

Note: The survey sample contains the following variables:

| Variable Name | Description |
|---------------|--|
| survey_id | identifier |
| survey_psu | primary sampling unit |
| survey_weight | sample weight |
| survey_strata | sample strata |
| sba | skilled birth attendance (0=no, 1=yes) (=example indicator) |
| wealth | wealth quintile (1=poorest, 2=poorer, 3=middle, 4=richer, 5=richest) |
| education | education level (0=none, 1=primary, 2=secondary, 3=higher) |
| area | place of residence (1=urban, 2=rural) |

```
#Declare survey design for the data set
survey_design<-svydesign(id=~survey_psu,strata=~survey_strata,
                        weights=~survey_weight,data=survey_sample)

#Calculate average sba coverage, taking into account the survey design
#Note: The "mean" command can be used for binary variables, such as sba,
#which are coded 0=no and 1=yes
svymean(~sba,survey_design)

##          mean      SE
## sba 0.43389 0.0204

#Calculate sba coverage by wealth quintile, taking into account the survey design
svyby(~sba,~wealth,survey_design,svymean,keep.var=TRUE)

##          wealth      sba      se
## poorest poorest 0.1427723 0.02014087
## poorer  poorer 0.2896589 0.02845893
## middle   middle 0.4271200 0.03098097
## richer   richer 0.5818425 0.03750148
## richest  richest 0.8659273 0.02266497

#Calculate sba coverage by education level, taking into account the survey design
svyby(~sba,~education,survey_design,svymean,keep.var=TRUE)

##          education      sba      se
## none          none 0.2579596 0.02659412
## primary      primary 0.3612317 0.03157917
## secondary    secondary 0.6451450 0.02876231
## higher       higher 0.8642211 0.03904692

#Calculate sba coverage by place of residence, taking into account the survey design
svyby(~sba,~area,survey_design,svymean,keep.var=TRUE)

##          area      sba      se
## urban urban 0.7801908 0.02398519
## rural rural 0.3933849 0.02194806

#A trick to calculate the population size (weighted sample size)
size<-rep(1,nrow(survey_sample))
survey_sample<-cbind(survey_sample,size)

#Declare survey design again since survey_sample has been updated
survey_design<-svydesign(id=~survey_psu,strata=~survey_strata,
```

```

weights=~survey_weight,data=survey_sample)

svytotal(~size,survey_design)

```

```

##          total      SE
## size 2068.3 78.099

```

```

#Calculate weighted population size by wealth quintile
svyby(~size,~wealth,survey_design,svytotal,keep.var=TRUE)

```

```

##          wealth      size      se
## poorest poorest 463.8412 45.95078
## poorer  poorer 433.6914 38.21080
## middle  middle 440.5933 40.61263
## richer  richer 404.4385 31.92075
## richest richest 325.7528 28.79106

```

```

#Calculate weighted population size by education level
svyby(~size,~education,survey_design,svytotal,keep.var=TRUE)

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```

##          education      size      se
## none          none 905.1295 79.67444
## primary      primary 408.0645 26.95846
## secondary secondary 621.0442 32.55057
## higher       higher 134.0791 16.45760

```

```

#Calculate weighted population size by place of residence
svyby(~size,~area,survey_design,svytotal,keep.var=TRUE)

```

```

##          area      size      se
## urban urban 216.6086 13.03806
## rural rural 1851.7087 77.00336

```