Presentation Mark: 2/3 Overall Mark: 81

Assessment 1 MA306 Report Mark Sheet

Students: Grace Largea gnal2
Tevin Moloy tms534
Ibrahim Awuu ia290
Yuzhon Lou yl377

Mark Awarded: 86

Introduction (20 marks) 20

Nice introduction! In a few words you summarized some background information, you connected it to the data and you presented clearly the questions you will try to answer.

Descriptive statistics and Graphical summaries (40 marks) 33

Nice analysis overall. The results were presented in a good way. It was clear to understand what the plots were showing.
Maybe it would be a good idea to show the plots of the different ponies in the same plot, so that comparisons would be easier.
Also for question 2, maybe a box plot would be a more efficient way to draw conclusions?

Has an R appendix has been included: Yes / No

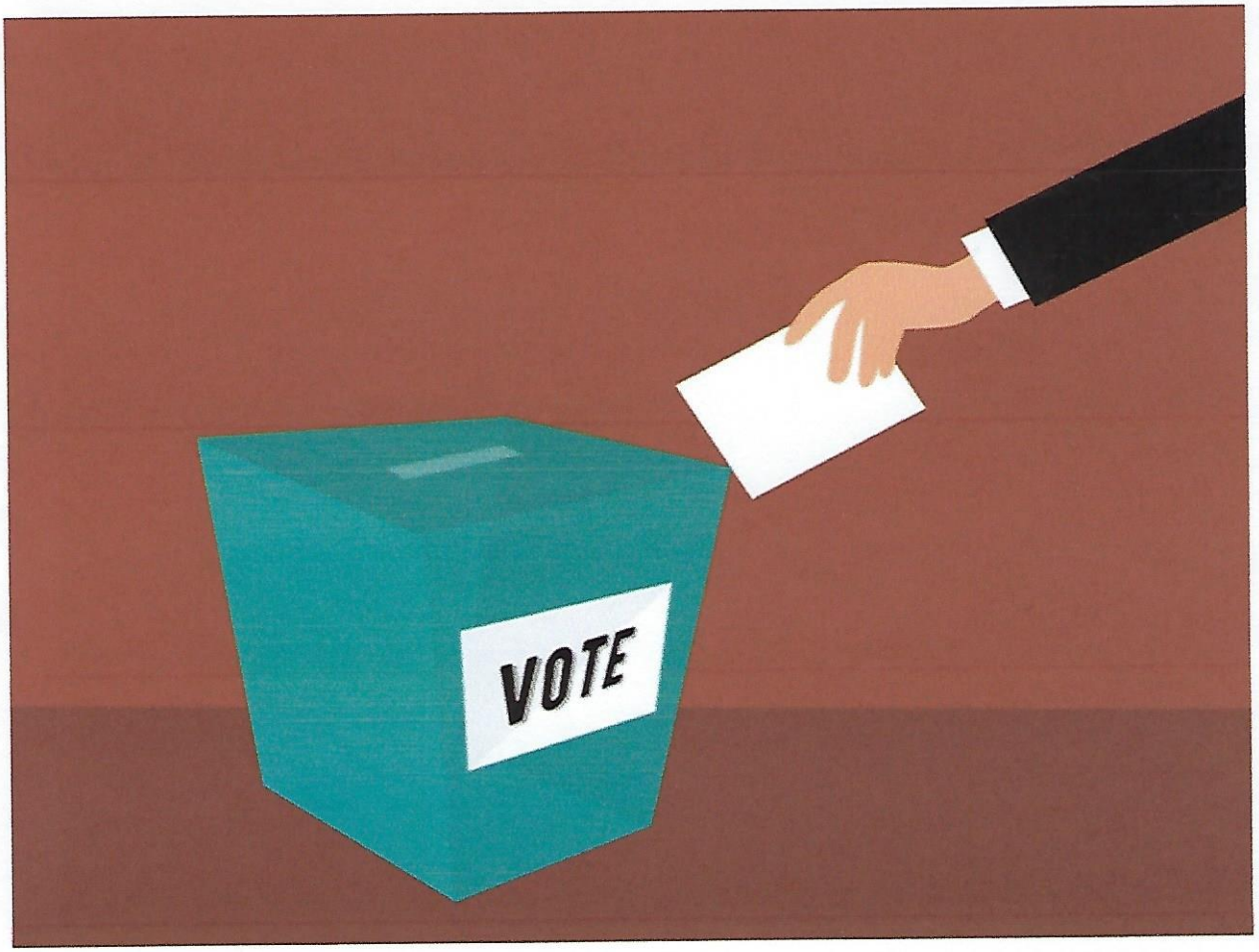
Results and Conclusions (20 marks) 15

Nice work in stating clearly your conclusions seperately for each question.
It would have been maybe a good idea to analyze more than the scatterplots for question 1 the behavior of the data

Report Style (20 marks) 18

Very nice work with the presentation of the report! Well done for adding table of contents and references.
For an even better appearence a good idea would be not to use directly the output from R but make nicer tables. Also maybe add more tables instead of having the numbers in the text?
Also maybe add captions under your plots naming them "figure 1" ect so that it would be easier to refer to them.

STATISTICAL REPORT ON UK ELECTION DATA FROM 1918-2017



Date: 21 February 2020

MA306 Statistics: Assessment 1 By

Grace, Ibrahim, Tevin and Yuzhou

Table of Contents

INTRODUCTION.....2

DESCRIPTIVE STATISTICS AND GRAPHICAL SUMMARIES.....2-9

RESULTS AND CONCLUSIONS.....9

REFERENCES.....10

APPENDIX OF R CODES.....10-16

Introduction

The first General Election in the UK took place in 1708 and unless Parliament votes to hold an election sooner, General Elections take place every 5 years in May.

