Activity 4.3: One-Way Analysis of Variance (ANOVA)

This activity uses the dataset **bankloan.xlxs** that is included in the Activity folder for this section. It consists twelve variables and 100 cases. The variables are

Age (Age in years)

Ed (education level)

Employ (years with current employer)

Address (years at current address)

Income (Household income.)

Debtinc (debt to income ratio.)

Creddebt (credit card debt in thousands)

Othdebt (Other debt in thousands)

Default (Previously defaulted) (Value: 0 = No, 1 = Yes)

Preddef1 (Predicted default model 1)

Preddef2 (Predicted default model 2)

Preddef3 (Predicted default model 3)

Set Up

You are going to compare the means of the three variables preddef1, preddef2, and preddef3 using the One-Way ANOVA.

In Excel, create a two-variable dataset: the first variable in Column A is Score, and the second variable in Column B is Preddef.

In column A copy all the scores for Preddef1 (from A2 to A101). In column B from B2 to B101, type a 1 (for Preddef1)

In column A copy all the scores for Preddef2 (from A102 to A202). In column B from B102 to B202, type a 2 (for Preddef2)

In column A copy all the scores for Preddef3 (from A203 to A303). In column B from B203 to B303, type a 3 (for Preddef3)

The first 10 rows of the new set will look like:

	A	B	C
1	**Score**	**Preddef**	
2	0.80839	1	
3	0.1983	1	
4	0.01004	1	
5	0.02214	1	
6	0.78159	1	
7	0.21671	1	
8	0.18596	1	
9	0.01471	1	
10	0.74804	1	
11	0.81506	1	
12			

Now save this set as **bankloan2** in Excel.

Import bankloan2 into SPSS, saving it as **bankloan2** in SPSS.

In variable view make the following definitions for the two variables.

Variable: Score Decimal = 3 measure = scale

Variable = Preddef . Value: 1 = preddef1 2 = Preddef 2 3 = Preddef 3. Measure = nominal

Procedure for one-way ANOVA with multiple comparison tests

1. From the menu at the top of the screen, click on **Analyze**, then select **Compare Means**, then **One-way ANOVA**.
2. Click on your dependent (continuous) variable (e.g., **Score**). Move this into the box marked **Dependent List** by clicking on the arrow button.
3. Click on your independent, categorical variable (**Preddef**). Move this into the box labelled **Factor**.
4. Click the **Post Hoc** button and place a check mark at Tukey. Down at the Null Hypothesis Test, at specify Significance Level, type 0.05 in the box.

5. Click the **Options** button and click on **Descriptive**, **Homogeneity of variance test**, **Welch test** and **Means Plot**. Ensure that the Confidence level says 95%
6. Click on **Continue** and then **OK** (or on **Paste** to save to **Syntax Editor**).

7. Read and Interpret the pertinent sections of the ANOVA Output.

8. Write a brief report on your findings.

- ★ Please create a copy of the Excel file and use the duplicate to complete the activity. Ensure no changes are made to the shared file