Unit6Q3

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### ANOVA

setwd("C:/Users/davxd/Documents/GitHub/myfolders/Stats Unit 6 Homework")  
  
ex0525 <- read.table("ForRex0525.csv", sep = ",",header = TRUE)  
Education <- data.frame(ex0525)  
fit = aov(Income2005~Educ, data = Education)  
summary(fit)

## Df Sum Sq Mean Sq F value Pr(>F)   
## Educ 4 6.882e+11 1.721e+11 89.61 <2e-16 \*\*\*  
## Residuals 2579 4.952e+12 1.920e+09   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### 95% COnfidence Intervals

pairwiseCI(Income2005~Educ, data = Education)

##   
## 95 %-confidence intervals   
## Method: Difference of means assuming Normal distribution, allowing unequal variances   
##   
##   
## estimate lower upper  
## >16-<12 48554 41022 56086  
## 12-<12 8563 4574 12552  
## 13-15-<12 16575 12164 20985  
## 16-<12 41696 34500 48891  
## 12->16 -39991 -46882 -33100  
## 13-15->16 -31980 -39124 -24835  
## 16->16 -6858 -15985 2268  
## 13-15-12 8011 4835 11187  
## 16-12 33132 26610 39654  
## 16-13-15 25121 18332 31910  
##   
##

### Tukey

gfit = glht(fit, linfct = mcp(Educ = "Tukey"))  
summary(gfit,test= adjusted(type= "none"))

##   
## Simultaneous Tests for General Linear Hypotheses  
##   
## Multiple Comparisons of Means: Tukey Contrasts  
##   
##   
## Fit: aov(formula = Income2005 ~ Educ, data = Education)  
##   
## Linear Hypotheses:  
## Estimate Std. Error t value Pr(>|t|)   
## >16 - <12 == 0 48554 4388 11.066 < 2e-16 \*\*\*  
## 12 - <12 == 0 8563 4000 2.141 0.032380 \*   
## 13-15 - <12 == 0 16575 4133 4.010 6.23e-05 \*\*\*  
## 16 - <12 == 0 41696 4341 9.604 < 2e-16 \*\*\*  
## 12 - >16 == 0 -39991 2649 -15.098 < 2e-16 \*\*\*  
## 13-15 - >16 == 0 -31980 2846 -11.239 < 2e-16 \*\*\*  
## 16 - >16 == 0 -6858 3140 -2.184 0.029062 \*   
## 13-15 - 12 == 0 8011 2201 3.639 0.000279 \*\*\*  
## 16 - 12 == 0 33132 2571 12.885 < 2e-16 \*\*\*  
## 16 - 13-15 == 0 25121 2774 9.058 < 2e-16 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
## (Adjusted p values reported -- none method)

confint(gfit)

##   
## Simultaneous Confidence Intervals  
##   
## Multiple Comparisons of Means: Tukey Contrasts  
##   
##   
## Fit: aov(formula = Income2005 ~ Educ, data = Education)  
##   
## Quantile = 2.7047  
## 95% family-wise confidence level  
##   
##   
## Linear Hypotheses:  
## Estimate lwr upr   
## >16 - <12 == 0 48554.0140 36686.6617 60421.3664  
## 12 - <12 == 0 8563.4475 -2255.4593 19382.3544  
## 13-15 - <12 == 0 16574.5083 5396.2258 27752.7907  
## 16 - <12 == 0 41695.5244 29953.5487 53437.5000  
## 12 - >16 == 0 -39990.5665 -47154.7962 -32826.3368  
## 13-15 - >16 == 0 -31979.5058 -39675.7023 -24283.3093  
## 16 - >16 == 0 -6858.4897 -15352.6898 1635.7104  
## 13-15 - 12 == 0 8011.0607 2057.3951 13964.7263  
## 16 - 12 == 0 33132.0768 26177.5007 40086.6529  
## 16 - 13-15 == 0 25121.0161 17619.5908 32622.4414

### Dunnette

Education$Educ=relevel(Education$Educ, ref = "12")  
fit = aov(Income2005~Educ, data = Education)  
gfit = glht(fit, linfct = mcp(Educ = "Dunnett"))  
summary(gfit)

##   
## Simultaneous Tests for General Linear Hypotheses  
##   
## Multiple Comparisons of Means: Dunnett Contrasts  
##   
##   
## Fit: aov(formula = Income2005 ~ Educ, data = Education)  
##   
## Linear Hypotheses:  
## Estimate Std. Error t value Pr(>|t|)   
## <12 - 12 == 0 -8563 4000 -2.141 0.11807   
## >16 - 12 == 0 39991 2649 15.098 < 1e-04 \*\*\*  
## 13-15 - 12 == 0 8011 2201 3.639 0.00111 \*\*   
## 16 - 12 == 0 33132 2571 12.885 < 1e-04 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
## (Adjusted p values reported -- single-step method)

confint(gfit)

##   
## Simultaneous Confidence Intervals  
##   
## Multiple Comparisons of Means: Dunnett Contrasts  
##   
##   
## Fit: aov(formula = Income2005 ~ Educ, data = Education)  
##   
## Quantile = 2.4808  
## 95% family-wise confidence level  
##   
##   
## Linear Hypotheses:  
## Estimate lwr upr   
## <12 - 12 == 0 -8563.4475 -18486.7924 1359.8973  
## >16 - 12 == 0 39990.5665 33419.3737 46561.7593  
## 13-15 - 12 == 0 8011.0607 2550.2246 13471.8968  
## 16 - 12 == 0 33132.0768 26753.1831 39510.9706

You can also embed plots, for example:



Note that the echo = FALSE parameter was added to the code chunk to prevent printing of the R code that generated the plot.