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Canadian Refugee Appeals and Judge Decisions

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MATH 4330

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Introduction

This report is about research of the Canadian Refugee Appeals and Judge Decisions done by Greene and Shaffer. The data directory will include the variables covered in the research, and the summary of each of the variables with plots. The following part is the data biography which will further explain who and what was involved in the study, whether there was random sampling and if that had significant impacts, as well as random assignment and if that was done effectively. We also refer to the data set provided in table 1.1 from *Applied Regression Analysis and Generalized Linear Models* by John Fox and consider its differences with our present dataset.

Next are three questions formulated around the research in regard to five variables: nation, success, location, decision and judges.We also give our answers by providing both bar chart and written description of each. And according to these, we conclude that Czechoslovakia is the only country that has a positive logit of success rate; Toronto is the most popular city in Canada that the claimants are seeking refuge; the decisions of each judge to grant or deny leave to appeal.

There was a lack of explanation, which lead to some confusion, as to the difference of judges between the data provided and the reference found, and the reason why the majority of the judges denied leave to appeal.

Data Biography

Greene and Shaffer's study sought to find the relationship between decisions on allowing refugees to enter Canada made by the Federal Court of Canada and the backgrounds of each judge. The study was conducted in 1992, using cases filed in 1990. These cases were filed from claimants who were refused status by the Immigration and Refugee Board.

According to table 1.1 from Fox(2016), a total of 12 judges reviewed 608 cases, though the dataset only seems to include 10 judges. There is no mention of why judges Linden and Décary were not included in the Greene.txt dataset. The cases themselves were not randomly selected as they needed to meet certain criteria to be included in the study. There were large differences in the judges' decisions to grant leave to appeal; no sampling weights were used to adjust these biases, though

the Crown stated "it was insufficient simply to demonstrate large and statistically significant differences among the rates of approval" for the 10 judges, Fox(2016).

Data Directory

```
library(spida2)
library(car)
library(lattice)
library(latticeExtra)

## Loading required package: RColorBrewer

library(RColorBrewer)
library(ggplot2)

##
## Attaching package: 'ggplot2'

## The following object is masked from 'package:latticeExtra':
##
##      layer

## The following object is masked from 'package:spida2':
##
##      labs

library(Hmisc)

## Loading required package: survival

## Loading required package: Formula

##
## Attaching package: 'Hmisc'

## The following objects are masked from 'package:spida2':
##
##      fillin, na.include

## The following objects are masked from 'package:base':
##
##      format.pval, round.POSIXt, trunc.POSIXt, units

download.file("http://socserv.socsci.mcmaster.ca/jfox/Books/Applied-Regression-3E/datasets/Greene.txt",
              "Greene.txt")
greene <- read.table("Greene.txt", header = T)
```

Variables

Judge: Name of judge hearing case: Desjardins, Heald, Hugessen, Iacobucci, MacGuigan, Mahoney, Marceau, Pratte, Stone, Urie

Nation: Nation of origin of claimant: Argentina, Bulgaria, China, Czechoslovakia, El.Salvador, Fiji, Ghana, Guatemala, India, Iran, Lebanon, Nicaragua, Nigeria, Pakistan, Poland, Somalia, Sri.Lanka

Rater: Judgement of independent rater: no, case has no merit; yes, case has some merit (leave to appeal should be granted).

Decision: Judge's decision: no, leave to appeal not granted; yes, leave to appeal granted.

Language: Language of case: English, French.

Location: Location of original refugee claim: Montreal, other, Toronto.