General Elections in the UK are comprised of 650 individual elections and candidates compete for a seat in the House of Commons. Each election is essentially a constituency and each constituency have a similar number of votes. When a candidate wins his constituency, he or she wins a seat in the House of Commons. The party with the highest proportion of votes will come into power.

To acquire votes, candidates' campaign in their constituencies. They may also merge, with a political party that shares their same values and ideas. [1] An example of this is Plaid Cymru/Scottish National Party. [2] This will increase the party's chances of winning more seats.

Candidates win votes by announcing the policies which will guide their decision-making process in Parliament. When a voter votes for a candidate, they are also voting for that candidate's political party. [3]

Unless Parliament votes to hold an election sooner, General Elections take place every 5 years in May.

We have been presented with data from the UK election data from 1918-2017 except for the age elected dataset which starts from 1979,

The data is about 4 political parties: Conservatives, Labour, Liberal Democrats and Plaid Cymru/Scottish National Party. It entails information about; the total number of seats won by each party, the proportion of votes won by each party, the number of female MPs who won seats by party and the age-distribution of the elected MPs for some years. [4]

In this report we will discuss three interesting analysis of the questions we presented ourselves and the question addressed in the assessments. They are as follows:

1. Is there a relationship between the proportion of votes won by a party and the number of seats won?
2. What age category was elected most?
3. Is there a correlation between the seats won by MPs and the number of women MPs elected?
4. Does winning the election by one party influence another party chance of winning?

Descriptive statistics and Graphical Summaries

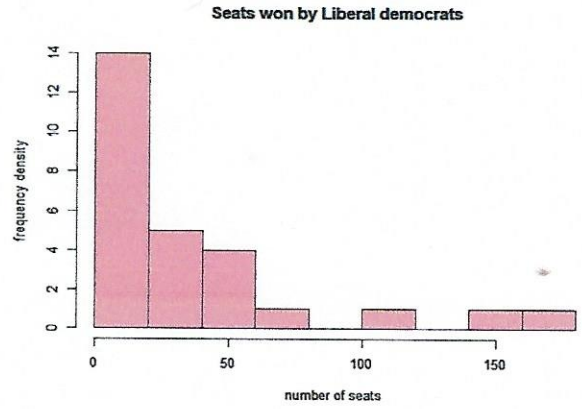
To give a brief summary of the data set, you can use R studio function, "summary" . Summary gives you the mean, median, minimum and maximum value and the lower and

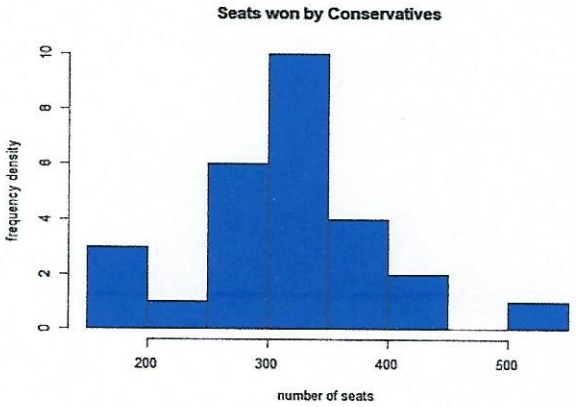
upper quartiles. In this report, we have a summary of the share of votes, women MPs, age of elected MPs and the seats won by the parties in the UK from 1918 to 2017.

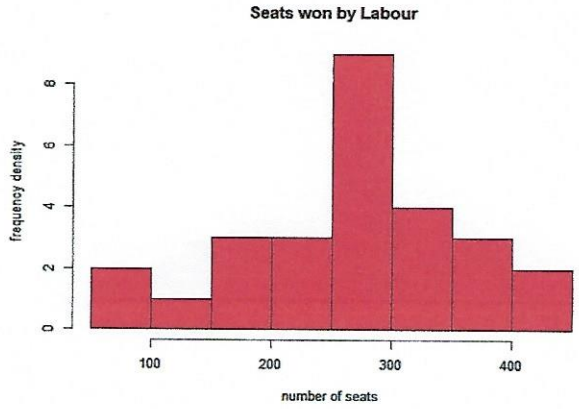
Below are the summary tables and structure of the datasets;

