

## The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
Customer_Id	28799	9.9556732E12	528668262	9.9556E12	9.9644E12
ZIP_CODE	28799	49023.47	24084.64	0	99687.00
FRE	28799	5.0390291	6.3491216	1.0000000	115.0000000
MON	28799	473.2124633	659.3274137	0.9900000	24140.33
CC_CARD	28799	0.3830341	0.4861350	0	1.0000000
AVRG	28799	113.5883176	86.9808026	0.4900000	1919.88
PSWEATERS	28799	0.2139460	0.2311677	-0.9700000	1.0000000
PKNIT_TOPS	28799	0.0272138	0.0680677	-0.3100000	1.0000000
PKNIT_DRES	28799	0.0411240	0.1109860	-0.7100000	1.0000000
PBLOUSES	28799	0.0930296	0.1355609	-0.6600000	1.0000000
PJACKETS	28799	0.1356939	0.1841386	-0.3600000	1.0000000
PCAR_PNTS	28799	0.0851193	0.1411686	-0.7700000	1.0000000
PCAS_PNTS	28799	0.0686125	0.1327096	-0.5000000	1.0000000
PSHIRTS	28799	0.0657492	0.1167469	-0.7500000	1.0000000
PDRESSES	28799	0.0683635	0.1579639	-0.4200000	1.0000000
PSUITS	28799	0.0333671	0.1300946	-0.5900000	1.0000000
POUTERWEAR	28799	0.0181944	0.1000981	-0.7300000	1.0000000
PJEWELRY	28799	0.0097621	0.0364999	-0.1100000	1.0000000
PFASHION	28799	0.0300010	0.0796572	-0.6700000	1.0000000
PLEGWEAR	28799	0.0127216	0.0500886	-0.1000000	1.0000000
PCOLLSPND	28799	0.0735088	0.1765617	-0.4400000	1.0000000
GMP	28799	0.5179412	0.1722468	-6.4600000	0.9900000
PROMOS	28799	11.5391159	7.1393560	0	38.0000000
DAYS	28799	436.9161776	192.9708984	1.0000000	717.0000000
MARKDOWN	28799	0.1871020	0.1292032	0	0.9500000
CLUSTYPE	28799	15.1638599	12.2464390	0	50.0000000
PERCRET	28799	0.1291021	0.5431292	0	40.9200000
ln_days_between_purchases	28799	4.7932341	0.8727006	0	6.5800000
ln_lifetime_ave_time_betw_visits	28799	3.9237425	1.0204171	-2.4100000	5.9000000

## Multiple Linear Regression on Sales and other variables

### The REG Procedure

Model: MODEL1

Dependent Variable: sales sales

Number of Observations Read	20
Number of Observations Used	20

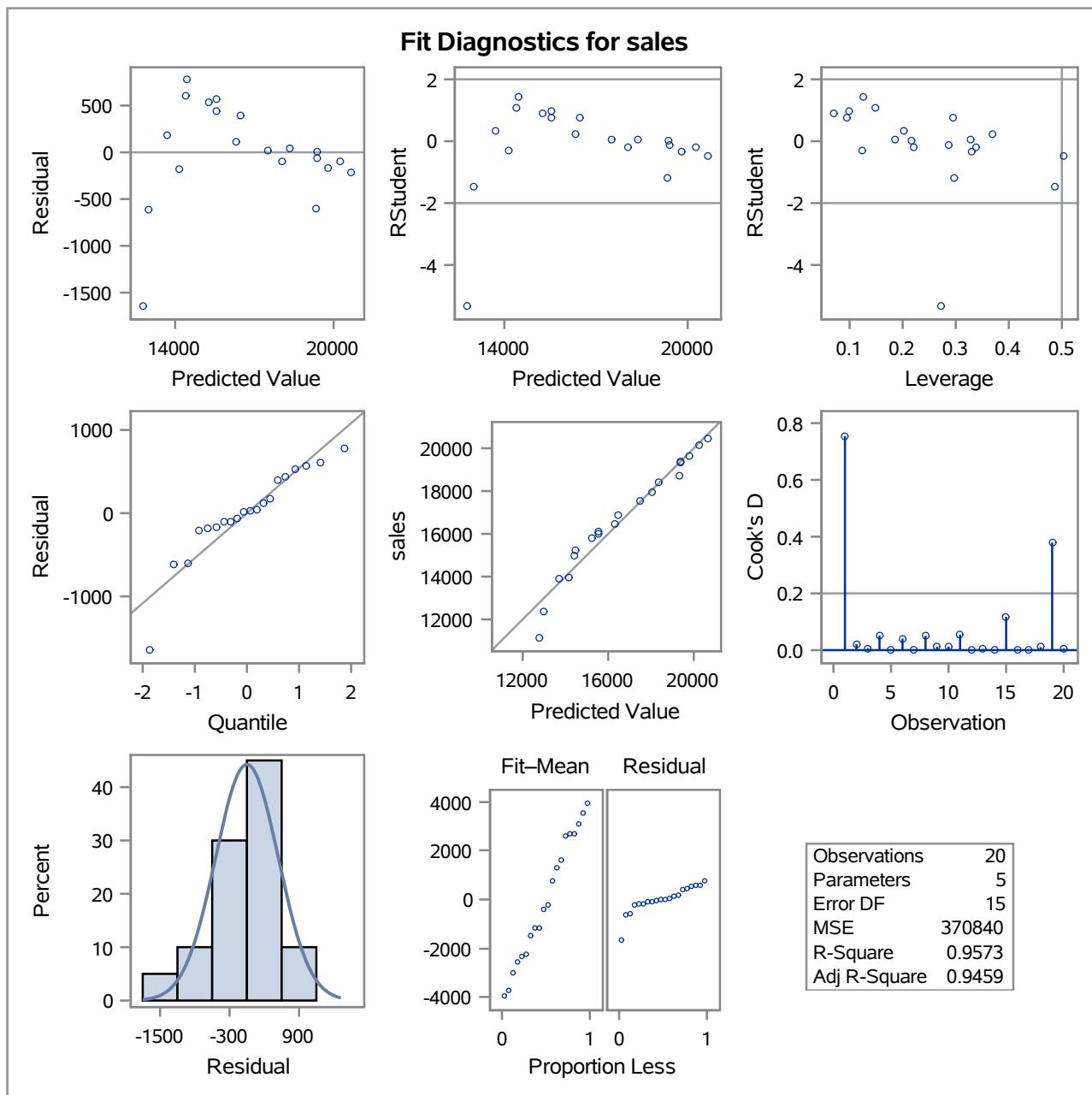
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	124567652	31141913	83.98	<.0001
Error	15	5562599	370840		
Corrected Total	19	130130251			

Root MSE	608.96631	R-Square	0.9573
Dependent Mean	16717	Adj R-Sq	0.9459
Coeff Var	3.64275		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	Intercept	1	-16897	7835.54458	-2.16	0.0477
radio	radio	1	260.90236	74.08319	3.52	0.0031
paper	paper	1	-5.33956	9.46031	-0.56	0.5808
TV	TV	1	53.01352	48.77893	1.09	0.2943
POS	POS	1	-52.20231	195.89640	-0.27	0.7935