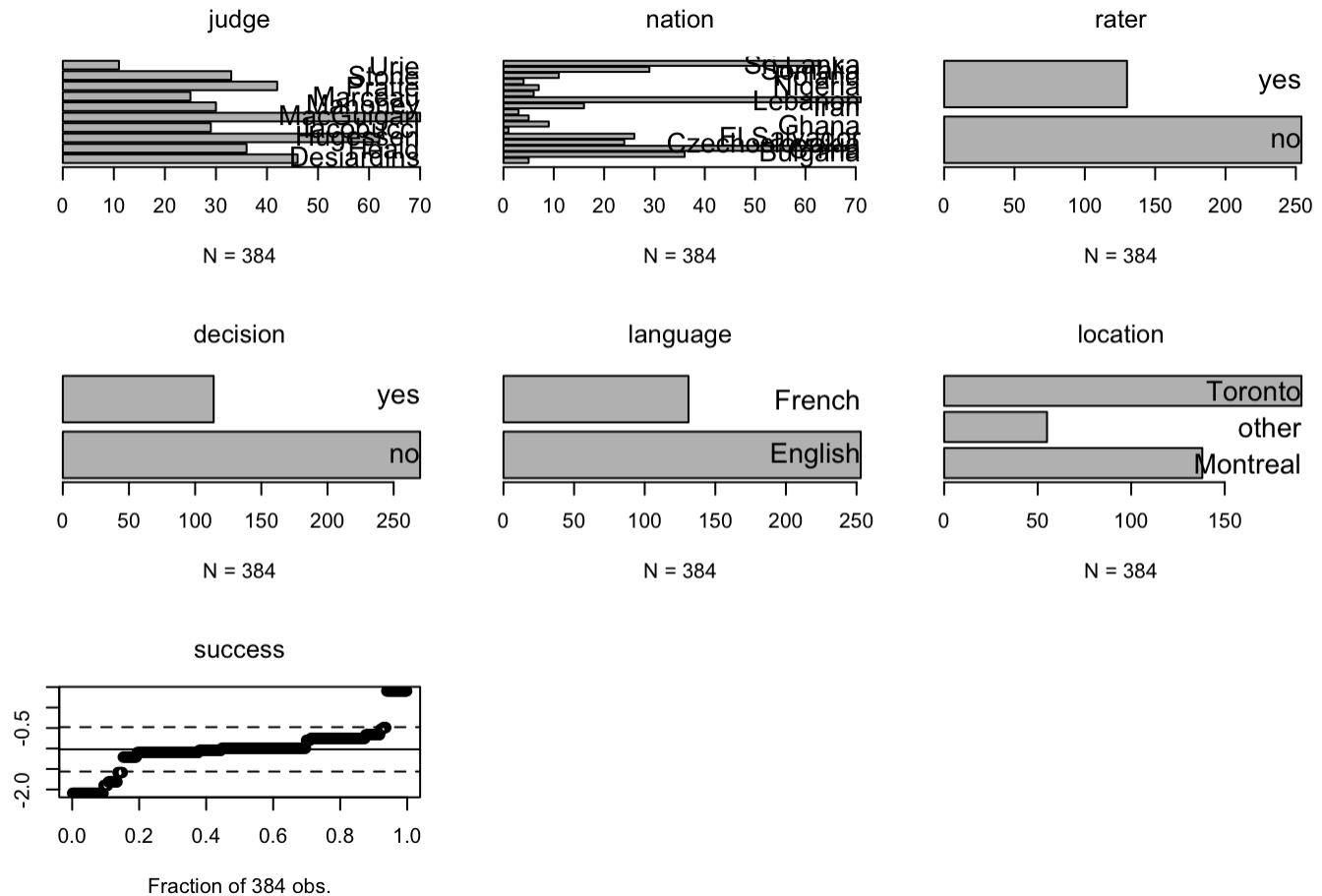**Success**: Logit of success rate, for all cases from the applicant's nation.