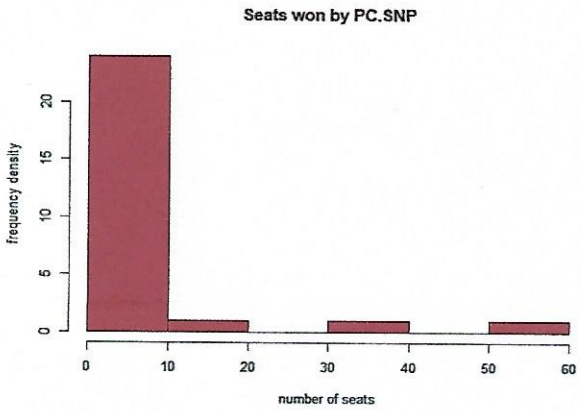
```
> summary(ageelected1)
     a18_29           a30_39          a40_49          a50_59          a60_69
a70plus      aNot_specified
 Min.   : 1.00   Min.   : 79.0   Min.   :190.0   Min.   :197.0   Min.   : 69.00   M
in.   : 3.00   Min.   :0.0
 1st Qu.: 4.00   1st Qu.: 89.0   1st Qu.:198.2   1st Qu.:201.5   1st Qu.: 83.75   1
st Qu.: 8.25   1st Qu.:0.0
 Median : 8.00   Median : 97.0   Median :214.0   Median :211.5   Median : 91.00   M
edian :12.00   Median :0.0
 Mean   : 8.00   Mean   : 99.3   Mean   :221.2   Mean   :215.8   Mean   : 91.90   M
ean   :13.20   Mean   :0.5
 3rd Qu.:12.25   3rd Qu.:111.0   3rd Qu.:248.0   3rd Qu.:222.8   3rd Qu.: 99.75   3
rd Qu.:15.50   3rd Qu.:0.0
 Max.   :15.00   Max.   :120.0   Max.   :259.0   Max.   :249.0   Max.   :114.00   M
ax.   :28.00   Max.   :5.0
    X
 Mode:logical
 NA's:10

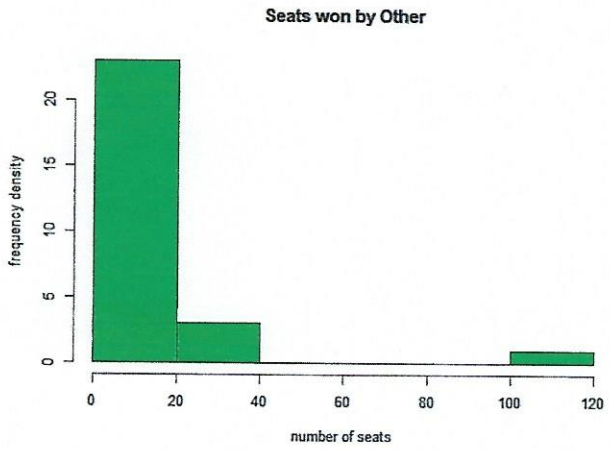
> summary(seatswon1)
      CON             LAB              LD             PC.SNP          OTHER
X
 Min.   :165.0   Min.   : 52.0   Min.   :  6.00   Min.   : 0.000   Min.   :  0.00
Mode:logical
 1st Qu.:268.5   1st Qu.:219.0   1st Qu.: 10.00   1st Qu.: 0.000   1st Qu.:  5.00
NA's:27
 Median :321.0   Median :271.0   Median : 20.00   Median : 0.000   Median : 12.00
 Mean   :316.2   Mean   :262.1   Mean   : 36.96   Mean   : 6.667   Mean   : 15.41
 3rd Qu.:355.0   3rd Qu.:316.0   3rd Qu.: 49.00   3rd Qu.: 9.000   3rd Qu.: 20.00
 Max.   :522.0   Max.   :418.0   Max.   :163.00   Max.   :59.000   Max.   :105.00
> summary(shareofvote1)
      YEAR            CON              LAB              LD             PC.SNP
OTHER             TOTAL
 Min.   :1918   Min.   :0.3100   Min.   :0.2100   Min.   :0.0300   Min.   :0.00000
Min.   :0.01000   Min.   :1
 1st Qu.:1940   1st Qu.:0.3800   1st Qu.:0.3100   1st Qu.:0.0750   1st Qu.:0.00000
1st Qu.:0.01000   1st Qu.:1
 Median :1966   Median :0.4200   Median :0.3700   Median :0.1700   Median :0.01000
Median :0.03000   Median :1
 Mean   :1966   Mean   :0.4178   Mean   :0.3748   Mean   :0.1515   Mean   :0.01259
Mean   :0.04296   Mean   :1
 3rd Qu.:1990   3rd Qu.:0.4500   3rd Qu.:0.4350   3rd Qu.:0.2250   3rd Qu.:0.02000
3rd Qu.:0.05500   3rd Qu.:1
 Max.   :2017   Max.   :0.6100   Max.   :0.4900   Max.   :0.3000   Max.   :0.05000
Max.   :0.20000   Max.   :1
> summary(womenMPs1)
      CON              LAB              LD             OTHER             X
 Min.   : 0.00   Min.   :  0.0   Min.   : 0.000   Min.   : 0.000   Mode:logical
 1st Qu.: 6.00   1st Qu.:  9.5   1st Qu.: 0.000   1st Qu.: 0.000   NA's:27
 Median :10.00   Median : 14.0   Median : 0.000   Median : 1.000
 Mean   :14.78   Mean   : 31.0   Mean   : 1.481   Mean   : 2.593
 3rd Qu.:14.50   3rd Qu.: 29.0   3rd Qu.: 2.000   3rd Qu.: 1.500
 Max.   :68.00   Max.   :119.0   Max.   :10.000   Max.   :24.000
```











From the summary of seats won we can see that; CON had a minimum seat of 165 seats since its elections from 1918 to 2017. PC.SNP had 0 seats as their minimum, as well as other.