## Multiple Linear Regression on Sales and other variables

**The REG Procedure**  
**Model: MODEL1**  
**Dependent Variable: sales sales**

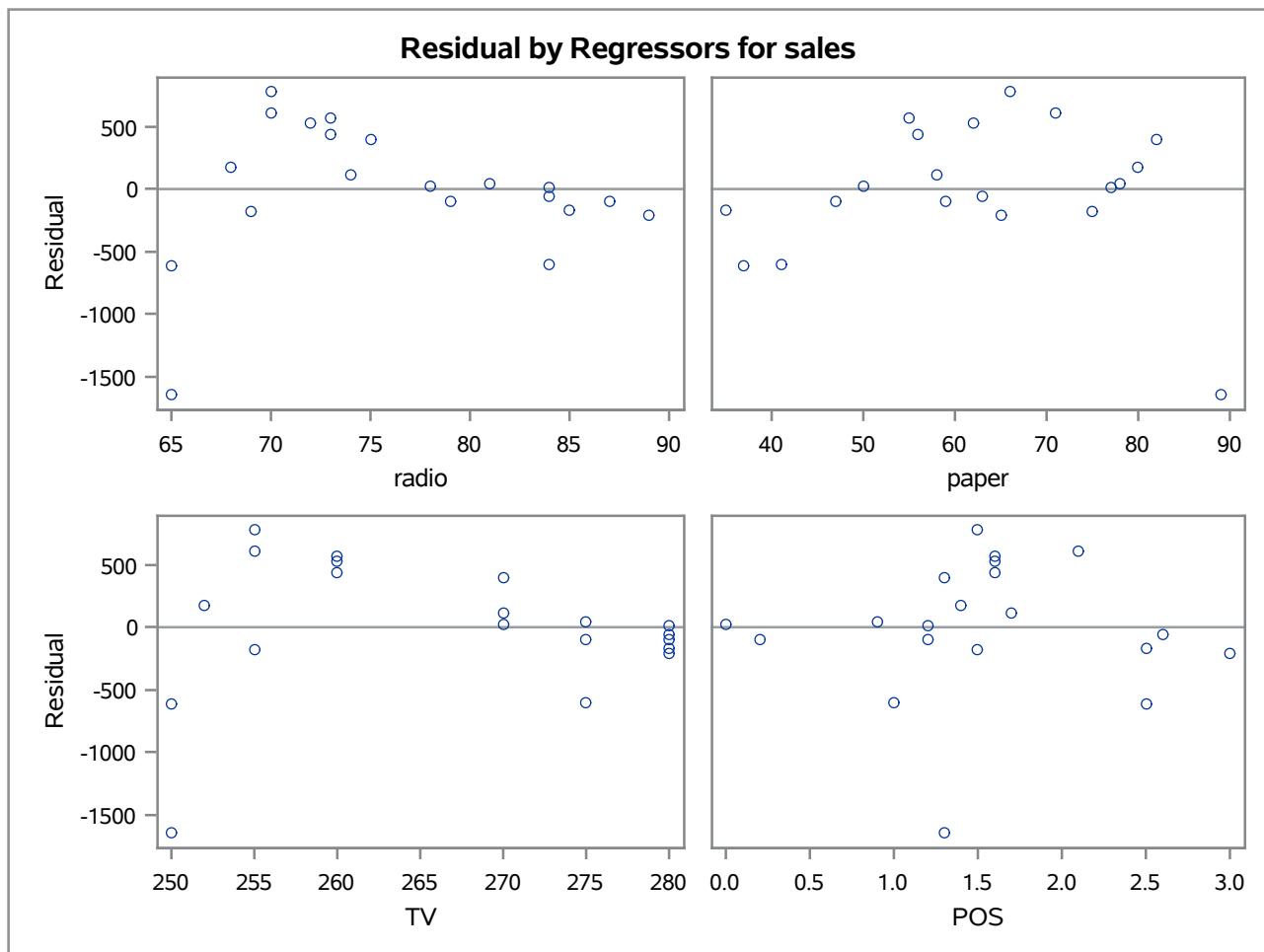


## Multiple Linear Regression on Sales and other variables

The REG Procedure

Model: MODEL1

Dependent Variable: sales sales



## Single Linear Regression on Sales and radio

**The REG Procedure**  
**Model: MODEL1**  
**Dependent Variable: sales sales**

Number of Observations Read	20
Number of Observations Used	20

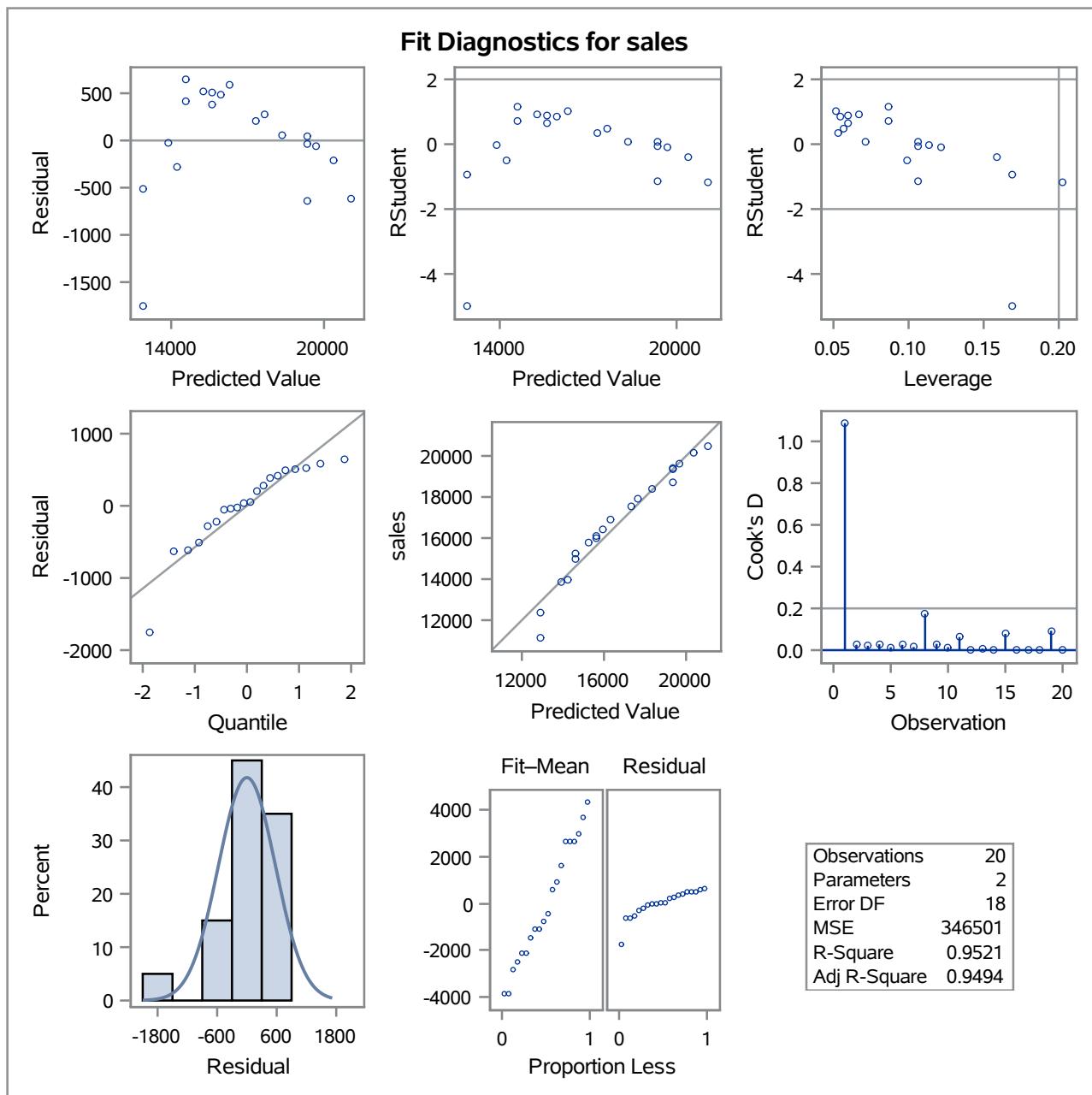
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
<b>Model</b>	1	123893230	123893230	357.56	<.0001
<b>Error</b>	18	6237021	346501		
<b>Corrected Total</b>	19	130130251			

Root MSE	588.64348	R-Square	0.9521
Dependent Mean	16717	Adj R-Sq	0.9494
Coeff Var	3.52118		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
<b>Intercept</b>	Intercept	1	-9280.56214	1381.16533	-6.72	<.0001
<b>radio</b>	radio	1	340.95426	18.03120	18.91	<.0001