Summary

```
summary(greene)
```

```
##         judge              nation    rater     decision     language
##  MacGuigan :70   Lebanon    :71   no :254   no :270   English:253
##  Hugessen  :62   China      :68   yes:130   yes:114   French :131
##  Desjardins:46   Sri.Lanka  :63
##  Pratte    :42   Bulgaria   :36
##  Heald     :36   Somalia    :29
##  Stone     :33   El.Salvador:26
##  (Other)   :95   (Other)    :91
##     location        success
##  Montreal:138   Min.   :-2.0907
##  other   : 55   1st Qu.:-1.0986
##  Toronto :191   Median :-0.9946
##                 Mean   :-1.0204
##                 3rd Qu.:-0.7538
##                 Max.   : 0.4055
##
```
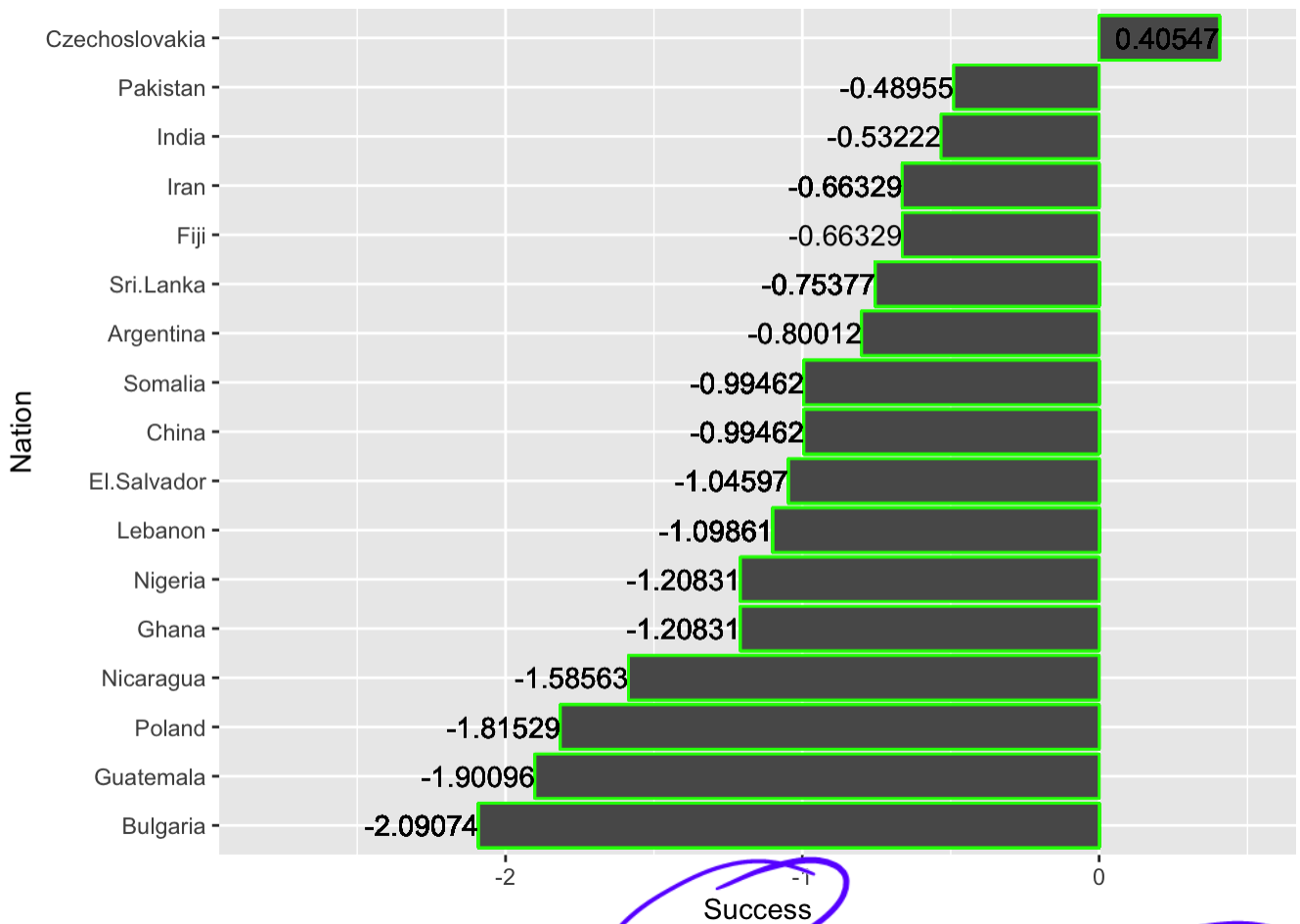
```
xqplot(Greene) #raw values
```