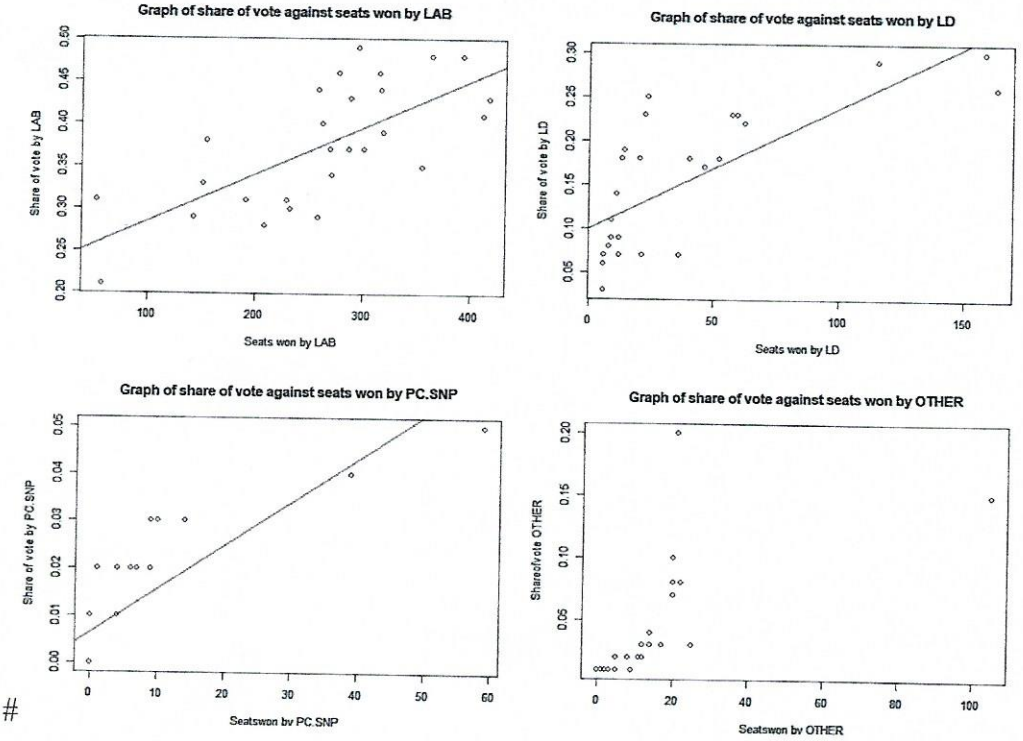
1. ***Is there a relationship between the proportion of votes won by a particular party and the number of seats won?***

The scatter graph below illustrates the relationship between the share of votes and seats won by UK political parties from 1918 to 2017. Starting with the graph to our top left corner we can observe a positive correlation between the share of votes and seats won by labour, liberal democrats, SNP.PC and other parties. This can be backed with PMCC value *of*, 0.70833 for

labour, 0.73659 for **liberal democrats,** 0.8337 for **SNP.PC,** 0.65053 for **other** parties and +0.80007 for **conservatives.**

Observing the graphs below, Labour has a strong positive correlation, and this can be shown by the trend line, since most points are close to the line. The graph also has a coefficient of +0.70833.

A SCATTER GRAPH SHOWING THE RELATIONSHIP BETWEEN SHARE OF VOTES AND SEATSWON BY A PARTICULAR PARTY



#

From the graph one can infer that all the graphs possess a positive correlation. We can also infer that if a party wins more seats there is a greater chance of obtaining a higher share of votes in the election.

NB: The chance of this is not the same since they all don't have the same correlation coefficient. Observing the graph conservative stands a higher chance than labour and the rest of parties.

2. ***Which age category was elected most?***

To start with, this question is exploring the most common age group of MPs who were elected from 1979 to 2017. Below are the histograms on the respective ages of the MPs who were elected from 1979 to 2017.

Having looked at the data MPs whose ages were not specified were the least in number followed by MPs between the ages of 18-29 as the second lowest. This was shown by a number of 15 MPs as its maximum.

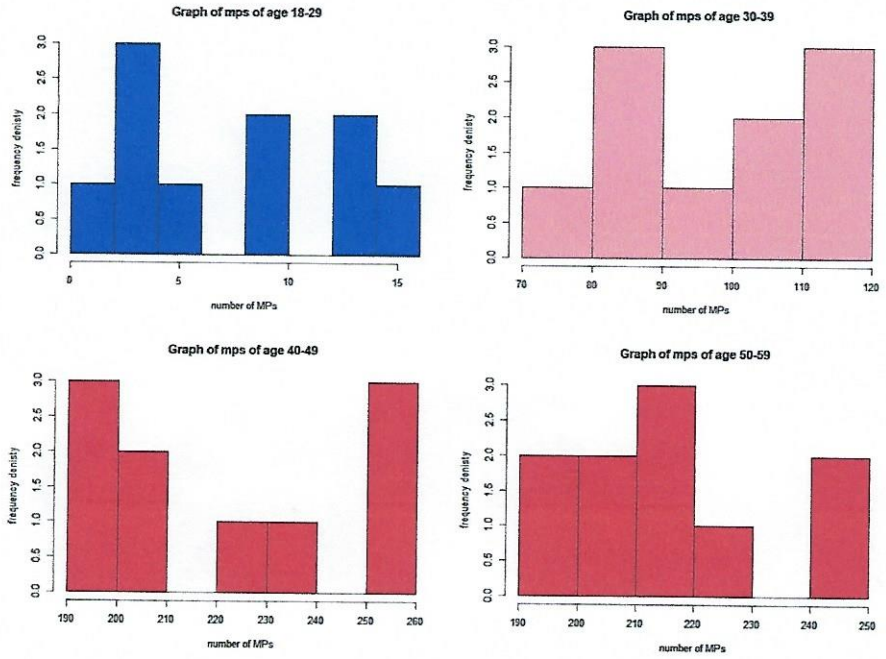
Also, the graphs show how skewed the data were and their distribution about their mean. So looking at the 18-29 years graph we can say that the number of MPs were not evenly distributed.

We can assume that the graph of MPs between the ages of 30 to 39 was negatively skewed, thus, more MPs will be elected in that age group compared to 18 to 29 years.

The graph of MPs between the ages of 40 to 49 and 50 to 59 was not negatively skewed but analysing its number of MPs, we realise that they had their highest number of MPs at around 250 MPs who were elected. we also noticed that the minimum number of MPs within that age group were 190 in number. This enables one to say more MPs were likely to be elected between that age group.

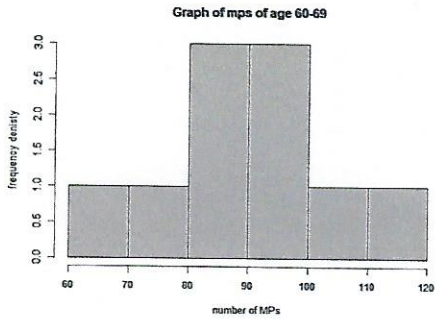
Looking at the data one can observe that most MPs were elected between the ages of 40-49 and 50-59. This enables us to say that the data is bimodal (i.e. has two most frequently occurring age values).

