**APPENDIX - 1**

**SAS CODE USED**

/\*Sorting Data\*/

**proc** **sort** data=social\_media;

by group period;

**run**;

/\*Summary of Data\*/

title "Summary of Data";

**proc** **summary** data=social\_media print;

by group period;

var spending;

**run**;

/\*Mean of the Data\*/

title "Descriptive Statistics of the Data";

**proc** **means** data=social\_media;

class group period;

var spending;

**run**;

/\*X1 X2\*/

**data** social\_media1; set social\_media;

if group=**1** and period=**0** then type=**1**;

if group=**1** and period=**1** then type=**2**;

**run**;

/\*X2 X3\*/

**data** social\_media2; set social\_media;

if group=**1** and period=**1** then type=**2**;

if group=**0** and period=**0** then type=**3**;

**run**;

/\*X3 X4\*/

**data** social\_media3; set social\_media;

if group=**0** and period=**0** then type=**3**;

if group=**0** and period=**1** then type=**4**;

**run**;

/\*X4 X1\*/

**data** social\_media4; set social\_media;

if group=**0** and period=**1** then type=**4**;

if group=**1** and period=**0** then type=**1**;

**run**;

/\*X1 X3\*/

**data** social\_media5; set social\_media;

if group=**1** and period=**0** then type=**1**;

if group=**0** and period=**0** then type=**3**;

**run**;

/\*X2 X4\*/

**data** social\_media6; set social\_media;

if group=**0** and period=**1** then type=**4**;

if group=**1** and period=**1** then type=**2**;

**run**;

/\*T-Test X1 X2\*/

title "T-Test X1 X2 ";

**proc** **ttest** data=social\_media1 sides=**2** alpha=**0.05**;

class type;

var spending;

**run**;

/\*T-Test X2 X3\*/

title "T-Test X2 X3";

**proc** **ttest** data=social\_media2 sides=**2** alpha=**0.05**;

class type;

var spending;

**run**;

/\*T-Test X3 X4\*/

title "T-Test X3 X4";

**proc** **ttest** data=social\_media3 sides=**2** alpha=**0.05**;

class type;

var spending;

**run**;

/\*T-Test X4 X1\*/

title "T-Test X4 X1";

**proc** **ttest** data=social\_media4 sides=**2** alpha=**0.05**;

class type;

var spending;

**run**;

/\*T-Test X1 X3\*/

title "T-Test X1 X3";

**proc** **ttest** data=social\_media5 sides=**2** alpha=**0.05**;

class type;

var spending;

**run**;

/\*T-Test X2 X4\*/

title "T-Test X2 X4";

**proc** **ttest** data=social\_media6 sides=**2** alpha=**0.05**;

class type;

var spending;

**run**;

/\*Correlation Analysis between Period and Spending\*/

title "Correlation Analysis Between Period and Spending";

**proc** **corr** data=social\_media;

var period spending;

**run**;

/\*Regression – Analysis of Spending based on Group\*/

title "Regression - Analysis of Spending based on Group";

**proc** **reg** data=social\_media plots(maxpoints=**10000000**);

model spending= group;

**run**;

/\*adding group\*period variable\*/

**data** social\_media7; set social\_media;

group\_period=group\*period;

**run**;

/\*Regression – Analysis of Spending based on Group, Period and (Group\*Period)\*/

title "Regression - Analysis of Spending based on Group, Period and (Group\*Period)";

**proc** **reg** data=social\_media7 plots(maxpoints=**10000000**);

model spending = group period group\_period;

**run**;

/\*Regression – Analysis of Spending based on (Group\*Period)\*/

title "Regression - Analysis of Spending based on (Group\*Period)";

**proc** **reg** data=social\_media7 plots(maxpoints=**10000000**);

model spending = group\_period;

**run**;

/\*adding log Spending\*/

**data** social\_media8; set social\_media;

log\_spending=log(spending);

group\_period=group\*period;

**run**;

/\*Regression – Analysis of log(Spending) based on Group, Period and (Group\*Period)\*/

title "Regression - Analysis of log(Spending) based on Group, Period and (Group\*Period)";

**proc** **reg** data=social\_media8 plots(maxpoints=**10000000**);

model log\_spending= group period group\_period;

**run**;

/\*plotting a histogram of spending to see if distribution is skewed\*/

title "Checking if distribution is skewed for spending";

**proc** **univariate** data=social\_media8;

var spending;

histogram;

**run**;

/\*plotting a histogram of log(spending) to see if distribution is skewed\*/

title "Checking if distribution is skewed for log(spending)";

**proc** **univariate** data=social\_media8;

var log\_spending;

histogram;

**run**;

/\* Scatter Plot to See the Relationship between spending and (Group\*Period)\*/

title "Scatter Plot to See Relationship between Spending and (Group\*Period)";

**proc** **sgplot** data=social\_media8;

scatter x = group\_period y=spending;

**run**;

/\* Box Plot to Analyze the Presence of Outliers in spending Data\*/

title " Box Plot to Analyze the Presence of Outliers in Spending Data";

**proc** **sgplot** data=social\_media8;

vbox spending;

**run**;

/\* Box Plot to Analyze the Presence of Outliers in log(spending) Data\*/

title " Box Plot to Analyze the Presence of Outliers in log(Spending) Data";

**proc** **sgplot** data=social\_media8;

vbox log\_spending;

**run**;

/\*Regression – Analysis of log(Spending) based on (Group\*Period)\*/

title "Regression - Analysis of log(Spending) based on (Group\*Period)";

**proc** **reg** data=social\_media8 plots(maxpoints=**10000000**);

model log\_spending = group\_period;

**run**;

/\*Regression – Analysis of log(Spending) based on Group \*/

title "Regression - Analysis of log(Spending) based on Group";

**proc** **reg** data=social\_media8 plots(maxpoints=**10000000**);

model log\_spending = group;

**run**;

**APPENDIX - 2**

**SAS OUTPUTS**