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**SCORE:**

**Exercise 1: Analysis of Variance – 2006 GSS Data (ANOVA)**

Use the GSS06 database to answer the following questions about respondent’s educational attainment **(‘degree’)** and number of children **(‘childs’).** *(Completed during last lab- Let’s see how fast you could do this analysis)*

**In R output (degree: between and residuals: within)**

1. What is the value of the between group sum of squares? (SSB) 730
2. What is the value of the within group (residuals) sum of squares?

11989

1. What is the value of the mean square between?

182.59

1. What is the value of the mean square within (residuals)? 2.67
2. What is the value of the F-ratio? 68.4
3. Are the results statistically significant? What does this mean? Yes, the results statistically significant. That means the different is due to the random occurrence. It means respondent’s educational attainment affects the number of children.

**Exercise 2: Analysis of Variance – GSS 2016 Data**

Use the GSS16 database to answer the following questions about respondent’s educational attainment **(‘degree’)** and number of children **(‘childs’).**

1. What is the value of the between group sum of squares? 419
2. What is the value of the within group (residuals) sum of squares?

7519

1. What is the value of the mean square between?

104.84

1. What is the value of the mean square within (residuals)?

2.64

1. What is the value of the F-ratio? 39.73
2. Are the results statistically significant? What does this mean? Yes, the results statistically significant. That means the different is due to the random occurrence. It means respondent’s educational attainment affects the number of children.

**Observations and Conclusions: - Summary**

Based on the ANOVA for 2006 and 2016, we see that the respondent’s educational attainment affects the number of children respondents have for both years. We see that the F-ratio has reduced in 2016 which means the affect is less significant in 2016.