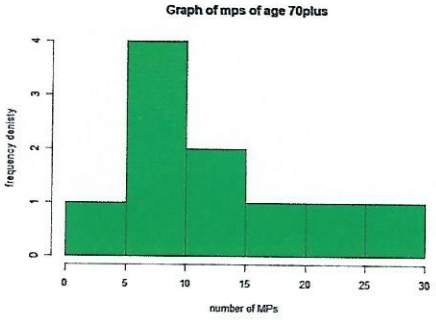
GRAPHS SHOWING THE NUMBER OF MPs ELECTED WITH REGARDS TO THEIR AGE GROUPS

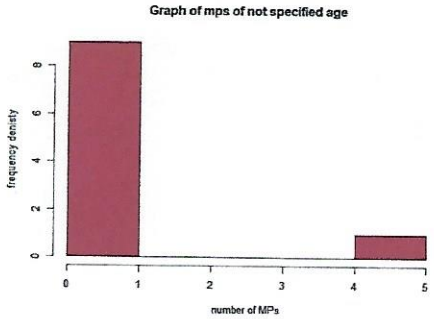


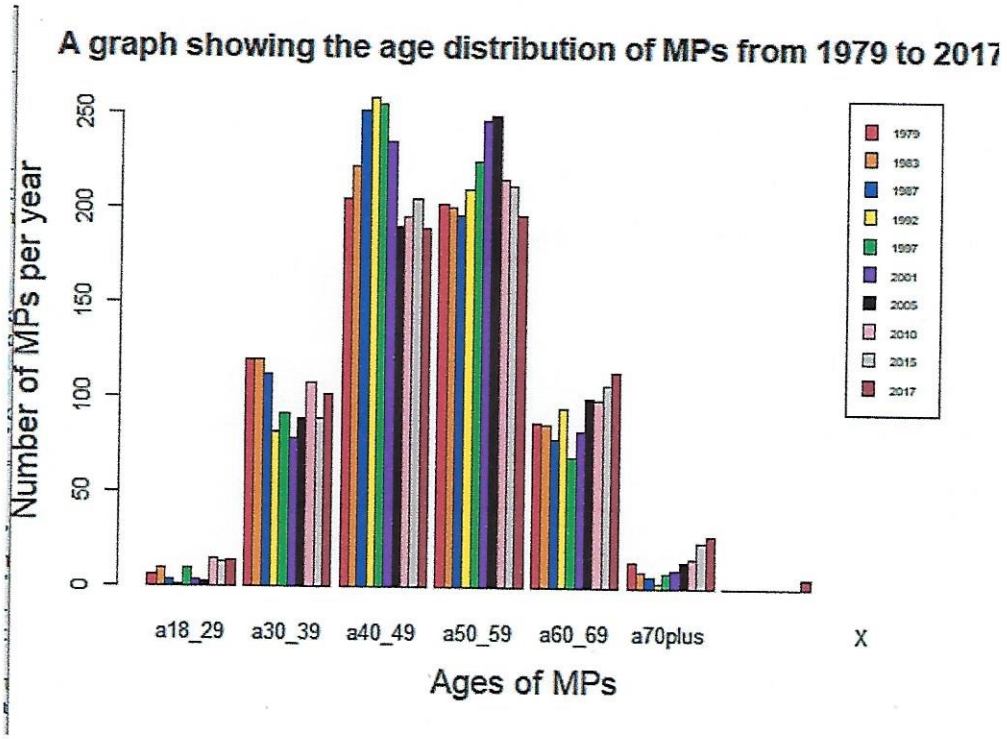
The graph showing the number of MPs between the ages of 60-69 was approximately normal.

Finally, we had the graph of MPs between the ages of 70 plus to be positively skewed. This showed that a lower number of MPs will fall within that category, since it had a low modal value of MPs.


Graph of mps of age 60-69
frequency density
number of MPs


Graph of mps of age 70plus
frequency density
number of MPs


Graph of mps of not specified age
frequency density
number of MPs


A graph showing the age distribution of MPs from 1979 to 2017
Number of MPs per year
0
50
100
150
200
250
1979
1983
1987
1992
1997
2001
2005
2010
2015
2017
a18_29
a30_39
a40_49
a50_59
a60_69
a70plus
X
Ages of MPs

