My first replicable Paper

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Abstract

This is an example on how to make a reproducible paper. We are using R from Rstudio, creating an RSweave document. This is a nice start to create a nice paper and get an A+. The next sections will show the steps taken.

1 Introduction

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2 Explaining Labels

Sections may use a label[1]. This label is needed for referencing. For example the next section has label *datas*, so you can reference it by writing: As we see in section 3.

[1] In fact, you can have a label wherever you think a future reference to that content might be needed.

3 Data analysis

Here you can explain how to get the data.

```
> # echo: show the code?
> # eval: run the code?
>
> # link has been previously shortened
> linkToData="https://goo.gl/So48s5"
> # getting the data from link:
> states=read.csv(linkToData)
>
```

3.1 Exploration

Here, I start exploring the data. The first step is to know what variables I have, and in what scale they are:

```
'data.frame':        51 obs. of  8 variables:
 $ state                : Factor w/ 51 levels "Alabama","Alaska",..: 1 2 3 4 5 6 7 8
 $ satMean              : int  991 920 932 1005 897 959 897 892 840 882 ...
 $ satDemand            : num  0.08 0.41 0.26 0.06 0.47 0.29 0.81 0.61 0.71 0.48 ...
 $ k12ExpenditurePupil  : int  3627 8330 4309 3700 4491 5064 7602 5865 9259 5276 ...
 $ incomeHouseholsMedian: num  27.5 48.3 32.1 24.6 41.7 ...
 $ diplomaHsAdults      : num  0.669 0.866 0.787 0.663 0.762 0.844 0.792 0.775 0.731
 $ collegeDegreeAdults  : num  0.157 0.23 0.203 0.133 0.234 0.27 0.272 0.214 0.333 0.
 $ region               : Factor w/ 4 levels "Midwest","N. East",..: 3 4 4 3 4 4 2 3
```

A next step demands:

- Knowing the *central* and *dispersion* values.
- Visualizing the variables of interest.

Except for the column *state* and *region*, we can compute the centrality and spread measures for the other variables in the data. I will do that in Table1 in the next page.

Table 1: Mean and Spread values

Statistic	N	Mean	St. Dev.	Min	Max
satMean	51	944.098	66.935	832	1,093
satDemand	51	0.358	0.262	0.040	0.810
k12ExpenditurePupil	51	5,235.961	1,401.155	2,960	9,259
incomeHouseholsMedian	51	33.957	6.423	23.465	48.618
diplomaHsAdults	51	0.763	0.056	0.643	0.866
collegeDegreeAdults	51	0.200	0.042	0.123	0.333

As you saw, my Table 1 is nice. As you saw, the mean of the variable *satMean* is 944.098039215686. Now let's use a boxplot to explore location:

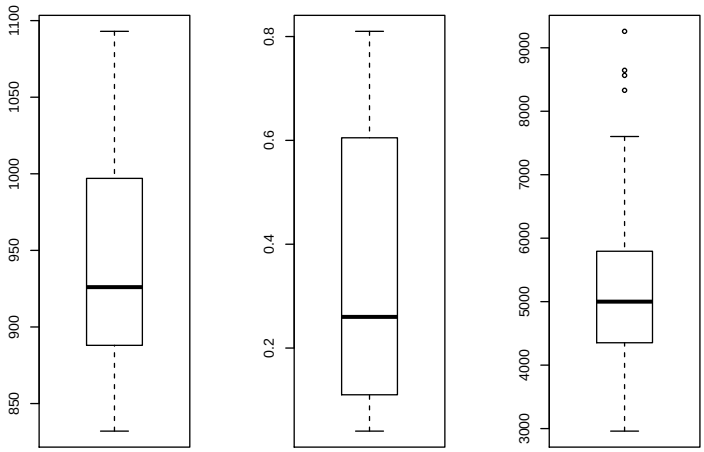

Figure 1: Location of values

As we have a categorical variable, we could create a frequency table:

```
> tableF=data.frame(table(states$region),row.names = NULL)
> names(tableF)=c("Region", 'Frequency')
> tableF

   Region Frequency
1 Midwest        12
2 N. East         9
3   South        17
4    West        13
```

It will look better in a while!