INST314 - HW3

2- Picture below

3- Picture below

4 - # A tibble: 3 × 3

Year	Mean	StandardDeviation
<chr>	<dbl>	<dbl>
1 2006	0.663	0.0585
2 2010	0.683	0.0635
3 2013	0.690	0.0621

5 - shapiro.test(GlobalGap_O$X2006)

Shapiro-Wilk normality test

data: GlobalGap_O$X2006
W = 0.97782, p-value = 0.06336

>
> shapiro.test(GlobalGap_O$X2010)

Shapiro-Wilk normality test

data: GlobalGap_O$X2010
W = 0.97952, p-value = 0.08864

>
> shapiro.test(GlobalGap_O$X2013)

Shapiro-Wilk normality test

data: GlobalGap_O$X2013
W = 0.9843, p-value = 0.2245

9 - Paired t-test

data: GlobalGap_O$X2006 and GlobalGap_O$X2013
t = -10.87, df = 109, p-value < 2.2e-16
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
-0.03254020 -0.02250343
sample estimates:
mean difference

-0.02752182

Q10 -
H0: μ2006 - μ2013 = 0
Ha: μ2006 - μ2013 ≠ 0

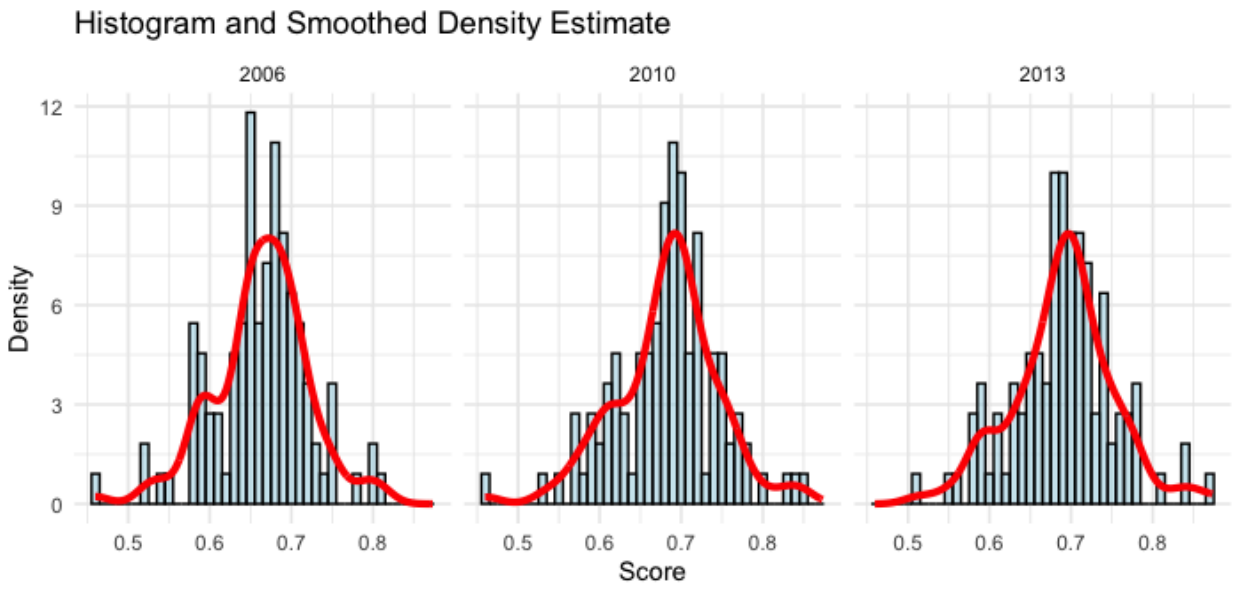
Null Hypothesis (H0): There is no substantial difference in average GII scores from 2006 and 2013

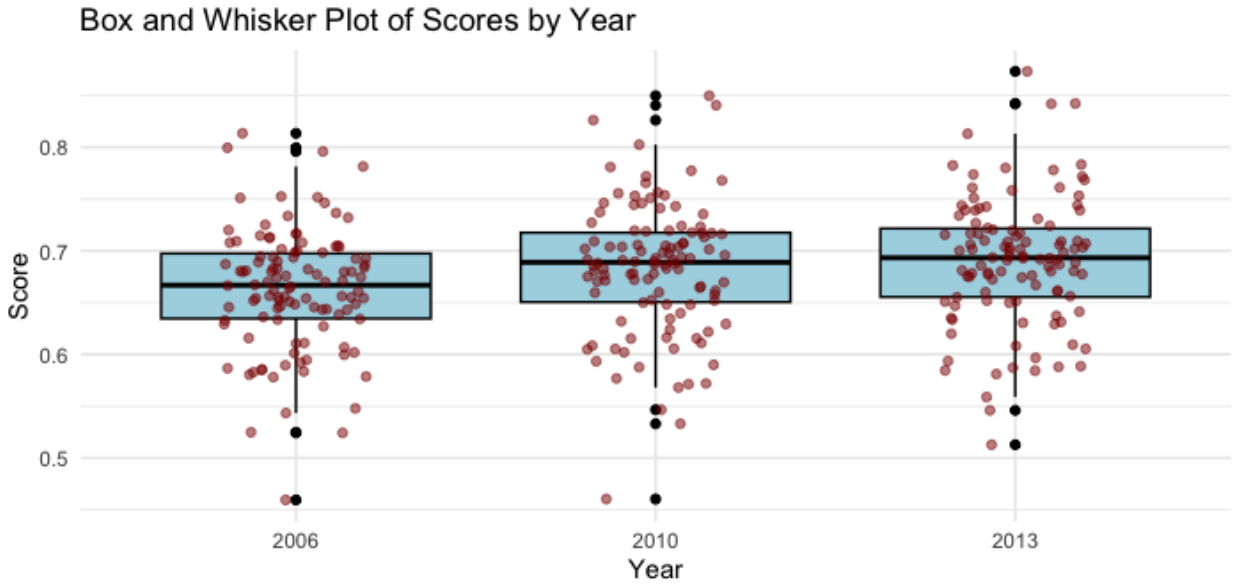
Alternative Hypothesis (Ha): Between 2006 and 2013, each country's average GII scores differed significantly.

Q11 - Paired t-test

data: GlobalGap_O$X2006 and GlobalGap_O$X2013
t = -10.87, df = 109, p-value < 2.2e-16
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
 -0.03254020 -0.02250343
sample estimates:
mean difference
    -0.02752182

We reject the null hypothesis with a p-value of less than 2.2e-16, therefore the confidence ranges do not overlap. There is a statistically significant difference between years.


Histogram and Smoothed Density Estimate
2006
2010
2013
Density
12
9
6
3
0
0.5
0.6
0.7
0.8
Score


Box and Whisker Plot of Scores by Year
Score
0.8
0.7
0.6
0.5
2006
2010
2013
Year