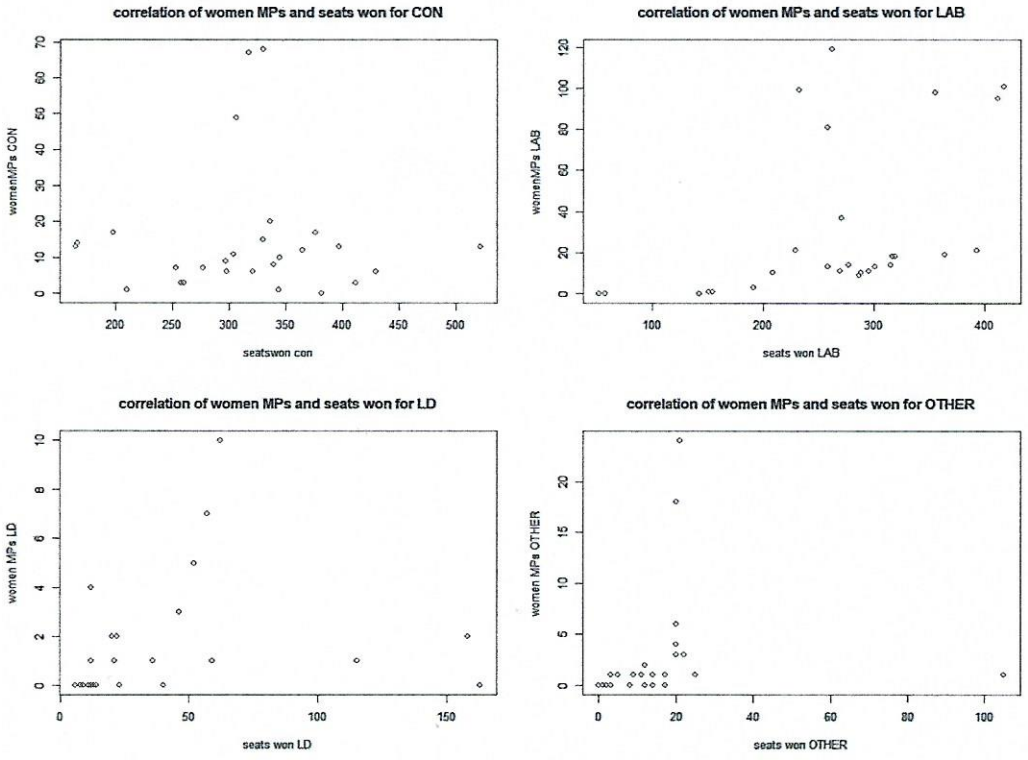
Apart from this interesting fact, we can show that most MPs elected fell between the ages of 40 to 49 and 50 to 59 using the bar plot above.

3. ***Is there a correlation between the seats won by MPs and the number of women MPs?***

The scatter graph below shows how the seats won by MPs correlates to that of the elected female MPs. Analysing the graph, we observe that the all the graphs have a weak positive correlation. We can infer a weak positive correlation due to the points being scattered away from each other. This can be seen especially in the graph for other and liberal democrats.

Moreover, the correlation coefficient for labour was 0.46471 and that of conservative was 0.006985 using the Pearson method on R. also, we can observe that the labour party had more women MPs compared to the other parties such as the conservatives, liberal democrats and other.

In addition to this, the graphs tell us that if a party wins more seats, more women MPs are likely to be elected.



GRAPHS ILLUSTRATING THE CORRELATION OF WOMENS MPsAND SEATS WON BY RESPECTIVE PARTIES

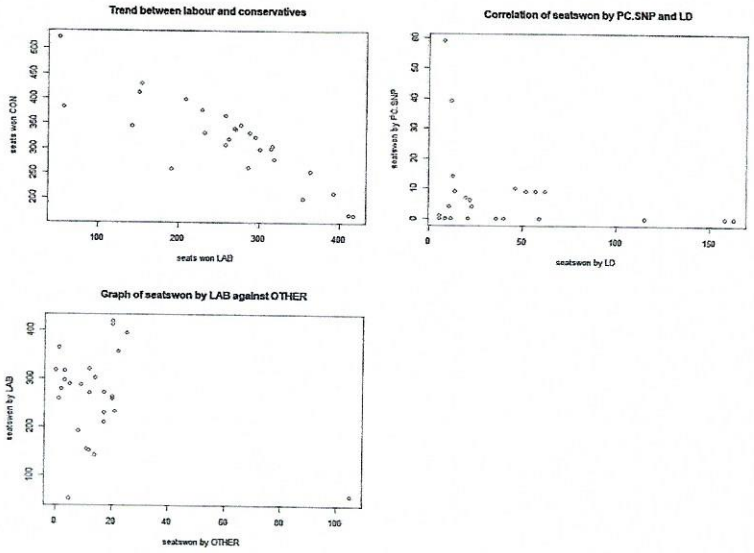
4. ***Does winning the election by a party influence another party's chance of winning?***

From the graph above we can observe the relationship between the seats won by labour (LAB) and that of conservative (CON). We also see that the same relationship exists between Liberal democrats (LD) and the Plaid Cymru and the Scottish National Party.

Also, this can be proven by the Pearson correlation coefficient which gives a value between -1 and 1. We obtained a value of -0.8527(4dp) for labour and the conservative party and -0.2000(4dp) for the PC.SNP and the liberal democrats. This showed that if the latter party wins more seats the other loses seats.

So, for labour and conservative this relationship was more likely to happen since they had a larger correlation coefficient. That of liberal democrats and PCSNP was likely to happen but its chance is smaller

A GRAPH SHOWING THE TREND BETWEEN SEATS WON OF OPPONENT PARTIES



Results and Conclusions

From the statistics and graphical summaries, we have obtained that there is a strong positive correlation between the proportion of votes won by each of the 4 parties and the number of seats won by each party. This tells us that generally if a party has a high proportion of votes won then their number of seats won would be large. Which intuitively makes sense as we would normally expect a party with a high proportion of votes to have many seats won.

Our answers and conclusions to the questions posed above are:

1. Yes, there is a relationship between the seats won by MPs and the share of votes by respective political parties. To sum up, we noted that the seats won by a party influences the proportion of votes they had. We also noted that some of the values of the share of votes did not add up to exactly 1, they were either less than or greater than 0ne. an example was the second 1974 election results. We concluded that this may had been due to rounding off numbers. We also do not think this will affect the results since it's a proportion.
2. Yes, there is an age group which was most elected frequently. We concluded that this may be due to that most middle-aged people (40-59 years) are believed to have enough experience to

be MPs while the young are inexperienced and the old weary from ageing as well as 50-59 years of age.

