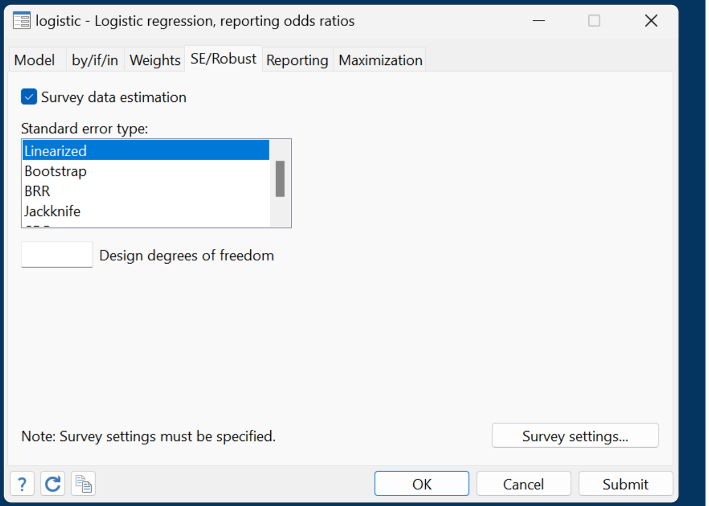
STATA Features

Survey data

- Account for survey design in tabulations, summary statistics, and most regression models
- Sampling design
  - Sampling weights
  - Stratification
  - Clustering
  - Multistage
  - Finite population corrections
- Variance estimates
  - Taylor-series linearization
  - Balanced and repeated replications (BRR)
  - Jackknife
  - Bootstrap
  - Successive difference replication (SDR)
- Subpopulation estimation
- Poststratification
- Raking
- Calibration
- DEFF
- MEFF



logistic - Logistic regression, reporting odds ratios

☑ Survey data estimation

Standard error type:

Linearized
Bootstrap
BRR
Jackknife

Design degrees of freedom

Note: Survey settings must be specified.

Stata analyzes data from any sampling design, whether simple or complex.

Just **svyset** it and forget it.

Simple random sample

```
. svyset _n
```

One-stage cluster design, specifying sampling weights

```
. svyset psu [pweight=pw]
```

One-stage cluster design with weights and stratification

```
. svyset psu [pweight=pw], strata(strata)
```

Two-stage design

```
. svyset psu [pweight=pw], fpc(fpc1) ||
  _n, fpc(fpc2)
```

Two-stage design with stage-level sampling weights

```
. svyset psu, fpc(fpc1)
  weight(pweight1) ||
  _n, weight(pweight2)
```

BRR replicate weights

```
. svyset [pweight=pw], brrweight(brr1-brr32)
```

Specify the design just once. Then add the **svy** prefix to your command, and results are automatically adjusted to account for the sampling design.

You can account for the design when you are estimating means,

```
. svy: mean x
```

and when you are estimating totals,

```
. svy: total x
```

and when you are fitting a linear regression model,

```
. svy: regress y x
```

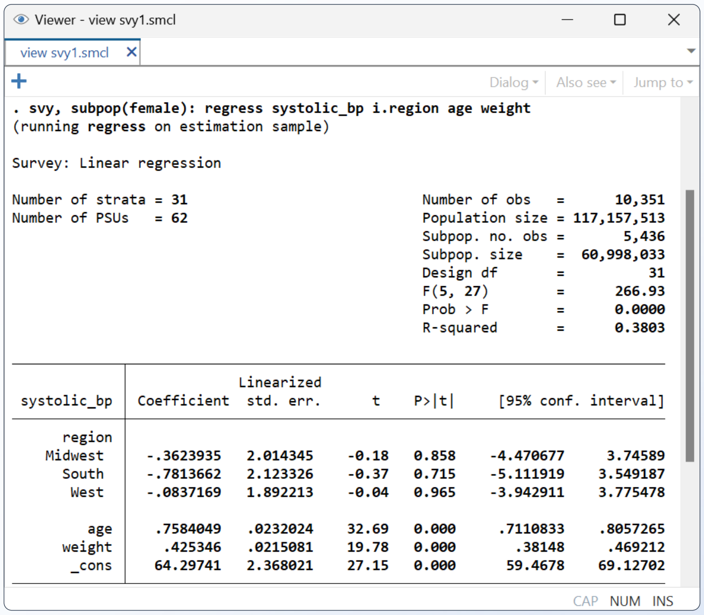
and when you are constructing contingency tables,

```
. svy: tabulate x1 x2
```

