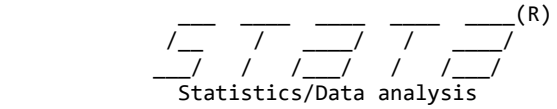

User: Masterclass-bootstrap-eks-Stata
Project: Masterclass-bootstrap-eks-Stata

17.0
MP—Parallel Edition

Statistics and Data Science

StataCorp
4905 Lakeway Drive
College Station, Texas 77845 USA
800-STATA-PC https://www.stata.com
979-696-4600 stata@stata.com

Stata license: 40-user 32-core network, expiring 21 Mar 2023
Serial number: 501709320654
  Licensed to: Universitetet i Oslo
               Universitetet i Oslo

Notes:
      1. Unicode is supported; see help unicode_advice.
      2. More than 2 billion observations are allowed; see help obs_advice.
      3. Maximum number of variables is set to 5,000; see help set_maxvar.
      4. New update available; type -update all-

```
. doedit "M:\OusBiostat\Kurs-foredrag\Masterclass\Masterclass-Bootstap\Eksempel\Eksempel-programmer\Stata\Masterclas
> -Stata.do"

. do "C:\Users\hfe\AppData\Local\Temp\STD5d60_000000.tmp"

. // OCBE Masterclass Bootstrap 2023 - Stata eksempel (https://www.stata.com|/)
. //    https://www.med.uio.no/imb/english/research/centres/ocbe/
. //    https://www.ous-research.no/ocbe/
. //    ved Harald Weedon-Fekjær <harald.weedon-fekjar@medisin.uio.no>
.
. // Bootstrap i Stata:
. // I Stata kan noen rutiner kjøre bootstrap direkte, mens endel andre krever
. // at man henter ut de rette estimatene fra kjøringene. Hvis funksjonen
. // ikke direkte støtter bootstrap må man først sjekke hvordan Stata lagerer
. // de ulike resulatene av funksjon, så man vet hva som skal anvedes i
. // bootstrap kjøringen.
.
.
. // -----------------------------------
. // ----- Laster eksempel dataene: -----
. // -----------------------------------
. // NB: Husk å forandre filområde til der du har filen!
. cd "M:\OusBiostat\Kurs-foredrag\Masterclass\Masterclass-Bootstap\Eksempel\data\"
M:\OusBiostat\Kurs-foredrag\Masterclass\Masterclass-Bootstap\Eksempel\data

. import delimited "RoykeSlutt.csv", delimiter(";") case(preserve) numericcols(2 3)
(encoding automatically selected: ISO-8859-1)
(3 vars, 58 obs)

.
```

```
.
.
. // ------------------------------------------------
. // ------ 95% bootstrap konfidens intervall: -----
. // ------------------------------------------------
.
. // ********************************************************
. // ***  Bootstrap: Gjennomsnittlig røykeslutt motivasjon: ***
. // ********************************************************
. bootstrap, reps(10000) seed(3) dots(1000): mean Motivasjon
(running mean on estimation sample)

Bootstrap replications (10,000)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
..........

Mean estimation                         Number of obs =     57
                                        Replications  = 10,000

------------------------------------------------------------------------------
             |   Observed   Bootstrap         Normal-based
             |       mean   std. err.     [95% conf. interval]
-------------+----------------------------------------------------------------
  Motivasjon |   8.491228   .2528064      7.995737     8.98672
------------------------------------------------------------------------------

. estat bootstrap, all

Mean estimation                                 Number of obs     =         57
                                                Replications      =      10000

------------------------------------------------------------------------------
             |   Observed               Bootstrap
             |       mean       Bias    std. err.  [95% conf. interval]
-------------+----------------------------------------------------------------
  Motivasjon |   8.4912281  -.0027737   .25280641    7.995737    8.98672   (N)
             |                                      7.964912   8.964912   (P)
             |                                      7.929824   8.929825   (BC)
------------------------------------------------------------------------------
Key:  N: Normal
      P: Percentile
     BC: Bias-corrected

.
.
. // ************************************************
. // ***  Bootstrap: Median røykeslutt motivasjon: ***
. // ************************************************
. // I stata regner man ut median via "summarize ..., detail", mens
. // den støter bootstrap direkte.
. // Først kjører "summarize" finner navnet på variabelen vi skal bruke:
. summarize Motivasjon, detail

                         Motivasjon
-------------------------------------------------------------
      Percentiles      Smallest
 1%            2              2
 5%            4              3
10%            6              4       Obs                  57
25%            8              5       Sum of wgt.          57
```

```
50%            9                       Mean           8.491228
                        Largest       Std. dev.      1.909776
75%           10             10
90%           10             10       Variance       3.647243
95%           10             10       Skewness      -1.468471
99%           10             10       Kurtosis       4.922424

. return list      // Ser på hva "summarize" lagerer av skjulte variable

scalars:
                  r(N) =  57
              r(sum_w) =  57
               r(mean) =  8.491228070175438
                r(Var) =  3.647243107769423
                 r(sd) =  1.909775669488284
           r(skewness) =  -1.468471494900071
           r(kurtosis) =  4.922424350153513
                r(sum) =  484
                r(min) =  2
                r(max) =  10
                 r(p1) =  2
                 r(p5) =  4
                r(p10) =  6
                r(p25) =  8
                r(p50) =  9
                r(p75) =  10
                r(p90) =  10
                r(p95) =  10
                r(p99) =  10

. display r(p50)   // Dobbelt sjekker at  r(p50) inneholder median
9

. // Kjører bootstrap:
. bootstrap r(p50), reps(10000) seed(3) nodots:summarize Motivasjon, detail

warning: summarize does not set e(sample), so no observations will be excluded from the resampling because of missin
         other reasons. To exclude observations, press Break, save the data, drop any observations that are to be ex
         rerun bootstrap.

Bootstrap results                                     Number of obs =     58
                                                      Replications  = 10,000

      Command: summarize Motivasjon, detail
        _bs_1: r(p50)

------------------------------------------------------------------------------
             |   Observed   Bootstrap                         Normal-based
             |  coefficient  std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
       _bs_1 |          9   .5681256    15.84   0.000     7.886494    10.11351
------------------------------------------------------------------------------
```

```
. estat bootstrap, all  // Skriver ut de ulike bootstrap estimatene

Bootstrap results                               Number of obs     =         58
                                                Replications      =      10000

      Command: summarize Motivasjon, detail
        _bs_1: r(p50)
```

