精算学基础：Excel 与 R 实现

Fundamentals of Actuarial Science with Excel and R

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目录

Chapter 1

Prerequisites

This is a *sample* book written in **Markdown**. You can use anything that Pandoc's Markdown supports, e.g., a math equation $a^2 + b^2 = c^2$.

The **bookdown** package can be installed from CRAN or Github:

```
install.packages("bookdown")
# or the development version
# devtools::install_github("rstudio/bookdown")
```

Remember each Rmd file contains one and only one chapter, and a chapter is defined by the first-level heading `#`.

To compile this example to PDF, you need XeLaTeX. You are recommended to install TinyTeX (which includes XeLaTeX): https://yihui.org/tinytex/.

Chapter 2

引言

你好

2.1 你好

你好

2.1.1 你好

你好

$$A^1_{x:\overline{n}|} = \sum_{k=0}^{n} v^k \times {}_k|q_x \tag{2.1}$$

$$E(X) = \int x f(x) dx \tag{2.2}$$

You can label chapter and section titles using `{#label}` after them, e.g., 例如 (2.2) we can reference Chapter 2. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter **??**.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```

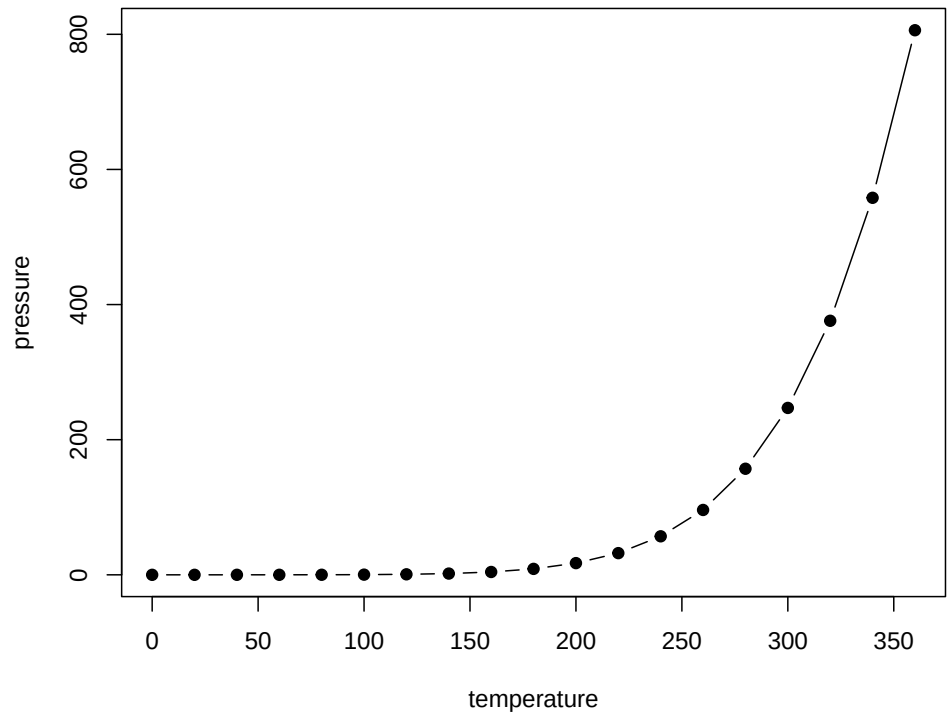

图 2.1: Here is a nice figure!

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 2.1 (2.1). Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 2.1.

```
knitr::kable(
  head(iris, 20), caption = 'Here is a nice table!',
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2024) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

表 2.1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

Chapter 3

利息理论

内容简介

学习目标

3.1 累积函数

$$a(t) = (1+i)^t \tag{3.1}$$

3.2 实际利率与实际贴现率

3.3 名义利率

3.4 利息力

3.5 单利与复利

3.6 确定性年金

3.7 利率风险初步

Chapter 4

生命表

内容简介

学习目标

Chapter 5

人寿保险

Some *significant* applications are demonstrated in this chapter.

5.1 Example one

5.2 Example two

Chapter 6

生命年金

We have finished a nice book.

Chapter 7

寿险保费

Chapter 8

寿险准备金

We have finished a nice book.

Chapter 9

损失模式

Chapter 10

非寿险费率厘定

Chapter 11

非寿险准备金

参考文献

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2024). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.41.