You can also adjust for the sampling design when fitting the following:

- Logistic regression
- Poisson regression
- Ordered probit regression
- Multinomial logistic regression
- Generalized linear models (GLMs)
- Cox proportional hazards model
- Parametric survival models
- Instrumental-variables regression
- Selection models
- Multilevel models
- Structural equation models (SEMs)
- *and much more*

Linear regression for the subpopulation of females



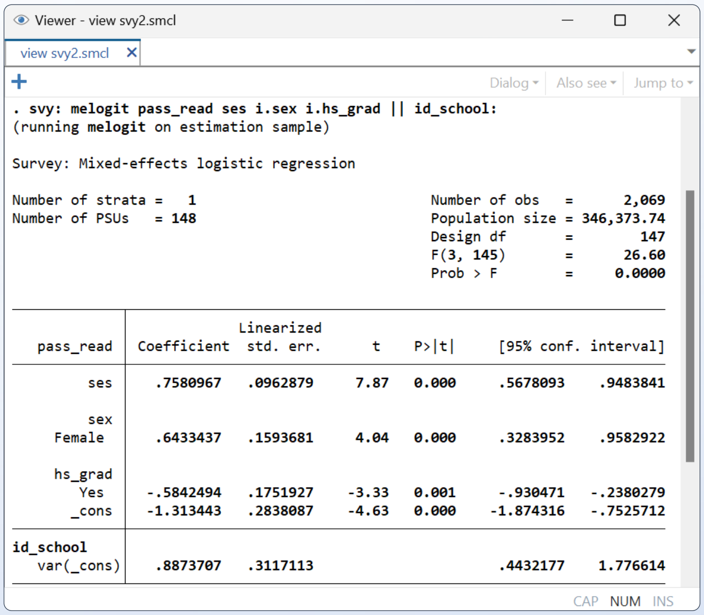
```
. svy, subpop(female): regress systolic_bp i.region age weight
(running regress on estimation sample)

Survey: Linear regression

Number of strata = 31                              Number of obs   =      10,351
Number of PSUs   = 62                              Population size = 117,157,513
                                                   Subpop. no. obs =       5,436
                                                   Subpop. size    =  60,998,033
                                                   Design df       =          31
                                                   F(5, 27)        =      266.93
                                                   Prob > F        =      0.0000
                                                   R-squared       =      0.3803

------------------------------------------------------------------------------
             |             Linearized
 systolic_bp | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
      region |
     Midwest |  -.3623935   2.014345    -0.18   0.858    -4.470677     3.74589
       South |  -.7813662   2.123326    -0.37   0.715    -5.111919    3.549187
        West |  -.0837169   1.892213    -0.04   0.965    -3.942911    3.775478
             |
         age |   .7584049   .0232024    32.69   0.000     .7110833    .8057265
      weight |    .425346   .0215081    19.78   0.000       .38148     .469212
       _cons |   64.29741   2.368021    27.15   0.000      59.4678    69.12702
------------------------------------------------------------------------------
```

