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FACULTY OF SOCIAL SCIENCES

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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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Table 1: The summary of cars data.

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 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:

```
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
```

or sometimes we like to have the result output only, add caption text and make a cross reference (e.g. see Table 1 and Table 2)

Table 2: The head of cars data.

speed	dist
4	2
4	10
7	4
7	22
8	16
9	10

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

$$y_k = \beta_0 + \beta_1 x_k + \varepsilon_k, \quad (1)$$

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

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

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

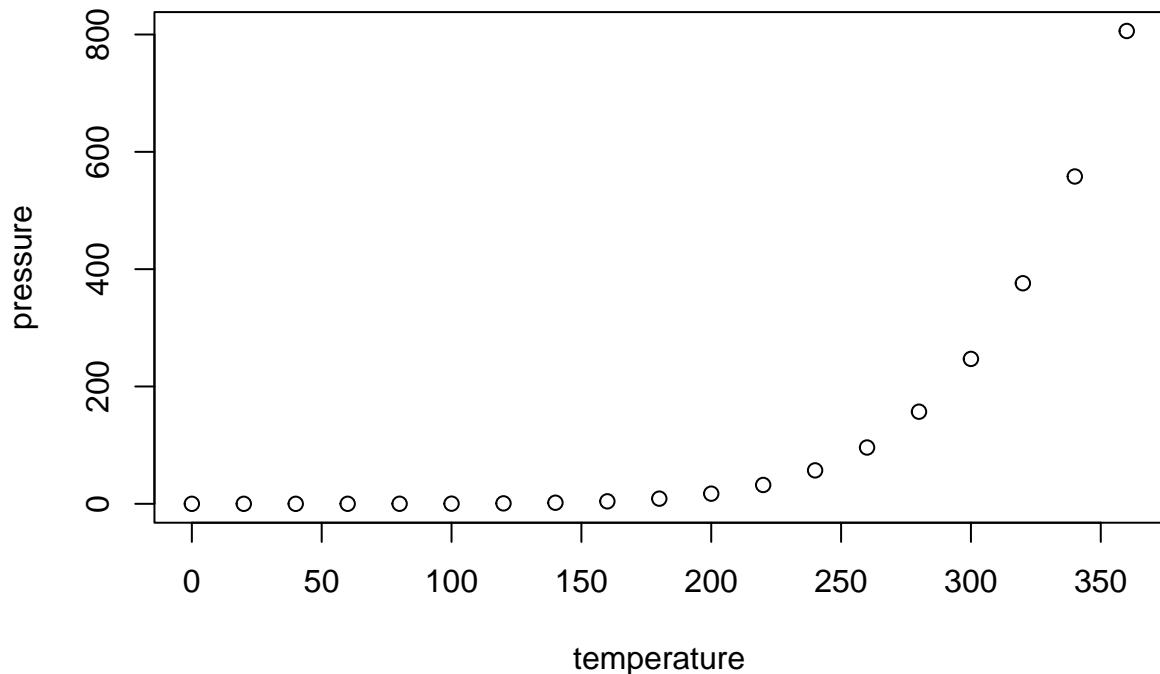
$$\hat{v}(\hat{t}_{REG}) = \hat{v}_{SRS}(\hat{t})(1 - \hat{\rho}_{yx}^2), \quad (3)$$

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:RegressionEstimator`) 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.

To add caption and cross reference e.g. lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua (See Figure 1).

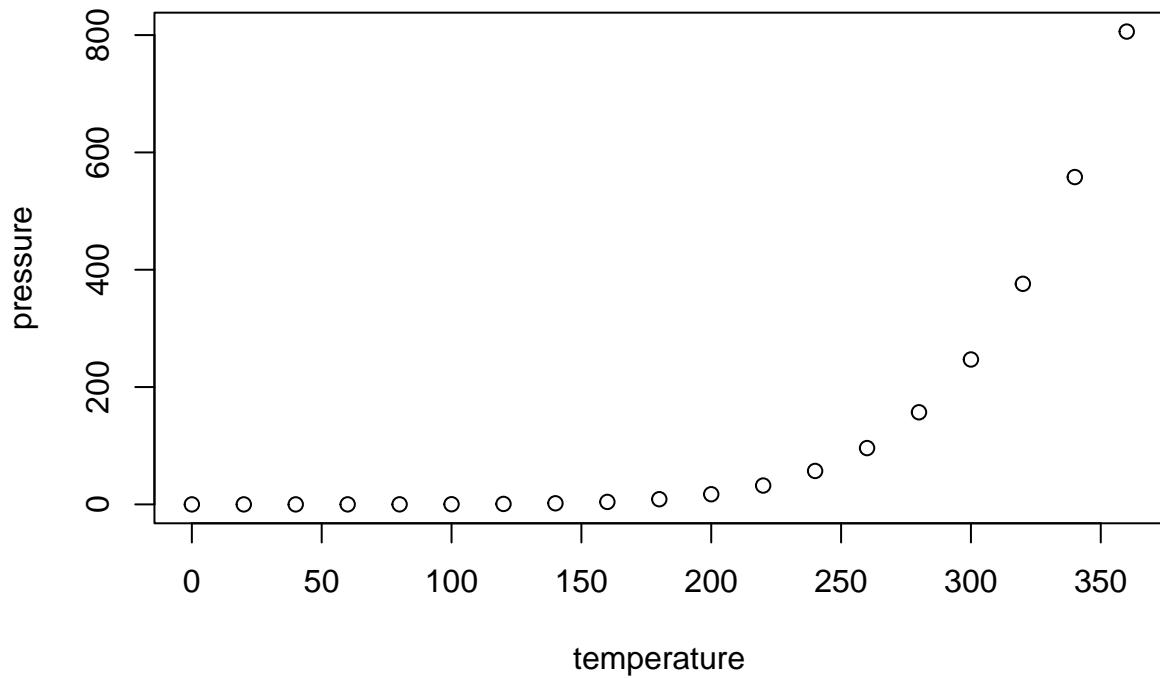


Figure 1: This a caption text to my plot.

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

Appendix: something

Appendix: Codes

```
knitr::opts_chunk$set(echo = TRUE)
options(tinytex.verbose = TRUE)

# add your list of packages here inside of p_load() function. This list is an example
if (!require("pacman")) install.packages("pacman")
pacman::p_load(tidyverse, kable, haven, janitor, psych, lm.beta, broom, knitr)
knitr::include_graphics("figures/HY__TJ23_valtiL_EN_V1__CMYK.pdf")
summary(cars)

# table: summary of cars data
kable(summary(cars), caption = "The summary of cars data.", booktabs = TRUE)
# table: head of cars data
kable(head(cars), caption = "The head of cars data.", booktabs = TRUE)
plot(pressure)
# plot: pressure
plot(pressure)
```