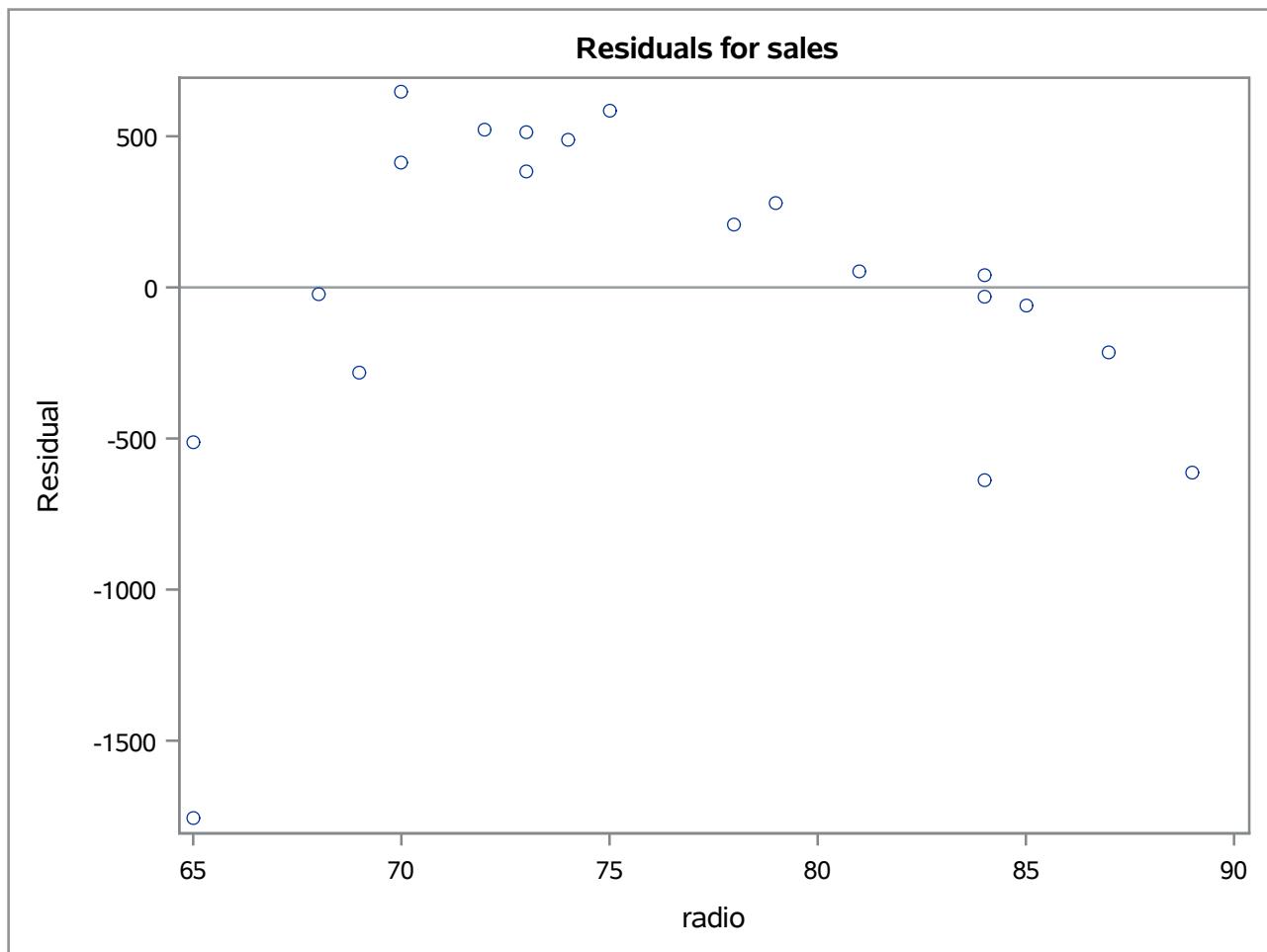
# Single Linear Regression on Sales and radio

**The REG Procedure**  
**Model: MODEL1**  
**Dependent Variable: sales sales**



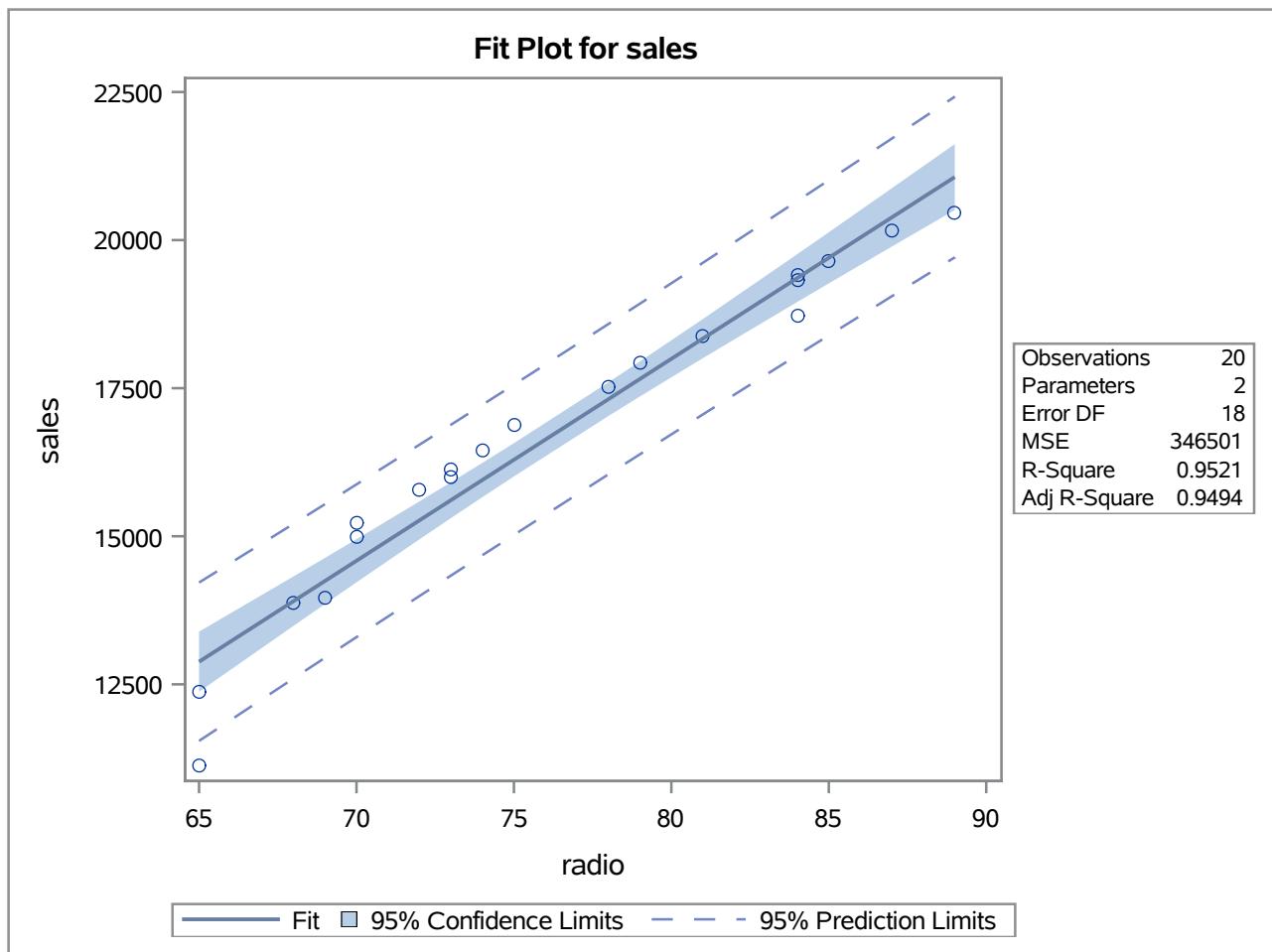
**Single Linear Regression on Sales and radio**

