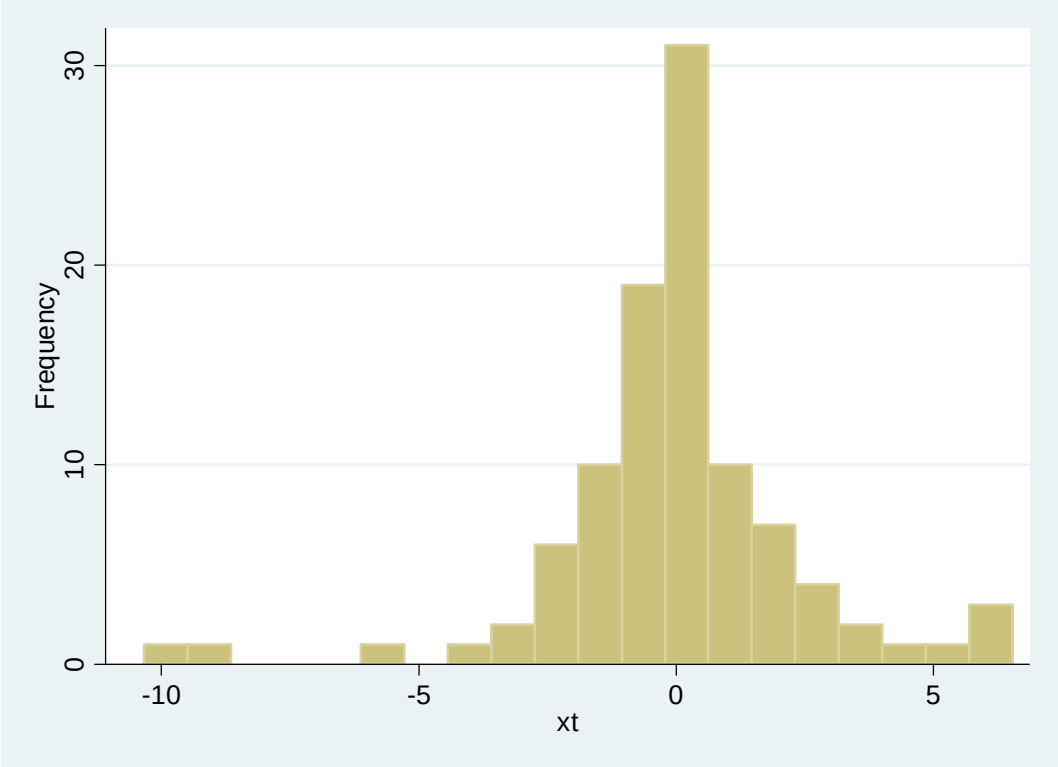
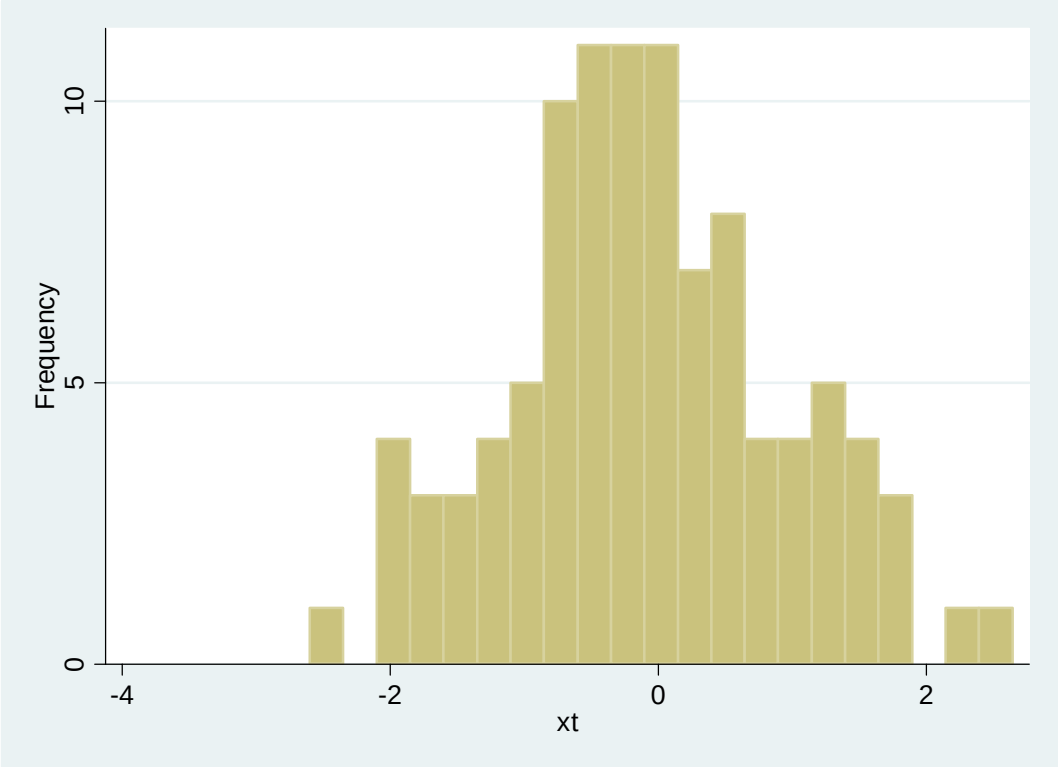
Computer Exercise 4. Useful Distributions in Econometrics (Answers)

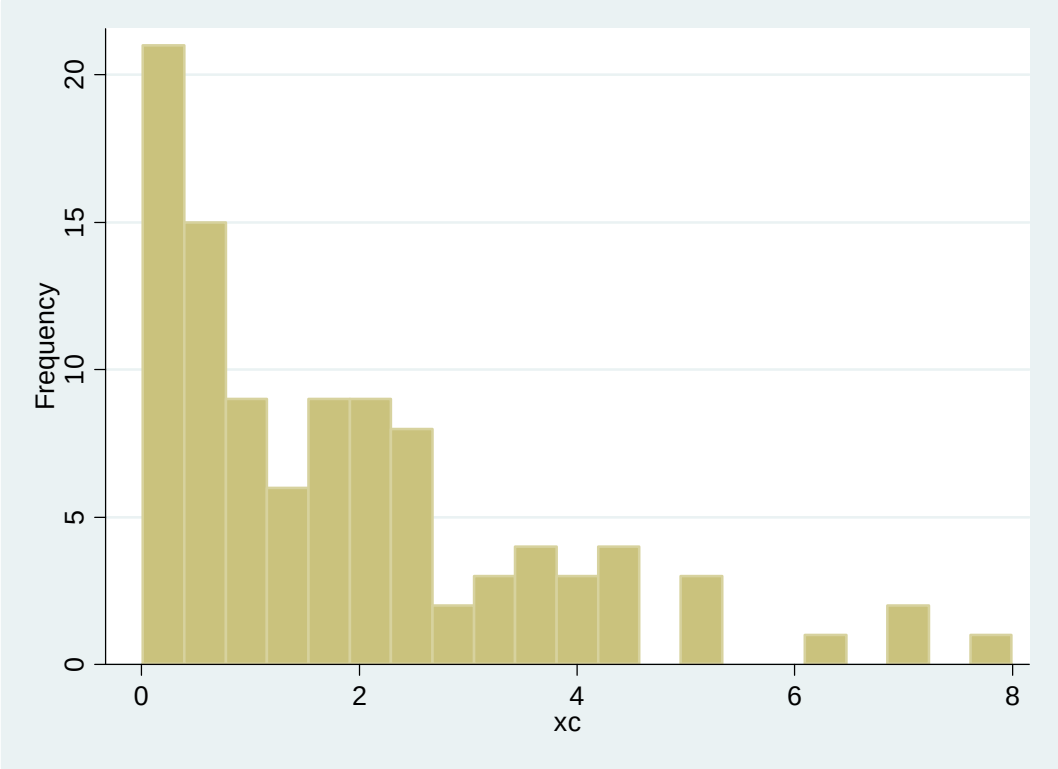
```
. display normal(1.96)
.9750021

. display normal(1.64)
.94949742

. display normal(0)
.5

. display normalden(1)
.24197072

. set obs 100
obs was 0, now 100

. g z=invnormal(uniform())

. su z, detail

                            z
-------------------------------------------------------------
      Percentiles      Smallest
 1%    -1.744005      -1.787513
 5%    -1.491403      -1.700496
10%    -1.250715      -1.684372       Obs                 100
25%    -.7543222      -1.571217       Sum of Wgt.         100

50%    -.1548816                      Mean           -.0688582
                        Largest       Std. Dev.       .9145279
75%     .5585597        1.85042
90%      1.19767       1.897852       Variance        .8363613
95%     1.579061       1.953314       Skewness        .2693392
99%     1.968609       1.983905       Kurtosis         2.39558

. tab z

          z |      Freq.     Percent        Cum.