	Observed coefficient	Bias	Bootstrap std. err.	[95% conf.	interval]	
_bs_1	9	.13925	.56812561	7.886494	10.11351	(N)
				8	10	(P)
				9	10	(BC)

```
Key:  N: Normal
      P: Percentile
     BC: Bias-corrected

.
.
. // ***************************************************************
. // *** Forskjell mellom de som slutter og de som ikke slutter: ***
. // ***************************************************************
. // Via regresjon:
. bootstrap, bca reps(10000) seed(3) nodots: regress Motivasjon Sluttet6m

Linear regression                               Number of obs =     55
                                                Replications  = 10,000
                                                Wald chi2(1)  =   3.31
                                                Prob > chi2   = 0.0688
                                                R-squared     = 0.0383
                                                Adj R-squared = 0.0202
                                                Root MSE      = 1.9128
```

Motivasjon	Observed coefficient	Bootstrap std. err.	z	P>|z|	Normal-based [95% conf.	interval]
Sluttet6m	.8416667	.4624888	1.82	0.069	-.0647947	1.748128
_cons	8.225	.3263624	25.20	0.000	7.585341	8.864659

```
. estat bootstrap, all

Linear regression                               Number of obs     =         55
                                                Replications      =      10000
```

Motivasjon	Observed coefficient	Bias	Bootstrap std. err.	[95% conf.	interval]	
Sluttet6m	.84166667	.0065365	.46248878	-.0647947	1.748128	(N)
				-.0637105	1.746936	(P)
				-.0788044	1.741667	(BC)
				-.0825826	1.741667	(BCa)
_cons	8.225	-.0018094	.32636245	7.585341	8.864659	(N)
				7.545238	8.822875	(P)
				7.523809	8.808511	(BC)
				7.465117	8.772727	(BCa)

```
Key:   N: Normal
       P: Percentile
      BC: Bias-corrected
```

BCa: Bias-corrected and accelerated

```
.
. // Via "ttest":
. bootstrap (r(mu_1)-r(mu_2)), reps(10000) seed(3) nodots:ttest Motivasjon, by(Sluttet6m)

warning: ttest does not set e(sample), so no observations will be excluded from the resampling because of missing va
         reasons. To exclude observations, press Break, save the data, drop any observations that are to be excluded
         bootstrap.

Bootstrap results                                       Number of obs =     58
                                                        Replications  = 10,000

      Command: ttest Motivasjon, by(Sluttet6m)
        _bs_1: r(mu_1)-r(mu_2)
```

	Observed coefficient	Bootstrap std. err.	z	P>|z|	Normal-based [95% conf.	interval]
_bs_1	**-.8416667**	**.4654788**	**-1.81**	**0.071**	**-1.753988**	**.0706551**

```
. estat bootstrap, all

Bootstrap results                               Number of obs     =         58
                                                Replications      =      10000

      Command: ttest Motivasjon, by(Sluttet6m)
        _bs_1: r(mu_1)-r(mu_2)
```

	Observed coefficient	Bias	Bootstrap std. err.	[95% conf.	interval]	
_bs_1	**-.84166667**	**.0023811**	**.46547883**	**-1.753988**	**.0706551**	(N)
				-1.754116	**.0805527**	(P)
				-1.747387	**.0863636**	(BC)

```
Key:  N: Normal
      P: Percentile
     BC: Bias-corrected

.
. // Med bruk "ttest" og egen definert av funksjon:
. program diffmean, rclass
  1.   ttest Motivasjon, by(Sluttet6m)
  2.   scalar m1 = r(mu_1)
  3.   scalar m2 = r(mu_2)
  4.   return scalar estm = m1-m2
  5. end

. bootstrap r(estm), reps(10000) seed(3) nodots: diffmean

warning: diffmean does not set e(sample), so no observations will be excluded from the resampling because of missing
         other reasons. To exclude observations, press Break, save the data, drop any observations that are to be ex
         rerun bootstrap.

Bootstrap results                                       Number of obs =     58
                                                        Replications  = 10,000

      Command: diffmean
        _bs_1: r(estm)
```

	Observed coefficient	Bootstrap std. err.	z	P>|z|	Normal-based [95% conf.	interval]
_bs_1	**-.8416667**	**.4654788**	**-1.81**	**0.071**	**-1.753988**	**.0706551**

```
. program drop diffmean

. estat bootstrap, all

Bootstrap results                               Number of obs     =         58
                                                Replications      =      10000

      Command: diffmean
        _bs_1: r(estm)
```

	Observed coefficient	Bias	Bootstrap std. err.	[95% conf.	interval]	
_bs_1	**-.84166667**	**.0023811**	**.46547883**	**-1.753988**	**.0706551**	(N)
				-1.754116	**.0805527**	(P)
				-1.747387	**.0863636**	(BC)

```
Key:  N: Normal
      P: Percentile
     BC: Bias-corrected

.
end of do-file

.
```