The REG Procedure  
Model: MODEL1  
Dependent Variable: sales sales



**Single Linear Regression on Sales and radio**

The REG Procedure  
Model: MODEL1  
Dependent Variable: sales sales



**The ANOVA Procedure**

Class Level Information		
Class	Levels	Values
CC_CARD	2	0 1

Number of Observations Read	28799
Number of Observations Used	28799

## ANOVA Test of Means on Credit Card Used

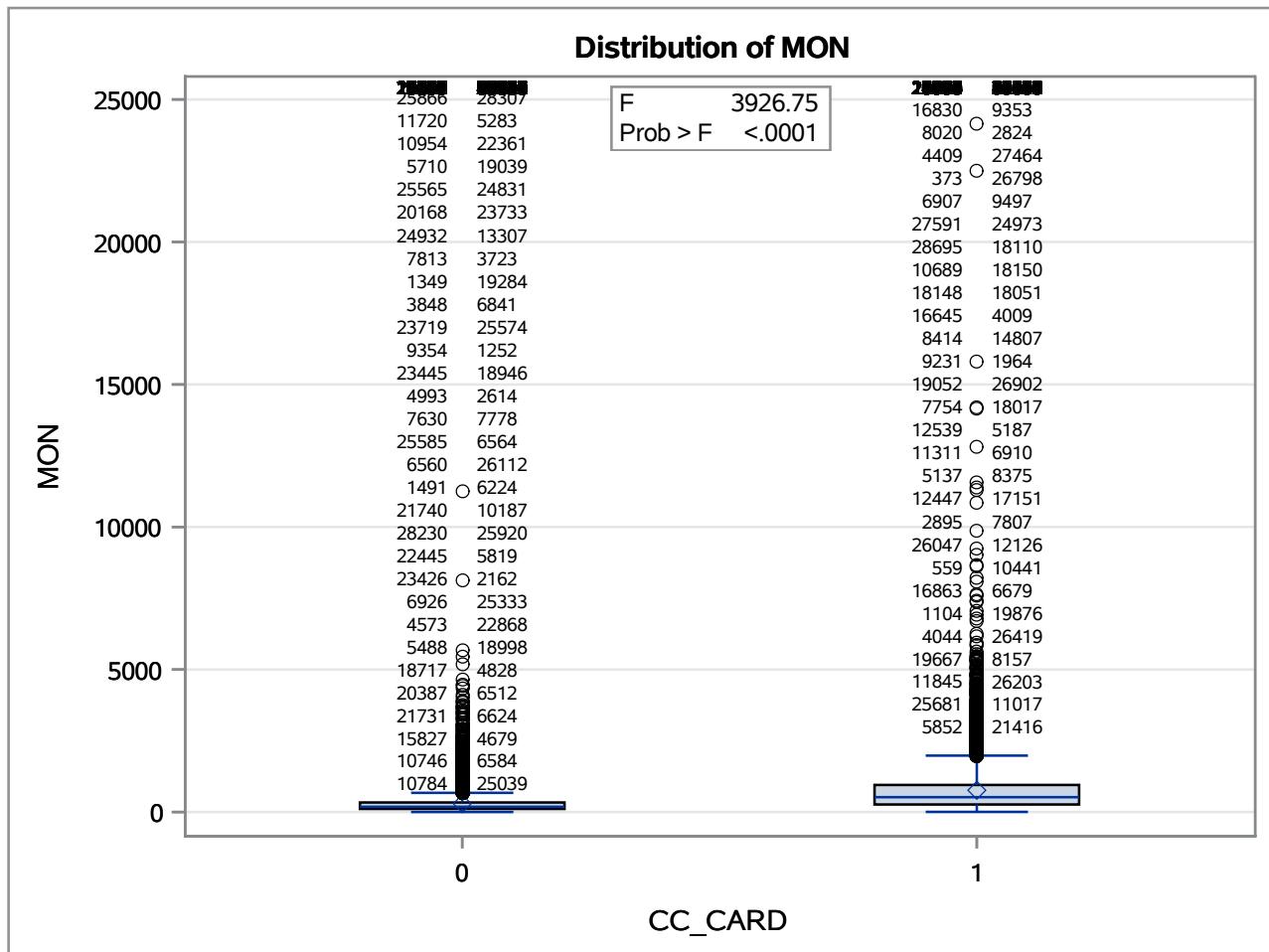
### The ANOVA Procedure

**Dependent Variable: MON**

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
<b>Model</b>	1	1502224665	1502224665	3926.75	<.0001
<b>Error</b>	28797	11016629895	382562		
<b>Corrected Total</b>	28798	12518854561			

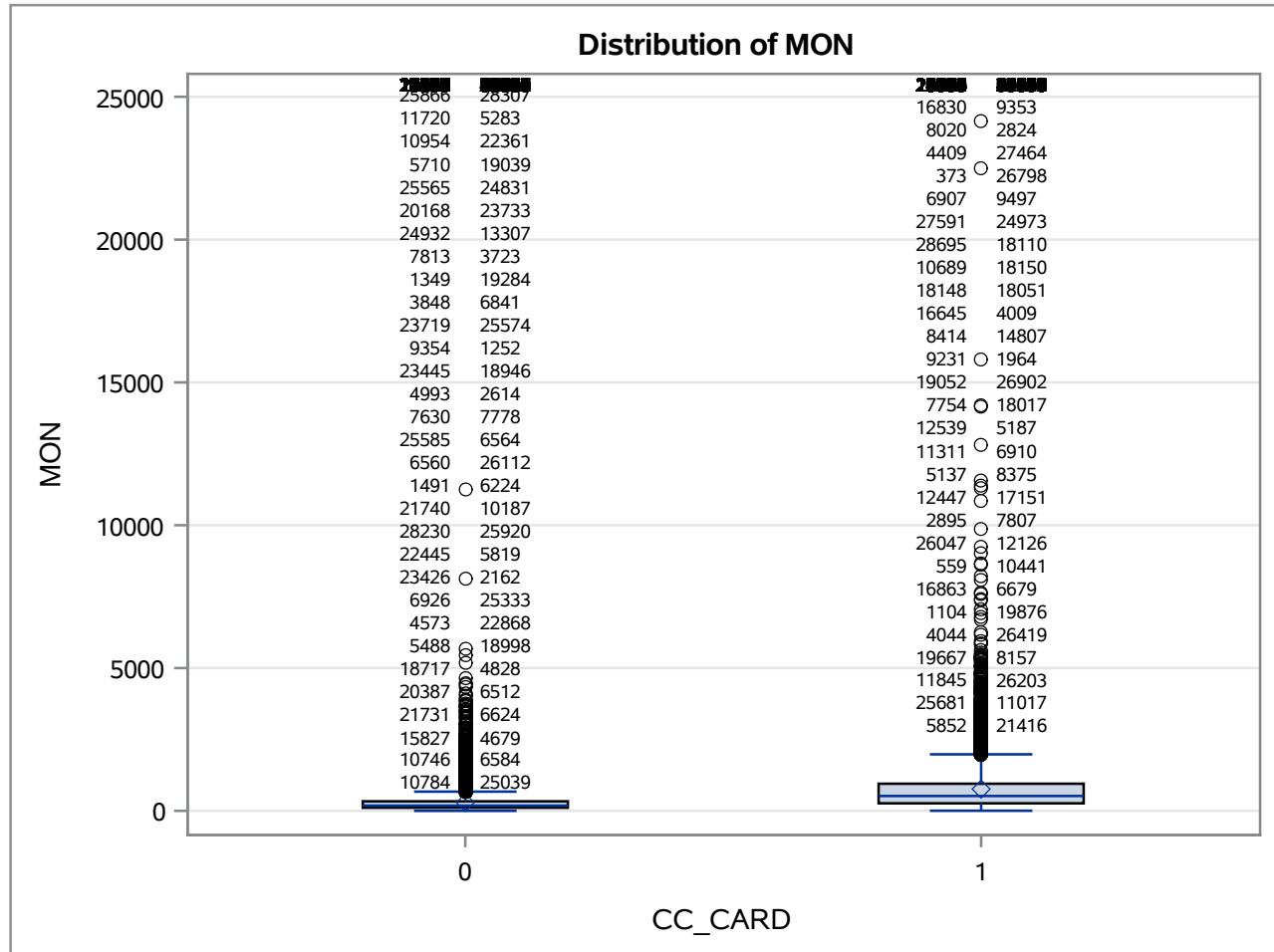
R-Square	Coeff Var	Root MSE	MON Mean
0.119997	130.7057	618.5157	473.2125

Source	DF	Anova SS	Mean Square	F Value	Pr > F
<b>CC_CARD</b>	1	1502224665	1502224665	3926.75	<.0001



## ANOVA Test of Means on Credit Card Used

### The ANOVA Procedure



## ANOVA Test of Means on Credit Card Used

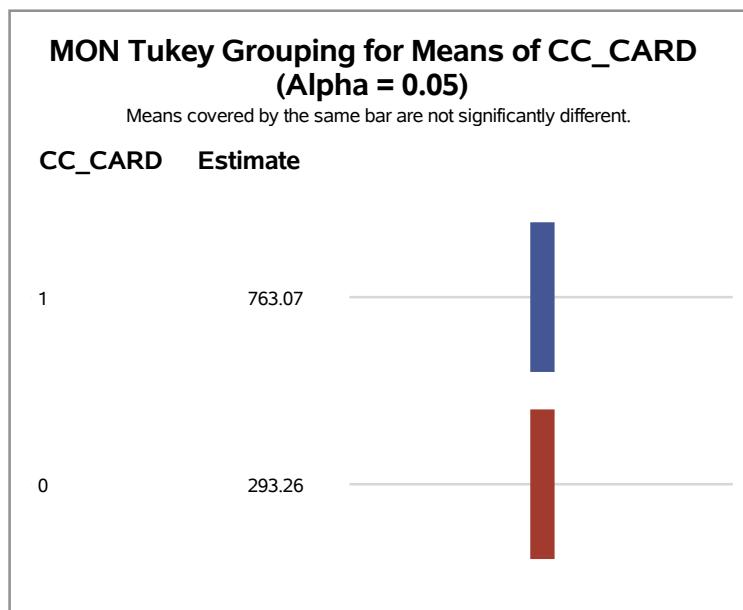
### The ANOVA Procedure

#### Tukey's Studentized Range (HSD) Test for MON

**Note:** This test controls the Type I experimentwise error rate, but it generally has a higher Type II error rate than REGWQ.

