Irish data

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##Import libraries

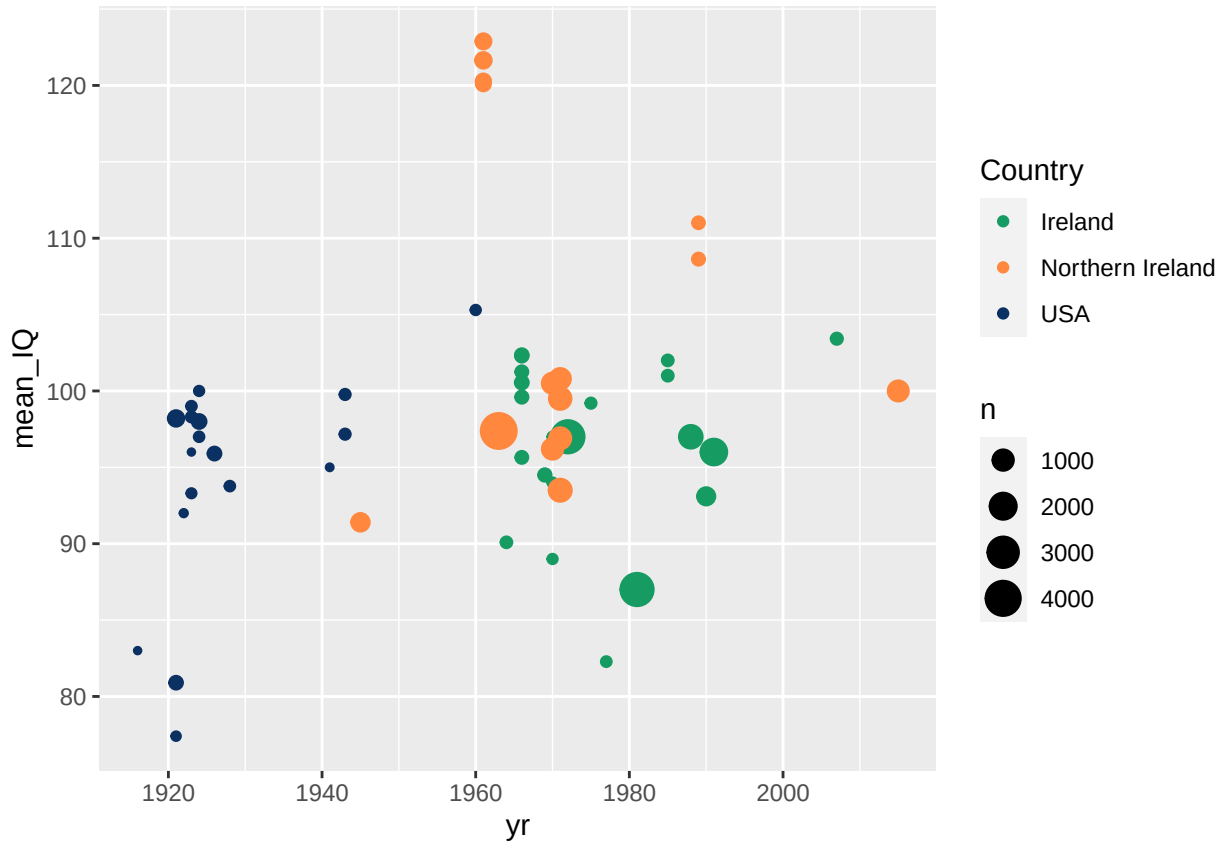
```
library(psych)
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.4.0      v purrr   0.3.5
## v tibble  3.1.8      v dplyr   1.0.10
## v tidyr   1.2.1      v stringr 1.5.0
## v readr   2.1.3      v forcats 0.5.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x ggplot2::%+%()   masks psych::%+%()
## x ggplot2::alpha() masks psych::alpha()
## x dplyr::filter()  masks stats::filter()
## x dplyr::lag()     masks stats::lag()
```

##Import unweighted data file

```
setwd("C:/Users/russw/OneDrive/Documents/UVU archive/Non-Peer Reviewed Docs/Irish IQ")
df1 <- read.csv("IrishData.csv")
```

##Create scatterplot



##Descriptive statistics (unweighted data)

```
describe(df1, type = 2)
```

```
##           vars  n    mean     sd  median trimmed    mad    min     max   range
## Authors*     1 55   18.42   8.61   20.00   18.78  10.38    1.0   31.00   30.00
## yr           2 55 1959.64  26.14 1966.00 1959.13  28.17 1916.0 2015.00   99.00
## n            3 55  522.56 887.28  170.00  317.20 185.32    1.0 4215.00 4214.00
## mean_IQ      4 55   98.27   8.95   97.38   97.74   5.01   77.4  122.89   45.49
## V_NV*        5 55    3.22   1.63    3.00    3.27   2.97    1.0    5.00    4.00
## Test*        6 55   12.04   6.16   13.00   12.11   5.93    1.0   24.00   23.00
## Country*     7 55    1.93   0.86    2.00    1.91   1.48    1.0    3.00    2.00
##            skew kurtosis     se
## Authors* -0.31    -0.94   1.16
## yr       -0.09    -0.69   3.52
## n         2.84     8.26 119.64
## mean_IQ   0.72     2.01   1.21
## V_NV*    -0.18    -1.53   0.22
## Test*    -0.18    -0.79   0.83
## Country*  0.14    -1.64   0.12
```

