

Determining the Influence of Different Variables on the Price of Ikea Products – a Regression Analysis

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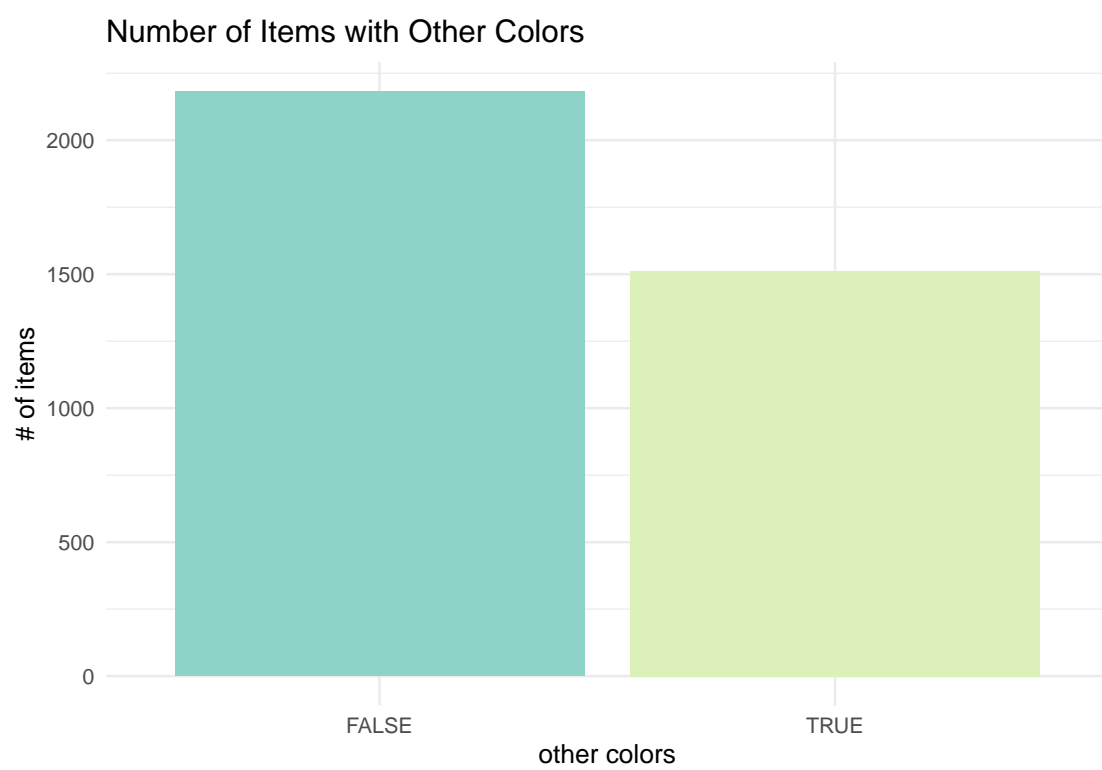
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List of Abbreviations

R Statistical Programming Language.

1

Introduction

**Figure 1.1:** Sample plot

Theoretical Background & Research Question

2.1 Theoretical Background

The data set was obtained by a kaggle.com user (Reem Abdulrahman) by the means of webscraping techniques from the Saudi Arabian Ikea website in the furniture category on the 20th of April 2020. Noteworthy features include the name, category, price in Saudi Riyals, the designer and dimensions (width, height and depth). The data set has 13 variables and 2962 observations.

2.2 Research Question

This paper explores the influence for different variables on the price in the given data set. The motivating forces for this research question are the possible implications for price determination of new items.

3.1 Data Cleaning and Transformatoin

To examine our data set properly, we first had to restructure and reformat it. This initial data cleaning step included type conversions, value mutation, addition of new calculated fields and the dropping of irrelevant columns. Concretely, we converted name, category and designer to categorical variables. In the designer column, we converted blank strings and values prefixed by “IKEA of Sweden” to missing values (NA). Furthermore, we converted both the price and old price to double values and changed the currency from Saudi Arabian Riyals to Euros based on the exchange rate from the time the data set was obtained by the author @ref(#theoretical_background). To better facilitate the comparison of the different sizes of furniture items, we calcuted the size in cubic meters based on the depth, width and height values. Finally, we selected only columns that could have a potential impact in our analysis (see Table 3.1 and 3.2).

TODO: Format these tables

Table 3.1: Initial Data Set formatting.

X1	item_id	name	category	price	old_price	sellable
0	90420332	FREKVEN	Bar furniture	2650	No old price	TRUE
1	368814	NORDVIKEN	Bar furniture	9950	No old price	FALSE
2	9333523	NORDVIKEN / NORDVIKEN	Bar furniture	20950	No old price	FALSE
3	80155205	STIG	Bar furniture	690	No old price	TRUE
4	30180504	NORBERG	Bar furniture	2250	No old price	TRUE
5	10122647	INGOLF	Bar furniture	3450	No old price	TRUE

Table 3.2: Data Set after cleaning process.

name	category	price_eur	old_price_eur	sellable_online
FREKVEN	Bar furniture	65.02	NA	TRUE
NORDVIKEN	Bar furniture	244.14	NA	FALSE
NORDVIKEN / NORDVIKEN	Bar furniture	514.05	NA	FALSE
STIG	Bar furniture	16.93	NA	TRUE
NORBERG	Bar furniture	55.21	NA	TRUE
INGOLF	Bar furniture	84.65	NA	TRUE

3.2 8 Step EDA (nice heading)

Here we describe our EDA after the ZUUR paper method (von Goethe 1829, pp. 33-35). Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren,

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3.2.1 Step 1

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3.2.2 Step 2

3.2.3 Step 3

3.2.4 Step 4

3.2.5 Step 5

3.2.6 Step 6

3.2.7 Step 7

3.2.8 Step 8

3.3 Random Forest Regression Model

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Results

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Discussion

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6

Individual Statements

6.1 Philip Krück

6.2 Johannes Pein

Appendices

A

Plots

A.1 Plot xyz

A.2 Plot abc

B

Another Appendix

Works Cited

Von Goethe, Johann Wolfgang (1829). *Wilhelm Meisters Wanderjahre oder die Entsagenden*. de. Cotta.