3. In general there is a weak correlation between the number of seats won and the number of female MPs who won seats but we found an interesting time period when the spike upwards in the number of female seats won by Labour party led to Labour party having the highest number of seats won among the other parties. This time period was from 1997 to 2005 were we noticed the influence of the number of seats won by female MPs on the number of seats won by a party. This was due to various reasons but from the data set we have seen that it is due to more women being elected as MPs in Labour Party then previous years. We had expected the number of seats won by women MPs not to influence the number of seats won but at some point it did which was an interesting result we only saw after analysing the data as to why Labour party had its maximum number of seats won in 1977. Our conclusion may not be entirely valid since women MPs data set had no data on SNP.PC political party.
4. We see that there is a strong negative correlation between the seats won by Labour Party and the seats won by Conservative Party. This tells us that as Conservative Party has a high number of seats won then Labour Party would have a lower number of seats won. This is to be expected as the number of seats is limited and therefore if a party has majority of seats won then the rest of the parties would have less seats won. Therefore, we can say that if one party wins it affects the chance of the other party winning in that year but not the next year.

NB We must also not confuse correlation for causation, since other external factors may apply. Such factors may include economic crisis, the banning of a political party and so on.

References

[D. Broughton, "Plaid Cymru," Britannica, 13 12 2019. [Online]. Available:
1 https://www.britannica.com/topic/Plaid-Cymru. [Accessed 16 02 2020].
]

[WIKIPEDIA, "PLAID CYMRU," 15 02 2020. [Online]. Available:
2 https://en.wikipedia.org/wiki/Plaid_Cymru.
]

[S. Politics, "How do elections work," Simple Politics, 07 05 2017. [Online]. Available:
3 https://www.bing.com/videos/search?q=how+do+general+elections+work+in+the+uk&&view=de
] tail&mid=46CDBBF6F9E1B17B902B46CDBBF6F9E1B17B902B&rvsmid=7DD00282B4542FBF37C77
DD00282B4542FBF37C7&FORM=VDMCNR. [Accessed 13 02 2020].

[Dr.R.McCrea, "Data set Assessment1," University of Kent, 02 2020. [Online]. Available:
4 https://moodle.kent.ac.uk/2019/mod/folder/view.php?id=295637. [Accessed 12 02 2020].
]

Appendix of R Codes

```
#set working directory

setwd("~/R")

#Import data set

#view data set

ageelected1 <- read.delim("~/R/ageelected1.txt")

View(ageelected1)

seatswon1 <- read.delim("~/R/seatswon1.txt")

View(seatswon1)

womenMPs1 <- read.delim("~/R/womenMPs1.txt")

View(womenMPs1)

shareofvote1 <- read.delim("~/R/shareofvote1.txt")

View(shareofvote1)



#-------------------------------------------------

#Question1.Is there a relationship between the proportion of votes won by a particular party and the number of seats won?

# Correlation between Seatswon by LABOUR and the share of votes by LABOUR and plot of correlation

par(mfrow=c(2,2))

corlab<-cor(seatswon1$LAB,shareofvote1$LAB,use = "everything", method = "pearson")

#plot command plots the graph

plot(seatswon1$LAB,shareofvote1$LAB,xlab="Seats won by LAB",ylab = "Share of vote by
LAB",main="Graph of share of vote against seats won by LAB")


abline(lm(shareofvote1$LAB~seatswon1$LAB),colo="red")

corlab

#-----------------------------------------------------------------------
```

 # Correlation between Seatswon by LIBERAL DEMOCRATS and the share of votes by LIBERAL DEMOCRATS and plot of correlation

```
corld<-cor(seatswon1$LD,shareofvote1$LD,use = "everything", method = "pearson")

plot(seatswon1$LD,shareofvote1$LD,xlab = "Seats won by LD",ylab="Share of vote by
LD",main="Graph of share of vote against seats won by LD")

abline(lm(shareofvote1$LD~seatswon1$LD),colo="red")

corld
```

```
#-------------------------------------------------------------------------------
```

 # Correlation between Seatswon by PLAID CYMRU.SCOTTISH NATIONAL PARTY and the share of votes by PC.SNP and plot of correlation

#cor find the correlation coeeficient

```
corpc.snp<-cor(seatswon1$PC.SNP,shareofvote1$PC.SNP,use = "everything", method = "pearson")

plot(seatswon1$PC.SNP,shareofvote1$PC.SNP,xlab = "Seatswon by PC.SNP",ylab = "Share of vote by
PC.SNP",main="Graph of share of vote against seats won by PC.SNP")

abline(lm(shareofvote1$PC.SNP~seatswon1$PC.SNP),colo="red")

corpc.snp
```

```
#-----------------------------------------------------------------
```

 # Correlation between Seatswon by OTHER and the share of votes by OTHER and plot of correlation

```
cother<-cor(seatswon1$OTHER,shareofvote1$OTHER,use = "everything",method="pearson")

plot(seatswon1$OTHER,shareofvote1$OTHER,xlab = "Seatswon by OTHER",ylab ="Shareofvote
OTHER",main="Graph of share of vote against seats won by OTHER")

abline(lm(shareofvote1$OTHER~seats1won$OTHER),colo="red")

cother
```

 # Correlation between Seatswon by Con and the share of votes by Con and plot of correlation

```
corcon<-cor(seatswon1$CON,shareofvote1$CON,use = "everything", method = "pearson")

plot(seatswon1$CON,shareofvote1$CON,xlab = "seatswon CON",ylab="shareofvote
CON",main="graph of share of vote against seats won by CON")

corcon
```

```
#-----------------------------------------------------------
```

#QUESTION 2

#Descriptive statistics

```
par(mfrow=c(2,2))
```

#Histogram of seatwon by conservative

```
hist(seatswon1$CON,col="blue",xlab = "number of seats",ylab = "frequency density",main = "Seats won by Conservatives")
```

