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Contents

1 Introduction

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

1.1 Abc

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2 Chapter X

2.1 Some text

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https://en.wikibooks.org/wiki/LaTeX/Bibliography_Management.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```r
summary(cars)
```

```
##      speed           dist       
##  Min.   : 4.0   Min.   :  2.00  
##  1st Qu.:12.0   1st Qu.: 26.00  
##  Median :15.0   Median : 36.00  
##  Mean   :15.4   Mean   : 42.98  
##  3rd Qu.:19.0   3rd Qu.: 56.00  
##  Max.   :25.0   Max.   :120.00  
```

2.2 Text with equations

An example of Model-assisted strategy for $p(s) = SRSWOR$ is presented next. Our model is defined for sample element $k \in s$ as

$$y_k = \beta_0 + \beta_1 x_k + \varepsilon_k, \tag{1}$$

where $k = 1, \ldots, n$ and n denotes sample size. Regression estimator for population total t of y is

$$\hat{\theta}^* = \hat{t}_{REG} = \hat{t} + \hat{\beta}_1(t_x - \hat{t}_x), \tag{2}$$

where t_x is known population total of auxiliary x-variable, $\hat{t}$ and $\hat{t}_x$ are SRS estimators of t and t_x, respectively and $\hat{\beta}_1$ is estimated regression slope coefficient (Särndal et al., 1992). The estimator of design variance of regression estimator is

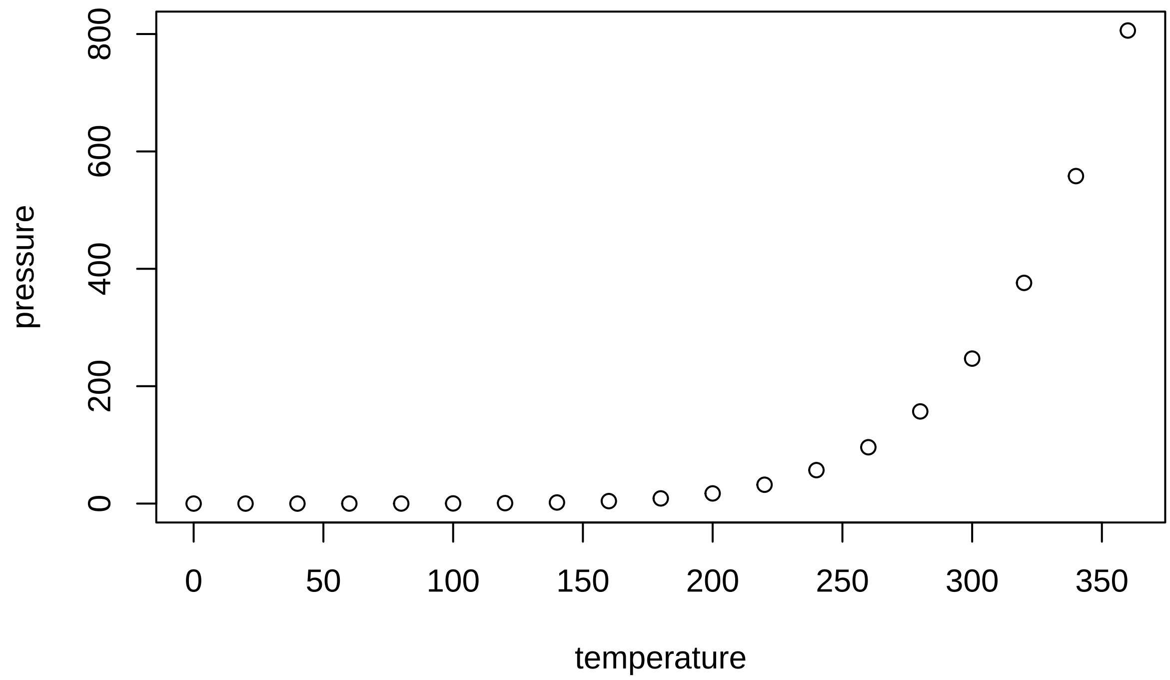
$$\hat{v}(\hat{t}_{REG}) = \hat{v}_{SRS}(\hat{t})(1 - \hat{\rho}^2_{yx}), \tag{3}$$

where $\hat{v}_{SRS}(\hat{t})$ is SRS variance estimator of $\hat{t}$ and $\hat{\rho}_{yx}$ is sample correlation of y and x. In this strategy the auxiliary x-data are incorporated in the estimation procedure by a linear regression model.

Making a cross reference to the equations (and sections, figures, etc.), for example to the previous regression estimator, is easy. Define a label inside of the equation environment (e.g. use `\label` and give some label name, in our example the name is `eq:RegresionEstimator`) and then call it using `\ref` command. In this case our reference to the regression estimator equation is (2).

2.3 Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

3 Chapter Y

3.1 YYYY

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4 Chapter Z

4.1 ZZZZ

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5 Conclusions

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Appendix