------------+-----------------------------------

   1.144658 |          1        1.00       90.00
   1.250681 |          1        1.00       91.00
   1.252978 |          1        1.00       92.00
   1.255616 |          1        1.00       93.00
   1.272184 |          1        1.00       94.00
   1.534772 |          1        1.00       95.00
    1.62335 |          1        1.00       96.00
    1.85042 |          1        1.00       97.00
   1.897852 |          1        1.00       98.00
   1.953314 |          1        1.00       99.00
   1.983905 |          1        1.00      100.00
------------+-----------------------------------
      Total |        100      100.00
```

```
. g x=5+5*invnormal(uniform())

. su x, detail

                            x
-------------------------------------------------------------
      Percentiles      Smallest
 1%    -7.533158      -7.643792
 5%    -4.468698      -7.422524
10%    -1.470542      -6.878505       Obs                 100
25%     1.333743      -5.874475       Sum of Wgt.         100

50%     5.551344                      Mean           4.960932
                        Largest       Std. Dev.      5.037057
75%     8.684897       12.49704
90%     11.18047       13.44811       Variance       25.37194
95%     11.85934       13.99898       Skewness      -.4423432
99%     14.88621       15.77345       Kurtosis       2.791209


. di (1.64*5)+5
13.2

. tab x

          x |      Freq.     Percent        Cum.
------------+-----------------------------------

   11.32671 |          1        1.00       91.00
   11.38454 |          1        1.00       92.00
   11.50203 |          1        1.00       93.00
   11.51351 |          1        1.00       94.00
   11.81912 |          1        1.00       95.00
   11.89956 |          1        1.00       96.00
   12.49704 |          1        1.00       97.00
   13.44811 |          1        1.00       98.00
   13.99898 |          1        1.00       99.00
   15.77345 |          1        1.00      100.00
------------+-----------------------------------
      Total |        100      100.00

. rndt 100 2
( Generating .. )
Variable xt created.
su xt

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
          xt |       100    .0322224    2.438915  -10.34064   6.536899

. rndt 100 10
( Generating .......... )
Variable xt created.

. su xt
    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
```

```
          xt |       100    .0056026    1.228039  -3.733573    2.68236

. rndt 100 100
( Generating
Variable xt created.

. su xt
    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
          xt |       100   -.0887786    1.017585  -2.600623   2.394024

. rndchi 100 2
( Generating .. )
Variable xc created.

. su xt

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
          xt |       100   -.0887786    1.017585  -2.600623   2.394024

. rndchi 100 10
( Generating .......... )
Variable xc created.

. su xc
    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
          xc |       100    9.427815    3.762413    2.02445    19.9245

. rndchi 100 100
( Generating
Variable xc created.

. su xc
    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
          xc |       100    98.79407     13.8074   66.43309   132.6279

. histogram xc, bin(20) frequency
(bin=20, start=66.43309, width=3.3097404)

. histogram xt, bin(20) frequency
(bin=20, start=-2.6006227, width=.24973233)
```


Frequency
0
10
20
30
-10
-5
0
5
xt


Frequency
0
5
10
-4
-2
0
2
xt




```
. histogram xc, bin(20) frequency
(bin=20, start=.01179459, width=.37998562)
```