##Unweighted group means by country

```
describeBy(df1$mean_IQ, df1$Country)
```

```
##
##  Descriptive statistics by group
## group: Ireland
```

```
##    vars  n  mean   sd median trimmed  mad   min    max range  skew kurtosis
## X1    1 22 96.55 5.55     97   97.17 5.52 82.28 103.42 21.14 -0.89    -0.04
##      se
## X1 1.18
## ------------------------------------------------------------
## group: Northern Ireland
##    vars  n   mean    sd median trimmed   mad  min    max range skew kurtosis
## X1    1 15 105.38 11.07  100.5  105.11 10.38 91.4 122.89 31.49 0.47     -1.5
##      se
## X1 2.86
## ------------------------------------------------------------
## group: USA
##    vars  n  mean   sd median trimmed  mad  min   max range  skew kurtosis   se
## X1    1 18 94.44 7.16   96.5   94.83 3.88 77.4 105.3  27.9 -1.07     0.22 1.69
```

##Correlation between study year and sample mean IQ (unweighted data)

```
cor.test(~ yr + mean_IQ,na.action="na.exclude", data = df1)
```

```
##
##  Pearson's product-moment correlation
##
## data:  yr and mean_IQ
## t = 2.0548, df = 53, p-value = 0.04484
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.006835105 0.500843478
## sample estimates:
##       cor
## 0.2716397
```

##Correlation between study year and sample mean IQ (weighted data)

```
weight_vector <- df1$n
df2 <- subset(df1, , select = c("yr", "mean_IQ"))
weighted_corr <-cov.wt(df2, wt = weight_vector, cor = TRUE)
weighted_corr$cor
```

```
##                  yr     mean_IQ
## yr       1.00000000 -0.08703846
## mean_IQ -0.08703846  1.00000000
```

##Weighted mean (all data)

```
dfUSA <- subset(df1, Country == "USA")
dfNoIreland <- subset(df1, Country == "Northern Ireland")
dfIreland <- subset(df1, Country == "Ireland")
weighted_mean_all <-weighted.mean(df1$mean_IQ, df1$n)
weighted_mean_USA <-weighted.mean(dfUSA$mean_IQ, dfUSA$n)
weighted_mean_NI <-weighted.mean(dfNoIreland$mean_IQ, dfNoIreland$n)
weighted_mean_Ireland <-weighted.mean(dfIreland$mean_IQ, dfIreland$n)
weighted_mean_all
```

```
## [1] 97.23108
```

```
weighted_mean_USA
```

```
## [1] 95.40149
```

```
weighted_mean_NI
```

```
## [1] 100.1626
```

```
weighted_mean_Ireland
```

```
## [1] 94.27736
```

##Drop outlier samples by changing sample size to zero

```
df3 <-df1
df3[2,3] = 0
df3[4,3] = 0
df3[20,3] = 0
df3[21,3] = 0
df3[22,3] = 0
df3[23,3] = 0
```

##Recalculate weighted means for remaining samples

```
dfUSAreweight <- subset(df3, Country == "USA")
dfNoIrelandreweight <- subset(df3, Country == "Northern Ireland")
reweighted_mean_all <-weighted.mean(df3$mean_IQ, df3$n)
reweighted_mean_USA <-weighted.mean(dfUSAreweight$mean_IQ, dfUSAreweight$n)
reweighted_mean_NI <-weighted.mean(dfNoIrelandreweight$mean_IQ,
                                   dfNoIrelandreweight$n)
reweighted_mean_all
```

```
## [1] 96.09854
```

```
reweighted_mean_USA
```

```
## [1] 97.78177
```

```
reweighted_mean_NI
```

```
## [1] 97.7707
```

##Recalculate weighted means for Ireland without Lynn data

```
df3[28,3] = 0
df3[46,3] = 0
df3[48,3] = 0
df3[49,3] = 0
reweighted_mean_all <-weighted.mean(df3$mean_IQ, df3$n)
dfIrelandreweight <- subset(df3, Country == "Ireland")
reweighted_mean_Ireland <-weighted.mean(dfIrelandreweight$mean_IQ,
                                        dfIrelandreweight$n)
reweighted_mean_all
```

```
## [1] 97.72194
```

```
reweighted_mean_Ireland
```

```
## [1] 97.46583
```