<b>Alpha</b>	0.05
<b>Error Degrees of Freedom</b>	28797
<b>Error Mean Square</b>	382561.7
<b>Critical Value of Studentized Range</b>	2.77192
<b>Minimum Significant Difference</b>	14.695
<b>Harmonic Mean of Cell Sizes</b>	13611.5

**Note:** Cell sizes are not equal.



# Linear Regression on Total Net Sales and Number of Promotions on File

## The REG Procedure

Model: MODEL1

Dependent Variable: MON

Number of Observations Read	28799
Number of Observations Used	28799

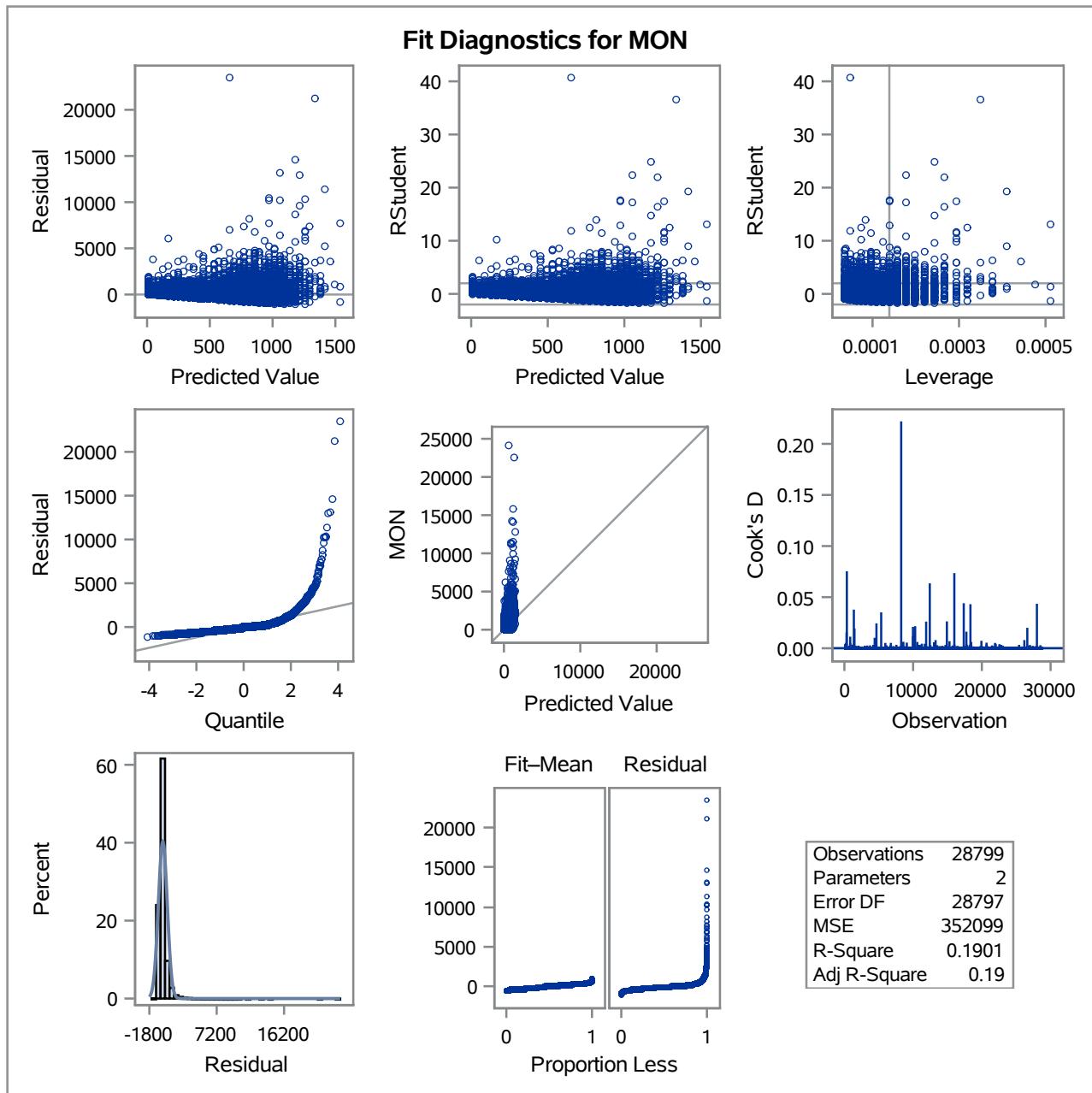
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2379467067	2379467067	6757.95	<.0001
Error	28797	10139387494	352099		
Corrected Total	28798	12518854561			

Root MSE	593.37909	R-Square	0.1901
Dependent Mean	473.21246	Adj R-Sq	0.1900
Coeff Var	125.39380		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	8.61997	6.64572	1.30	0.1946
PROMOS	1	40.26240	0.48977	82.21	<.0001

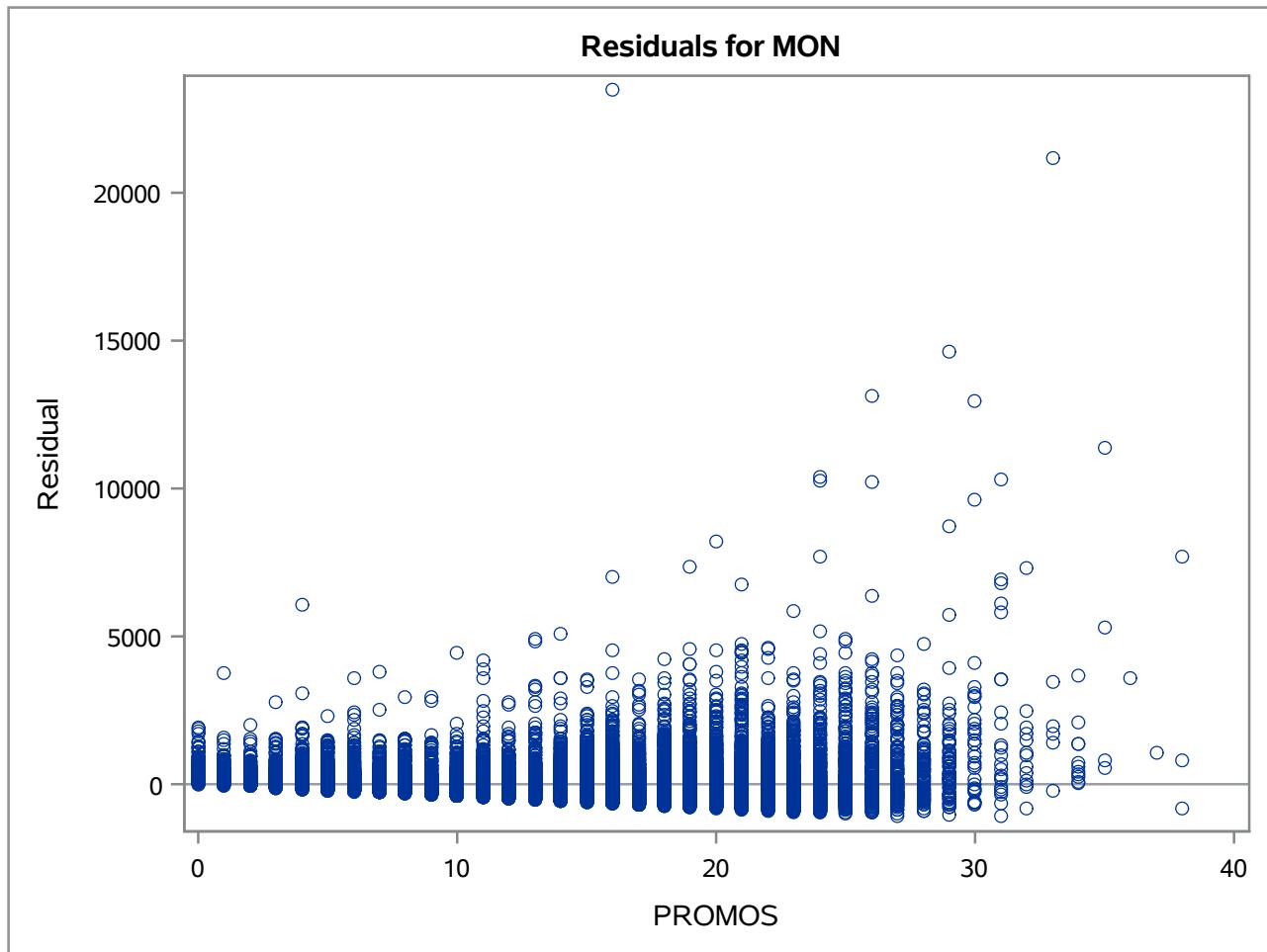
# Linear Regression on Total Net Sales and Number of Promotions on File

