

Testing the Effect of something on something else

by

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ABSTRACT

add your abstract in the quarto yml file for now

INDEX WORDS: These, Are, Tests

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DEDICATION

I dedicate this dissertation to the haters

ACKNOWLEDGEMENTS

I would like to thank.. My Dog

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Chapter 1

place holder

Chapter 2

Introduction

Do you see any Teletubbies in here? Do you see a slender plastic tag clipped to my shirt with my name printed on it? Do you see a little Asian child with a blank expression on his face sitting outside on a mechanical helicopter that shakes when you put quarters in it? No? Well, that's what you see at a toy store. And you must think you're in a toy store, because you're here shopping for an infant named Jeb.

2.1 Data

Included in this template is a file called `sales.csv`. This contains quarterly data on Sales and Advertising budget for a small company over the period 1981–2005. It also contains the GDP (gross domestic product) over the same period. All series have been adjusted for inflation. We can load in this data set using the following code:

```
library(palmerpenguins)

penguins |>
select(species, island) |>
head(2) |>
knitr::kable(format = "latex")
```

Any data you use in your thesis can go into the `data` directory. The data should be in exactly the format you obtained it. Do no editing or manipulation of the data prior to

Table 2.1: this is the data

species	island
Adelie	Torgersen
Adelie	Torgersen

including it in the `data` directory. Any data munging should be scripted and form part of your thesis files (possibly hidden in the output).

2.2 Figures‘

Figure 2.1 shows time plots of the data we just loaded. Notice how figure captions and references work. Chunk names can be used as figure labels with `fig-` prefixed. Never manually type figure numbers, as they can change when you add or delete figures. This way, the figure numbering is always correct.

```
`stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

```
Warning: Removed 2 rows containing non-finite values (`stat_bin()`).
```

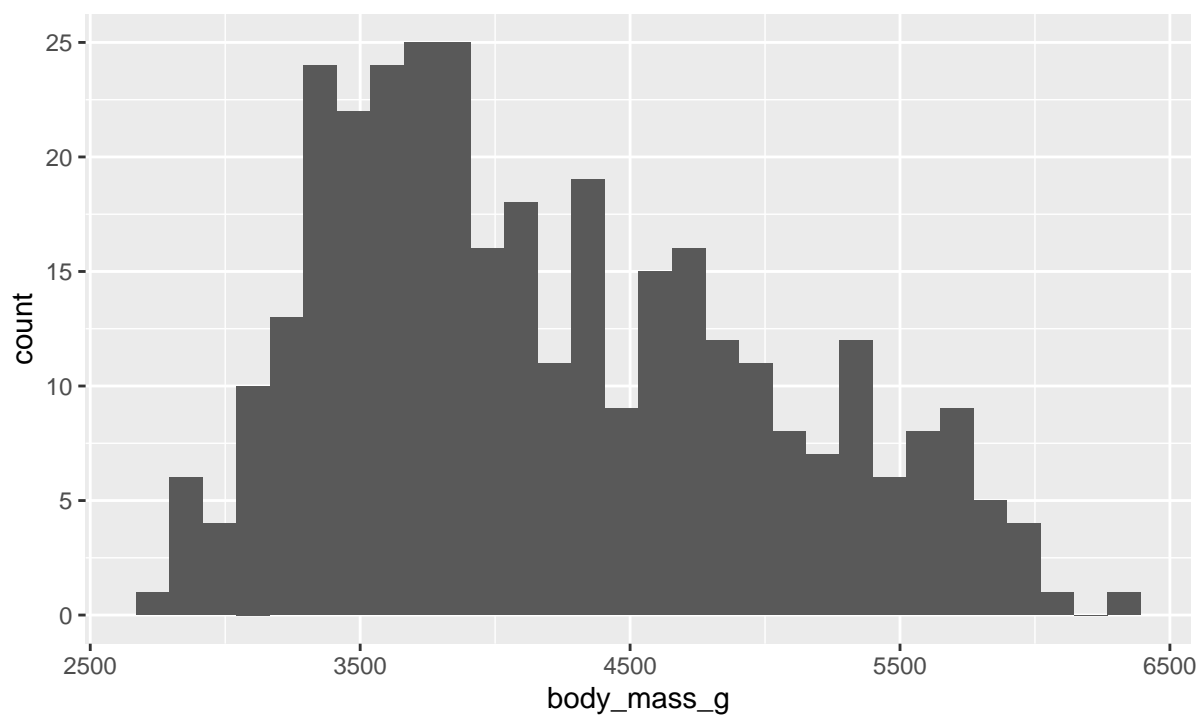


Figure 2.1: Quarterly sales, advertising and GDP data.

Chapter 3

Literature Review

This chapter contains a summary of the context in which your research is set.

Imagine you are writing for your fellow PhD students. Topics that are well-known to them do not have to be included here. But things that they may not know about should be included.

Resist the temptation to discuss everything you've read in the last few years. And you are not writing a textbook either. This chapter is meant to provide the background necessary to understand the material in subsequent chapters. Stick to that.

You will need to organize the literature review around themes, and within each theme provide a story explaining the development of ideas to date. In each theme, you should get to the point where your ideas will fit in. But leave your ideas to later chapters. This way it is clear what has been done beforehand, and what new contributions you are making to the research field.

All citations should be done using markdown notation as shown below. This way, your bibliography will be compiled automatically and correctly.

3.1 Exponential smoothing

Exponential smoothing methods were originally developed in the late 1950s (Brown 1959, 1963; Holt 1957; Winters 1960). Because of their computational simplicity and interpretability, they became widely used in practice.

Empirical studies by Makridakis and Hibon (1979) and Makridakis et al. (1982) found little difference in forecast accuracy between exponential smoothing and ARIMA models. This made the family of exponential smoothing procedures an attractive proposition (see Chatfield et al. 2001).

The methods were less popular in academic circles until Ord, Koehler, and Snyder (1997) introduced a state space formulation of some of the methods, which was extended in Hyndman et al. (2002) to cover the full range of exponential smoothing methods.

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