***hurricane concern scale*:**

ratef_1 "where the hurricane is forecast to probably hit"
ratef_2 "how strong the hurricane's wind is"
ratef_3 "possibility of traffic delays"
ratef_4 "amount of time left before hurricane arrives"
ratef_5 "evacuation orders given by government"
ratef_6 "readiness of home to withstand hurricane winds"
ratef_7 "possibility of flooding or storm surge"
ratef_8 "being able to return home right away"
ratef_9 "being able to protect your home from crime"
ratef_10 "being able to keep family members together"
ratef_11 "job requirements"
ratef_12 "medical or other needs"
ratef_13 "pets or livestock"

These variables have been renamed more descriptively:

hurrtrack	where the hurricane is forecast to probably hit
hurrwind	how strong the hurricanes wind is
traffdelay	the possibility of traffic delays
timeleft	the amount of time left before the hurricane arrives
evacords	evacuation orders given by government
windresist	how ready your home is to withstand hurricane winds
floodsurge	possibility of flooding or storm surge
returnhm	being able to return to your home right away after the hurricane
crimeprotect	being able to protect your home from crime
familyafter	being able to keep family members together after the hurricane
jobreq	requirements of your job or the jobs of other members of your household
medneeds	medical or other needs you or other members of your household might have
animals	the needs of pets or livestock

These variables are included in the dataset GKat_A.dta. This dataset has a reduced number of other variables, most of which have been recoded to dummy variables (names start with "x").

What I would like to have done is to work with latent variables from the scale for structural equation modeling. They would be underlying foci of concern that appear to group together when people make evacuation decisions. I have gone ahead and tentatively set that up. After some exploratory work, I decided I wanted to get three latent variables (in caps below) from the following groups of the scale variables:

RESILIENCE *from* crimeprotect returnhm windresist familyafter animals
EVACDECIS *from* evacords traffdelay timeleft medneeds floodsurge jobreq
FORECAST *from* hurrwind hurrtrack

next step is to use the SEM procedure in Stata 13 (probably work in 12 also) to see what these latent variables look like. I am not an expert on this, so ideas and critique welcome.

The first thing is to change the dataset into summary statistics data (ssd). Browse all variables before and after doing this to see what the change looks like (in this illustrative example I used a reduced data set which has all cases with missing scale variables taken out).

browse
ssd build _all
ssd describe
ssd list
browse

Now we can use SEM (listing below, running first from command prompt and then menu/graphical)

sem (RESILIENCE -> crimeprotect returnhm windresist familyafter animals) (EVACDECIS -> evacords traffdelay timeleft medneeds floodsurge jobreq) (FORECAST -> hurrwind hurrtrack)
* view standardized
sem, standardized