**The REG Procedure**  
**Model: MODEL1**  
**Dependent Variable: MON**



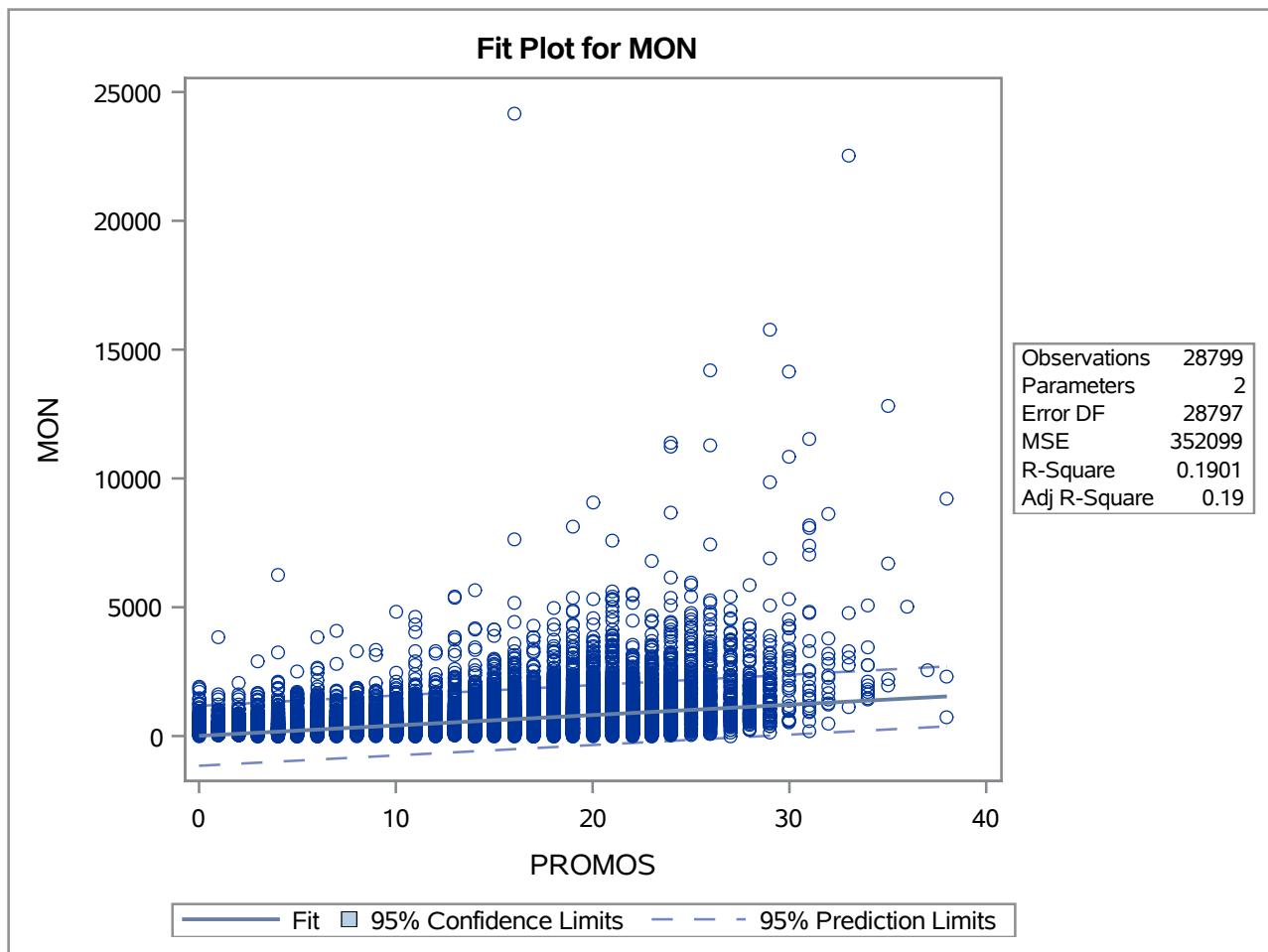
**Linear Regression on Total Net Sales and Number of Promotions on File**

The REG Procedure  
Model: MODEL1  
Dependent Variable: MON



**Linear Regression on Total Net Sales and Number of Promotions on File**

The REG Procedure  
Model: MODEL1  
Dependent Variable: MON



## Linear Regression on Number of Visits and Number of days on file

### The REG Procedure

Model: MODEL1

Dependent Variable: FRE

Number of Observations Read	28799
Number of Observations Used	28799

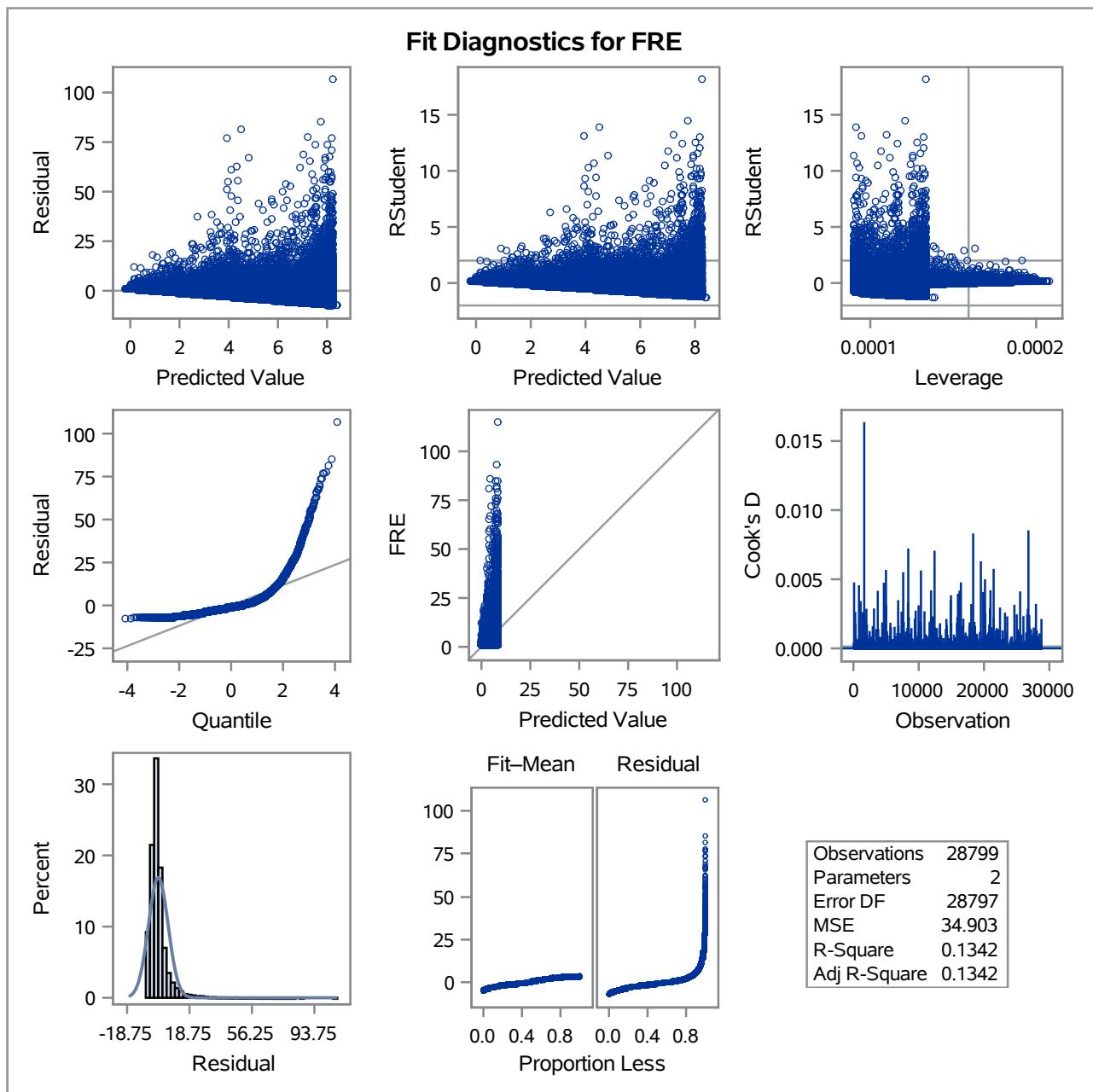
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	155775	155775	4463.04	<.0001
Error	28797	1005111	34.90333		
Corrected Total	28798	1160886			

Root MSE	5.90790	R-Square	0.1342
Dependent Mean	5.03903	Adj R-Sq	0.1342
Coeff Var	117.24291		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	-0.22689	0.08617	-2.63	0.0085
DAYs	1	0.01205	0.00018041	66.81	<.0001