Questions

Question 1 How does each nation's success compare? Is there a standout country?

```
greene <- read.table("Greene.txt", header = T)
```

```r
ggplot(greene, aes(reorder(nation, success),success)) +
  geom_bar(stat="identity", position = "dodge", col = 'green') +
  scale_fill_brewer(palette = "Set1")+coord_flip() +
  xlab("Nation")+ylab("Success")+
  geom_text(aes(label=success),  position=position_dodge(width=0.9), hjust=1)+ylim(-2.8,0.5)
```


The above bar chart shows the success rate of each nation. It is clear to see that only Czechoslovakia has a positive logit of success rate.

Question 2 What are the locations the claimants are seeking refuge? What can be interpretted from this data?

```r
greene <- read.table("Greene.txt", header = T)

tab__(greene, ~ location) %>%
  barchart(xlab = 'Locations', ylab = 'Number of refugees', col = 'red',
           horizontal = FALSE)
```

[Handwritten annotations:] The axis label does not convey what the numbers in the graph show. Imagine that you are looking at this figure prepared by someone else. What would it tell you? What's a "Success" of −2.09074? Q suppose it's bad... but what?
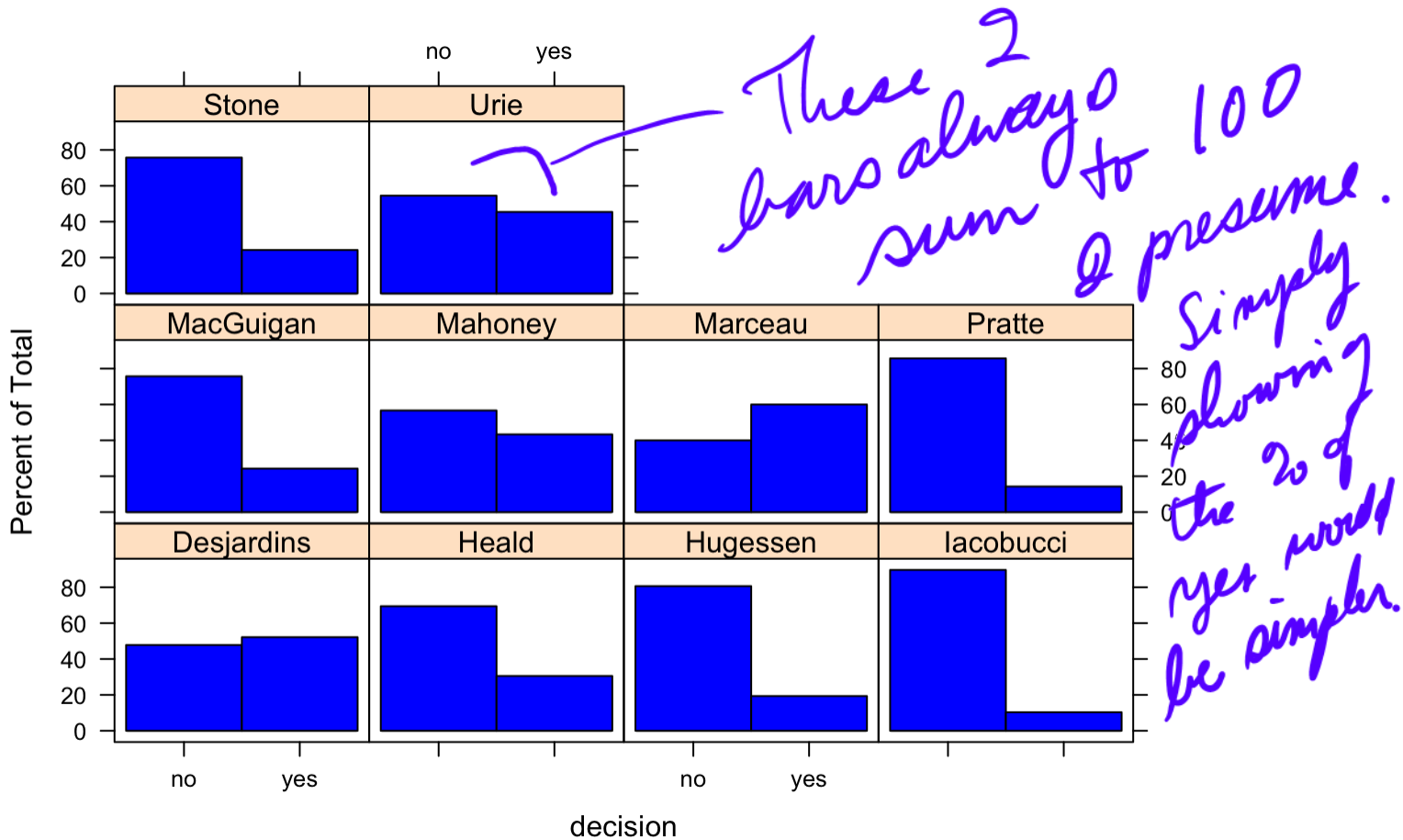
The chart above shows that Toronto is the most popualr city in Canada which the claimants are seeking refuge. The number of refuges choosing Toronto is 191 over 384, it is almost half of all. Montreal is the second popular city which 138 refuges choose to stay in. There are only 55 refuges choosing other cities in Canada. From what has been discussed above, we may safely draw a conclusion that, in Canada, Toronto and Montreal are the most two secure cities in the refugees' minds.