LISTING:

```
. ssd build _all
. sem (RESILIENCE -> crimeprotect returnhm windresist familyafter animals) (EVACDECIS ->  evacords
traffdelay timeleft medneeds floodsurge jobreq) (FORECAST -> hurrwind hurrtrack)
. sem, standardized

Structural equation model                       Number of obs      =       282
Estimation method  = ml
Log likelihood     = -4667.8433

 ( 1)  [crimeprotect]RESILIENCE = 1
 ( 2)  [evacords]EVACDECIS = 1
 ( 3)  [hurrwind]FORECAST = 1
------------------------------------------------------------------------------
                         |                 OIM
            Standardized |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------------------+----------------------------------------------------------------
Measurement              |
  crimeprotect <-        |
              RESILIENCE |   .7354502   .0453999    16.20   0.000     .6464679    .8244324
                   _cons |   1.697408   .0930301    18.25   0.000     1.515072    1.879744
  ---------------------+----------------------------------------------------------------
  returnhm <-            |
              RESILIENCE |   .7272667   .0459287    15.83   0.000     .6372481    .8172853
                   _cons |   1.749355    .094721    18.47   0.000     1.563705    1.935005
  ---------------------+----------------------------------------------------------------
  windresist <-          |
              RESILIENCE |   .4747944   .0567305     8.37   0.000     .3636047    .5859841
                   _cons |   1.962492   .1018567    19.27   0.000     1.762857    2.162128
  ---------------------+----------------------------------------------------------------
  familyafter <-         |
```

```
            RESILIENCE |   .3809581   .0618276     6.16   0.000     .2597781     .502138
                 _cons |   1.846294   .0979289    18.85   0.000     1.654357    2.038231
  ----------------------+------------------------------------------------------------------
  animals <-            |
            RESILIENCE |   .2252731   .0660032     3.41   0.001     .0959093     .354637
                 _cons |    1.99706   .1030411    19.38   0.000     1.795103    2.199017
  ----------------------+------------------------------------------------------------------
  evacords <-           |
             EVACDECIS |   .7587924   .0497199    15.26   0.000     .6613433    .8562416
                 _cons |   1.942473    .101174    19.20   0.000     1.744176    2.140771
  ----------------------+------------------------------------------------------------------
  traffdelay <-         |
             EVACDECIS |    .491184   .0567448     8.66   0.000     .3799662    .6024017
                 _cons |   1.850118   .0980568    18.87   0.000      1.65793    2.042305
  ----------------------+------------------------------------------------------------------
  timeleft <-           |
             EVACDECIS |   .4928513   .0565139     8.72   0.000     .3820861    .6036165
                 _cons |   1.841581   .0977714    18.84   0.000     1.649952    2.033209
  ----------------------+------------------------------------------------------------------
  medneeds <-           |
             EVACDECIS |   .4523568   .0612878     7.38   0.000      .332235    .5724786
                 _cons |   1.704584   .0932625    18.28   0.000     1.521793    1.887375
  ----------------------+------------------------------------------------------------------
  floodsurge <-         |
             EVACDECIS |    .340795   .0632126     5.39   0.000     .2169005    .4646895
                 _cons |   1.645309   .0913555    18.01   0.000     1.466256    1.824363
  ----------------------+------------------------------------------------------------------
  jobreq <-             |
             EVACDECIS |   .3680542   .0630015     5.84   0.000     .2445735    .4915348
                 _cons |   2.201865   .1101917    19.98   0.000     1.985893    2.417837
  ----------------------+------------------------------------------------------------------
  hurrwind <-           |
              FORECAST |   .7153615   .1012113     7.07   0.000      .516991    .9137321
                 _cons |   2.465113   .1196684    20.60   0.000     2.230567    2.699659
  ----------------------+------------------------------------------------------------------
  hurrtrack <-          |
              FORECAST |   .6986183   .0994631     7.02   0.000     .5036742    .8935624
                 _cons |   2.179828   .1094121    19.92   0.000     1.965384    2.394272
------------------------+------------------------------------------------------------------
  Error variances       |
      var(e.crimeprotect)|    .459113   .0667788                      .3452318      .61056
          var(e.returnhm)|   .4710832   .0668048                      .3567695    .6220244
        var(e.windresist)|   .7745703   .0538706                      .6758659    .8876895
       var(e.familyafter)|   .8548709   .0471075                      .7673532    .9523703
           var(e.animals)|    .949252   .0297375                      .8927209    1.009363
          var(e.evacords)|    .424234   .0754541                       .299372    .6011736
        var(e.traffdelay)|   .7587383   .0557443                      .6569836     .876253
          var(e.timeleft)|   .7570976   .0557059                      .6554235    .8745442
          var(e.medneeds)|   .7953733   .0554479                      .6937951    .9118236
        var(e.floodsurge)|   .8838588   .0430851                      .8033221    .9724696
            var(e.jobreq)|   .8645361   .0463759                      .7782561    .9603814
          var(e.hurrwind)|   .4882579   .1448054                      .2730258    .8731621
         var(e.hurrtrack)|   .5119325   .1389735                      .3007034    .8715393
          var(RESILIENCE)|          1          .                             .           .
           var(EVACDECIS)|          1          .                             .           .
            var(FORECAST)|          1          .                             .           .
------------------------+------------------------------------------------------------------
cov(RESILIENCE,EVACDECIS)|   .5272827   .0740526     7.12   0.000     .3821422    .6724232
 cov(RESILIENCE,FORECAST)|  -.0044194    .092862    -0.05   0.962    -.1864256    .1775868
  cov(EVACDECIS,FORECAST)|   .3592922   .0808326     4.44   0.000     .2008632    .5177212
-------------------------------------------------------------------------------------------
```

LR test of model vs. saturated: chi2(62) = 143.05, Prob > chi2 = 0.0000