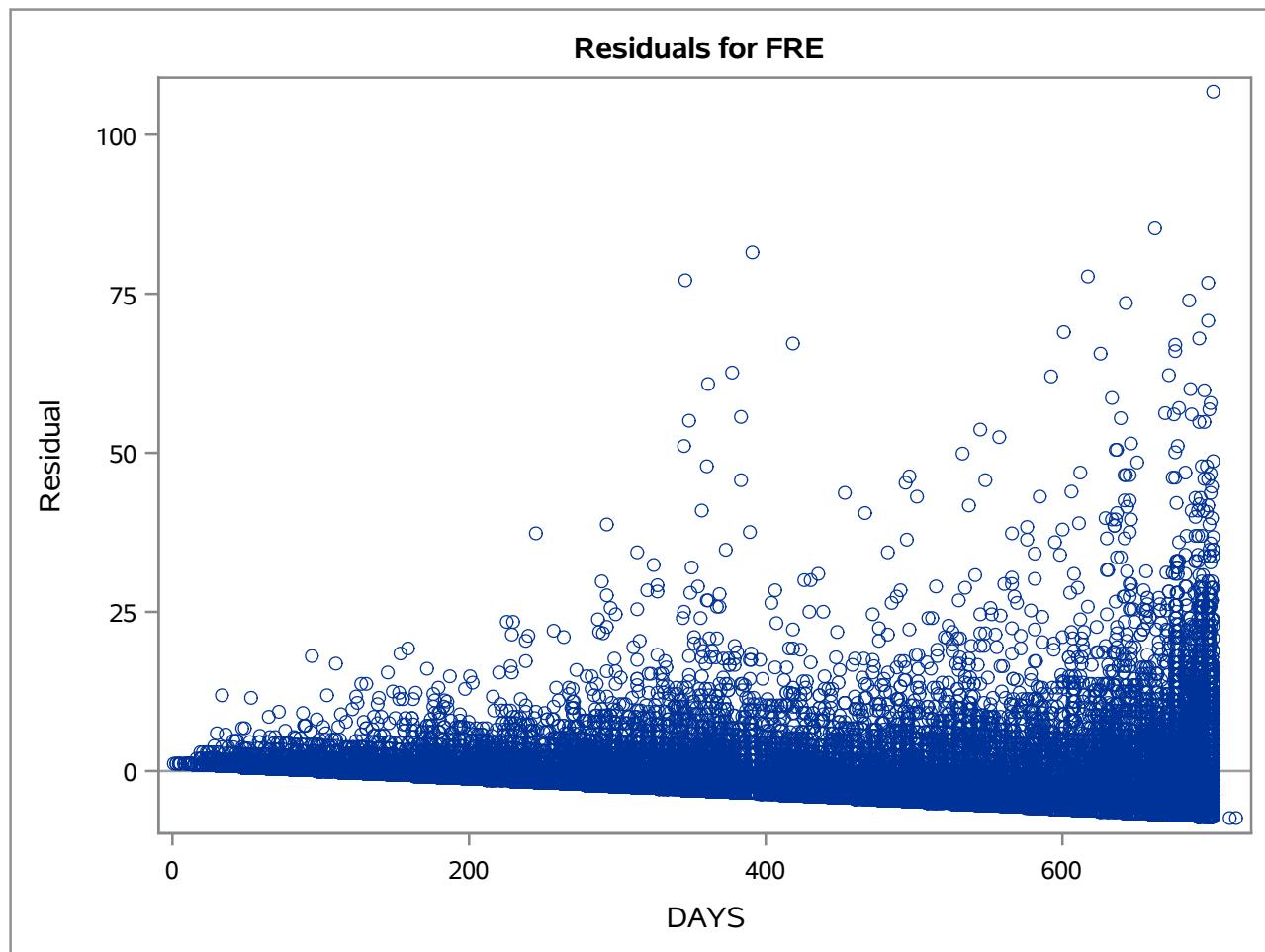
# Linear Regression on Number of Visits and Number of days on file

**The REG Procedure**  
**Model: MODEL1**  
**Dependent Variable: FRE**



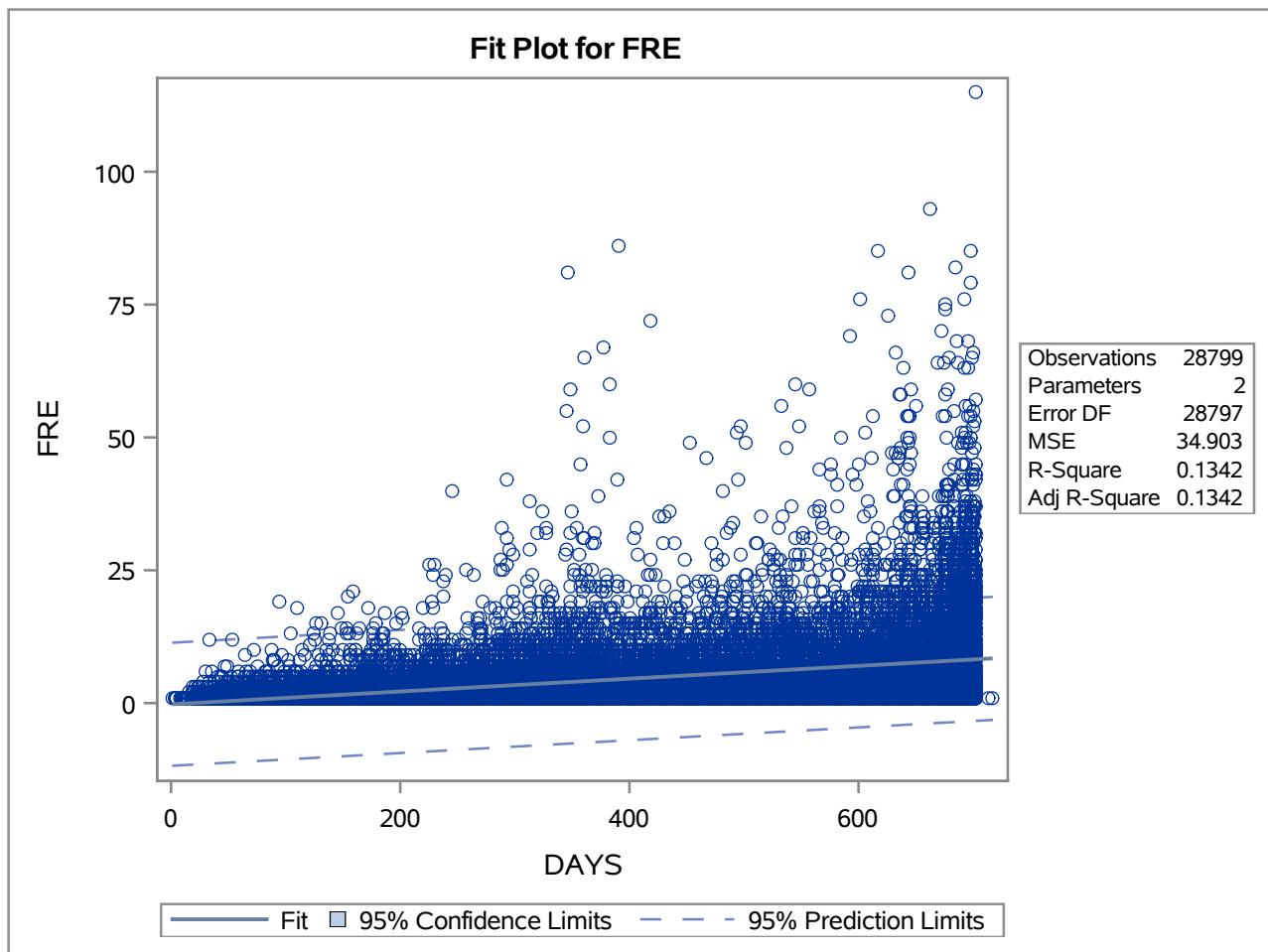
**Linear Regression on Number of Visits and Number of days on file**