Question 3 With our dataset and understanding of the study, it is almost a must to question whether certain judges tend to grant leave to appeal or if they tend to deny it more than others.

```
histogram(~decision|judge, Greene, col = 'blue', border = 'black')
```

Definitely informative but as a precursor to exploring relationships.

Right! But is it so interesting to merely compare the rates. Perhaps the rates differ because they tend to get cases from different countries for which the likelihood of meeting requirements is different. Or the proportion of cases rated favourably is different.

The above barcharts each indicate the percentage of the decisions of the judges to grant or deny leave to appeal. It is easy to see that the decisions of certain judges to grant or deny leave to appeal, such as Urie and Desjardins, are about 50-50 while others, such as Stone and Iacobucci, tend towards denying leave to appeal.

It made sense to put these barcharts in terms of percentage as the 10 judges did not review the same number of cases. Using raw frequencies could make the data look biased and harder to compare between judges.

Conclusion

There was no reference as to whether there was random sampling (of the judges) though it is probable that none had taken place as the pool of judges to participate in a specific court is most likely quite small. Furthermore, there was no explanation as to why judges Linden and Décary were excluded from the final dataset. Were the initial 12 treated as the population of judges and the 10 chosen were the sampled units?

It is also unknown what each of the 10 judges' backgrounds were which could have been a factor significantly affecting their decision. Were many of the judges of Czechoslovakian background resulting in a higher logit of success for claimants from Czechoslovakia? Is this why the majority of the judges tended towards denying leave to appeal?

A limitation to one of our questions, namely question 3, was not being able to find a definitive answer as to why the majority of the judges denied leave to appeal. While it could be inferred that those judges were less sympathetic to the claimants of nations that they felt no deep, if any, connection to, we simply cannot assume that is the case.

References

Fox, John. 2016. *Applied Regression Analysis and Generalized Linear Models.* 3rd ed. Sage Publication.