#Histogram of seatwon by labour

```
hist(seatswon1$LAB,col = "red",xlab = "number of seats",ylab = "frequency density",main = "Seats won by Labour")
```

#Histogram of seatwon by PC.SNP

```
hist(seatswon1$PC.SNP,col = "brown",xlab = "number of seats",ylab = "frequency density",main = "Seats won by PC.SNP")
```

#Histogram of seatwon by OTHER

```
hist(seatswon1$OTHER,col="green",xlab = "number of seats",ylab = "frequency density",main = "Seats won by Other")
```

#Histogram of seatwon by Liberal democrats

```
hist(seatswon1$LD,col="pink",xlab = "number of seats",ylab="frequency density",main="Seats won by Liberal democrats")
```

#----------

#Descriptive statistics

#summary of each dataset

```
summary(ageelected1)
summary(seatswon1)
summary(shareofvote1)
summary(womenMPs1)
```

#----------

#----------

#(part 1)What age category was elected most?

#partition the page, so that you can plot four graphs per page

```
par(mfrow=c(2,2))

#

#hist is used to lot a histogram, xlab defines the x-axis and ylab defines the y-axis. Main is used to give the graph a title

hist(ageelected1$a18_29,col="blue",xlab ="number of MPs" ,ylab ="frequency denisty" ,main = "Graph of mps of age 18-29")

hist(ageelected1$a30_39,col="pink",xlab ="number of MPs" ,ylab ="frequency denisty" ,main = "Graph of mps of age 30-39")

hist(ageelected1$a40_49,col="red",xlab ="number of MPs" ,ylab ="frequency denisty" ,main = "Graph of mps of age 40-49")

hist(ageelected1$a50_59,col="red",xlab ="number of MPs" ,ylab ="frequency denisty" ,main = "Graph of mps of age 50-59")

hist(ageelected1$a60_69,col="grey",xlab ="number of MPs" ,ylab ="frequency denisty" ,main = "Graph of mps of age 60-69")

hist(ageelected1$a70plus,col="green",xlab ="number of MPs" ,ylab ="frequency denisty" ,main = "Graph of mps of age 70plus")

hist(ageelected1$aNot_specified,col="brown",xlab ="number of MPs" ,ylab ="frequency denisty" ,main = "Graph of mps of not specified age")

#Define your colours

colours <- c("red", "orange", "blue", "yellow", "green","purple","black","pink","grey","brown")

barplot(as.matrix(ageelected1), main="A graph showing the age distribution of MPs from 1979 to 2017", ylab = "Number of MPs per year", cex.lab = 1.5, cex.main = 1.4, beside=TRUE, col=colours,width = 5,xlab = "Ages of MPs")

legend("topright", c("1979","1983","1987","1992","1997","2001","2005","2010","2015","2017"), cex=0.5, bty="y", fill=colours)

#---------------------------------------

#(part 2)Is there a relationship between the share of votes and women MPs?

par(mfrow=c(2,2))

#plot function plots a scatter graph for you

plot(seatswon1$CON,womenMPs1$CON,xlab = "seatswon con",ylab="womenMPs CON",main="correlation of women MPs and seats won for CON")

#abline draws the trendline

abline(lm(seatswon1$CON~womenMPs1$CON),col="blue")

#cor calculates the correlation coefficient

corwmcon<-cor(womenMPs1$CON,seatswon1$CON,use = "everything", method = "pearson")
```

```
abline(lm(seatswon1$CON~womenMPs1$CON),col="red")

plot(seatswon1$LAB,womenMPs1$LAB,xlab="seats won LAB",ylab="womenMPs
LAB",main="correlation of women MPs and seats won for LAB")

corwmlab<-cor(womenMPs1$LAB,seatswon1$LAB,use = "everything", method = "pearson")


plot(seatswon1$LD,womenMPs1$LD,xlab = "seats won LD",ylab = "women MPs
LD",main="correlation of women MPs and seats won for LD")

plot(seatswon1$OTHER,womenMPs1$OTHER,xlab = "seats won OTHER",ylab = "women MPs
OTHER",main="correlation of women MPs and seats won for OTHER")

#-----------------------------------------------------------------


#(part 3)

#Does winning the election by a party influence another party's chance of winning? How(any
statistical proof), when and examples?

#partitioning of the page into 1 row and 2 columns to enable 4 graphs to fit on one page

par(mfrow=c(2,2))

#plot a graph of seatswon by CON against LAB

plot(seatswon1$LAB,seatswon$CON,main = "Trend between labour and conservatives",xlab = "seats
won LAB",ylab = "seats won CON")

#correlation coefficient of seatswon by LAB against CON

corconlab<-cor(seatswon1$CON,seatswon1$LAB,use = "everything", method = "pearson")

#This enables you to reprint the correlation coefficient value

corconlab


plot(seatswon1$LD,seatswon1$PC.SNP,xlab = "seatswon by LD",ylab="seatswon by
PC.SNP",main="Correlation of seatswon by PC.SNP and LD")


corpcsnpld<-cor(seatswon1$PC.SNP,seats$LD,use = "everything", method = "pearson")

#Read the correlation coefficient value

corpc.snpld

#plot correlation graph of seatswon by PC.SNP against CON
```

```
plot(seatswon1$CON,seatswon1$PC.SNP,xlab = "seatswon by CON",ylab = "seatswon by
PC.SNP",main = "Graph of seatswon by PC.SNP against LAB")
```

#plot correlation graph of seatswon by LAB against OTHER

```
plot(seatswon1$OTHER,seatswon1$LAB,xlab = "seatswon by OTHER",ylab = "seatswon by LAB",main
= "Graph of seatswon by LAB against OTHER")
```

#----------