The REG Procedure  
Model: MODEL1  
Dependent Variable: FRE



**Linear Regression on Number of Visits and Number of days on file**

The REG Procedure  
Model: MODEL1  
Dependent Variable: FRE



**ANOVA Test of Means on Credit Card Used and Number of Visits****The ANOVA Procedure**

Class Level Information		
Class	Levels	Values
CC_CARD	2	0 1

Number of Observations Read	28799
Number of Observations Used	28799

## ANOVA Test of Means on Credit Card Used and Number of Visits

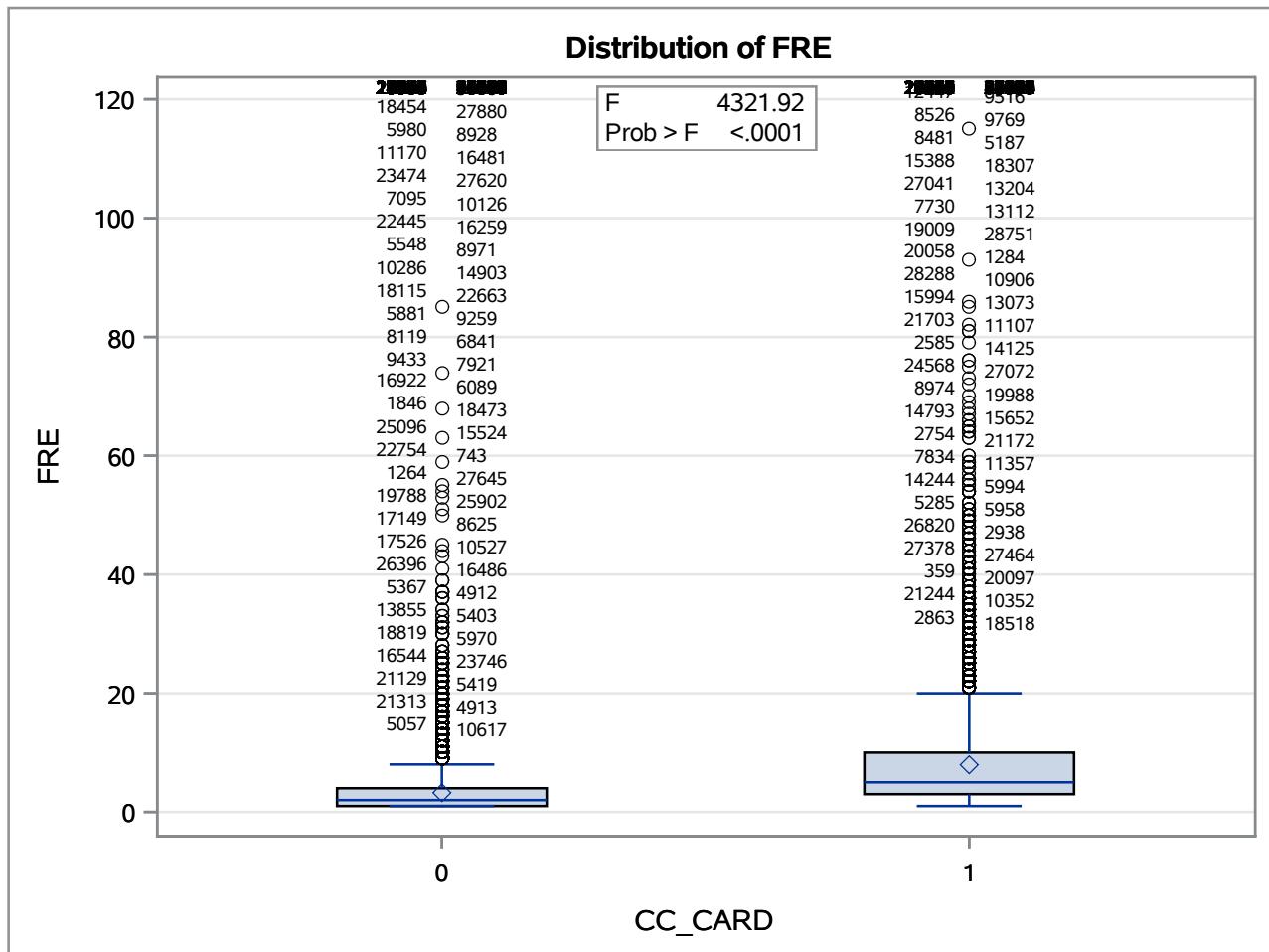
### The ANOVA Procedure

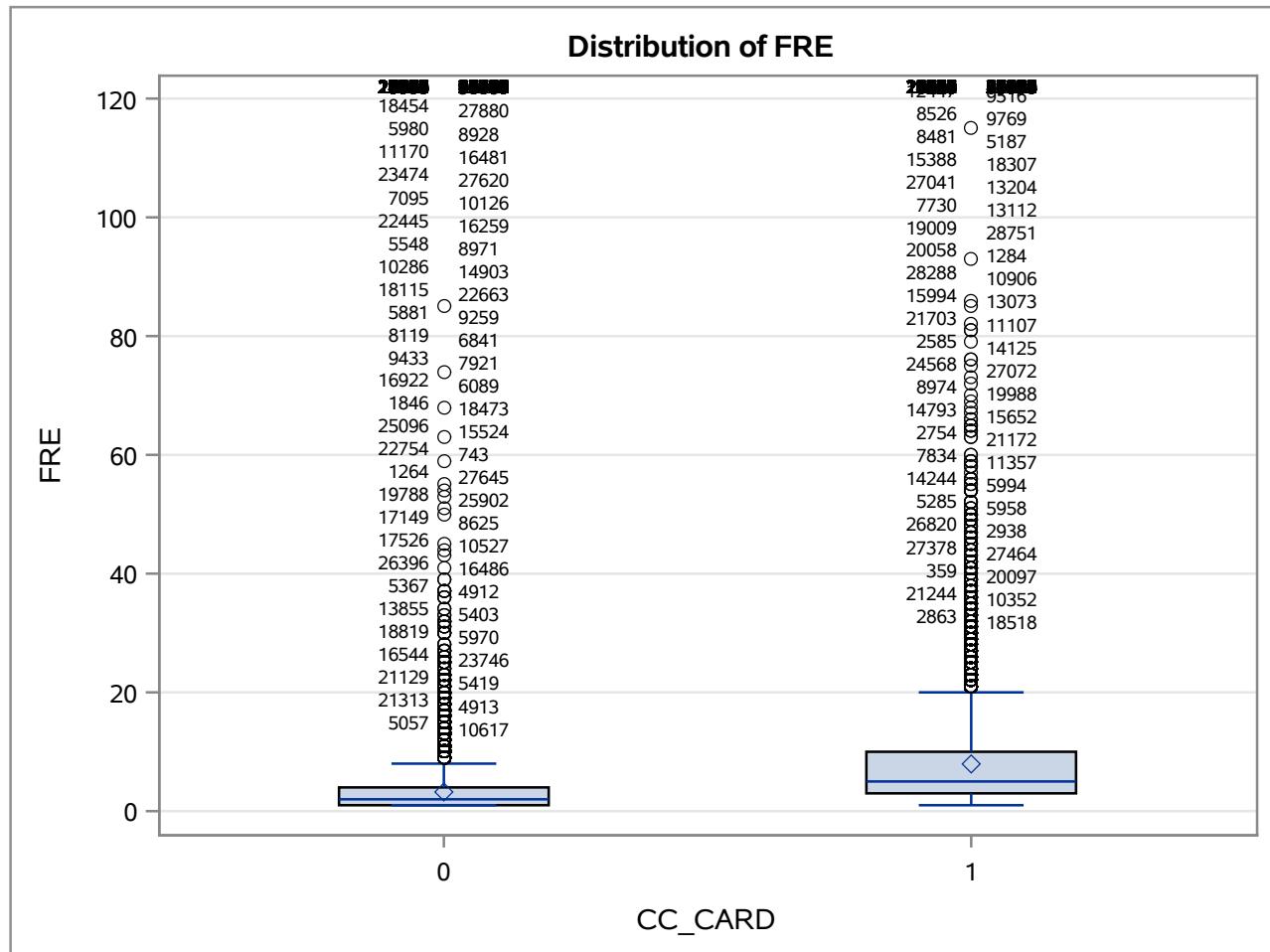
**Dependent Variable: FRE**

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
<b>Model</b>	1	151492.189	151492.189	4321.92	<.0001
<b>Error</b>	28797	1009393.942	35.052		
<b>Corrected Total</b>	28798	1160886.131			

R-Square	Coeff Var	Root MSE	FRE Mean
0.130497	117.4924	5.920477	5.039029

Source	DF	Anova SS	Mean Square	F Value	Pr > F
<b>CC_CARD</b>	1	151492.1894	151492.1894	4321.92	<.0001



**ANOVA Test of Means on Credit Card Used and Number of Visits****The ANOVA Procedure**

## ANOVA Test of Means on Credit Card Used and Number of Visits

### The ANOVA Procedure

#### Tukey's Studentized Range (HSD) Test for FRE

**Note:** This test controls the Type I experimentwise error rate, but it generally has a higher Type II error rate than REGWQ.

<b>Alpha</b>	0.05
<b>Error Degrees of Freedom</b>	28797
<b>Error Mean Square</b>	35.05205
<b>Critical Value of Studentized Range</b>	2.77192
<b>Minimum Significant Difference</b>	0.1407
<b>Harmonic Mean of Cell Sizes</b>	13611.5

**Note:** Cell sizes are not equal.

