log likelihood =  -143378.1
Iteration 4:  Log likelihood =  -143378.1

Refining starting values:

Grid node 0:  Log likelihood =  -128397.9

Fitting full model:

Iteration 0:  Log likelihood =  -128397.9
Iteration 1:  Log likelihood = -112403.36
Iteration 2:  Log likelihood = -108174.54
Iteration 3:  Log likelihood = -107487.08
Iteration 4:  Log likelihood = -107414.46
Iteration 5:  Log likelihood = -107413.69
Iteration 6:  Log likelihood = -107413.69

Random-effects ordered logistic regression         Number of obs    =   84,923
Group variable: ID                                 Number of groups =   17,415

Random effects u_i ~ Gaussian                      Obs per group:
                                                                min =        1
                                                                avg =      4.9
                                                                max =        7

Integration method: mvaghermite                    Integration pts. =       12
```

```
                                                Wald chi2(8)     = 24482.47
Log likelihood = -107413.69                     Prob > chi2      =   0.0000

------------------------------------------------------------------------------
             d_count | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
---------------------+--------------------------------------------------------
                 age |    .327314   .0021525   152.06   0.000     .3230952    .3315329
                     |
                male |
              1.male |  -.6405521   .0614861   -10.42   0.000    -.7610627   -.5200415
            marriedr |  -.4390972   .0407436   -10.78   0.000    -.5189531   -.3592412
                     |
             raeducl |
 2.upper secondary or vocational |  -.7380963   .0692194   -10.66   0.000    -.8737639   -.6024287
            3.tertiary education |  -1.706022   .0822345   -20.75   0.000    -1.867198   -1.544845
                     |
           cohortmin5 |
               55-59 |  -.5382597   .0871279    -6.18   0.000    -.7090273   -.3674921
               60-64 |  -1.142239   .0887945   -12.86   0.000    -1.316273   -.9682053
                 65+ |  -1.932319   .0927441   -20.83   0.000    -2.114094   -1.750543
---------------------+--------------------------------------------------------
                /cut1 |    15.2045     .14892                      14.91262    15.49638
                /cut2 |   18.59412   .1554931                      18.28936    18.89888
                /cut3 |   21.13106   .1606267                      20.81624    21.44588
                /cut4 |    23.3672   .1652919                      23.04323    23.69116
                /cut5 |   25.49624   .1699941                      25.16306    25.82942
                /cut6 |   27.68228   .1757473                      27.33782    28.02673
                /cut7 |   30.06939   .1862123                      29.70442    30.43436
---------------------+--------------------------------------------------------
              /sigma2_u |    14.7093   .2185309                      14.28716    15.14391
------------------------------------------------------------------------------
LR test vs. ologit model: chibar2(01) = 71928.82      Prob >= chibar2 = 0.0000

. *margins, at(age=(50(2)80))
. *margins, dydx(‘marginsvar’) // at(male = (1 0))
. *marginsplot
.          *      predict p0 p1 p2 p3 p4 p5 p6 p7, pr // p9
.          *      sum     p?
. *mtable, dydx(raeducl) //  at(male = (0 1) raeducl = (1 2 3)) // at(male = (0 1) ) // raeducl = (0 1 2 ))
.
.
. log close log
      name:  log
       log:  C:/Users/User/Documents/GitHub/2-projectMM-SHARE/files/logs/log-t-regd_count-cohort.txt
  log type:  text
 closed on:   4 Feb 2024, 15:47:08
-------------------------------------------------------------------------------------------------------------------------------
```

6 THE PART BELOW CONTAINS PRELIMINARY RESULTS. IT IS SYNCED TO GITHUB AND CAN BE DISREGARDED UNTIL ADDED ABOVE. — For the team to edit/add notes to the part above, use "7-graphsAndTables.tex"