Multistage sample, multilevel logit model



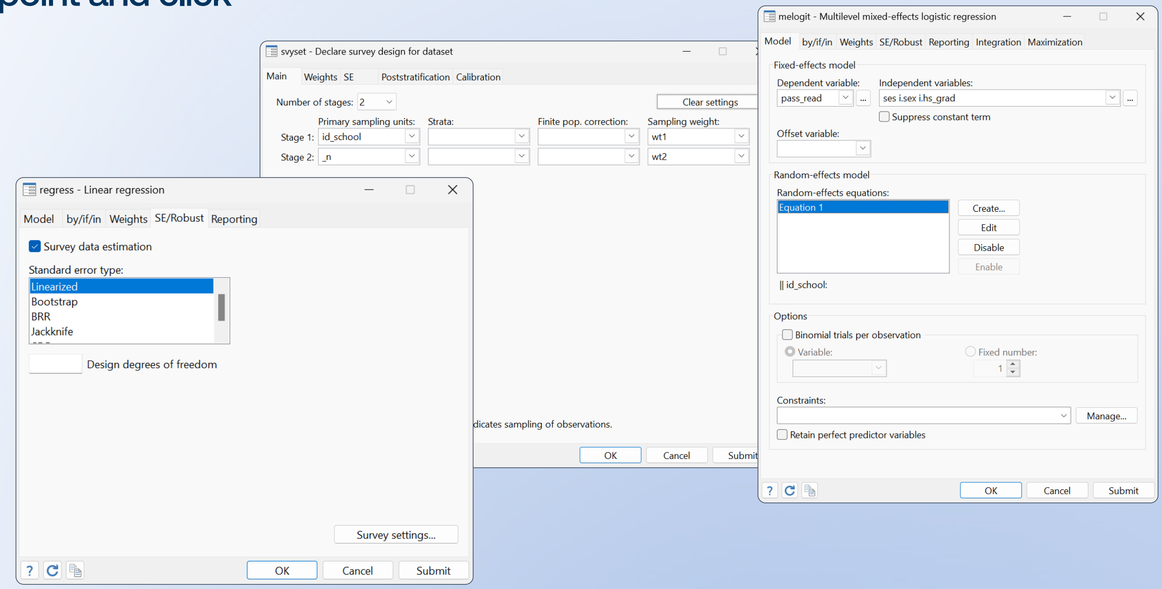
```
. svy: melogit pass_read ses i.sex i.hs_grad || id_school:
(running melogit on estimation sample)

Survey: Mixed-effects logistic regression

Number of strata =   1                            Number of obs   =      2,069
Number of PSUs   = 148                            Population size = 346,373.74
                                                  Design df       =        147
                                                  F(3, 145)       =      26.60
                                                  Prob > F        =     0.0000

------------------------------------------------------------------------------
             |             Linearized
   pass_read | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
         ses |   .7580967   .0962879     7.87   0.000     .5678093    .9483841
             |
         sex |
      Female |   .6433437   .1593681     4.04   0.000     .3283952    .9582922
             |
     hs_grad |
         Yes |  -.5842494   .1751927    -3.33   0.001     -.930471   -.2380279
       _cons |  -1.313443   .2838087    -4.63   0.000    -1.874316   -.7525712
-------------+----------------------------------------------------------------
id_school    |
   var(_cons)|   .8873707   .3117113                      .4432177    1.776614
------------------------------------------------------------------------------
```

Type or point and click



svyset - Declare survey design for dataset

Number of stages: 2

	Primary sampling units:	Strata:	Finite pop. correction:	Sampling weight:
Stage 1:	id_school			wt1
Stage 2:	_n			wt2

dicates sampling of observations.

regress - Linear regression

☑ Survey data estimation

Standard error type:
Linearized
Bootstrap
BRR
Jackknife

Design degrees of freedom

melogit - Multilevel mixed-effects logistic regression

Fixed-effects model
Dependent variable: pass_read
Independent variables: ses i.sex i.hs_grad
□ Suppress constant term
Offset variable:

Random-effects model
Random-effects equations:
Equation 1
|| id_school:

Options
□ Binomial trials per observation
● Variable:
○ Fixed number: 1

Constraints:
□ Retain perfect predictor variables

stata.com/survey