SAS Program for CRAC Design-HOUSE_PRICES

Obs	GRADE	FLOORS	BEDROOMS	SQFT_LIVING	PRICE
1	7	1	2	1160	468000
2	7	1	2	1200	189000
3	7	1	2	1070	252700
4	7	1	2	1980	585000
5	7	1	2	2020	355000
6	7	1	3	1180	221900
7	7	1	3	1060	291850
8	7	1	3	1780	229500
9	7	1	3	1370	400000
10	7	1	3	1250	230000
11	7	1	4	1960	604000
12	7	1	4	1620	385000
13	7	1	4	2060	322500
14	7	1	4	1220	240000
15	7	1	4	1760	380000
16	7	1.5	2	1430	455000
17	7	1.5	2	1420	592500
18	7	1.5	2	1490	625000
19	7	1.5	2	2130	730000
20	7	1.5	2	1100	450000
21	7	1.5	3	1430	310000
22	7	1.5	3	2770	317625
23	7	1.5	3	1980	555000
24	7	1.5	3	1670	460000
25	7	1.5	3	1110	560000
26	7	1.5	4	1600	485000
27	7	1.5	4	2330	687500
28	7	1.5	4	2750	571000
29	7	1.5	4	1610	535000
30	7	1.5	4	2100	445000
31	7	2	2	1610	215000
32	7	2	2	1030	335000
33	7	2	2	2420	430000
34	7	2	2	1050	163500
35	7	2	2	1450	655000
36	7	2	3	2570	538000
37	7	2	3	1715	257500

SAS Program for CRAC Design-HOUSE_PRICES

Obs	GRADE	FLOORS	BEDROOMS	SQFT_LIVING	PRICE
38	7	2	3	1890	323000
39	7	2	3	1890	395000
40	7	2	3	1570	685000
41	7	2	4	2250	292500
42	7	2	4	2240	287000
43	7	2	4	1900	360000
44	7	2	4	1980	243500
45	7	2	4	2070	430000
46	8	1	2	1240	188500
47	8	1	2	3900	1072000
48	8	1	2	1320	467000
49	8	1	2	1510	479950
50	8	1	2	1420	641000
51	8	1	3	1680	510000
52	8	1	3	3560	662500
53	8	1	3	2150	650000
54	8	1	3	1680	356000
55	8	1	3	1580	430000
56	8	1	4	4220	775000
57	8	1	4	2160	260000
58	8	1	4	2010	660500
59	8	1	4	2590	452000
60	8	1	4	2030	500000
61	8	1.5	2	1410	439900
62	8	1.5	2	1600	672324
63	8	1.5	2	2700	1260000
64	8	1.5	2	1750	575000
65	8	1.5	2	1700	710000
66	8	1.5	3	1400	667000
67	8	1.5	3	1090	535000
68	8	1.5	3	2300	696000
69	8	1.5	3	1660	780000
70	8	1.5	3	1180	610000
71	8	1.5	4	2750	1450000
72	8	1.5	4	2370	834000
73	8	1.5	4	2610	1000000
74	8	1.5	4	1820	1010000

SAS Program for CRAC Design-HOUSE_PRICES

Obs	GRADE	FLOORS	BEDROOMS	SQFT_LIVING	PRICE
75	8	1.5	4	2440	780000
76	8	2	2	1230	490000
77	8	2	2	1400	372500
78	8	2	2	1270	531000
79	8	2	2	1180	419000
80	8	2	2	1370	359000
81	8	2	3	2450	329000
82	8	2	3	2450	937000
83	8	2	3	2320	580500
84	8	2	3	3160	488000
85	8	2	3	2420	301000
86	8	2	4	2570	719000
87	8	2	4	2360	640000
88	8	2	4	2620	605000
89	8	2	4	1850	430000
90	8	2	4	2380	360000
91	9	1	2	2680	775000
92	9	1	2	1880	460000
93	9	1	2	3570	835000
94	9	1	2	1670	539950
95	9	1	2	1910	435000
96	9	1	3	3050	2000000
97	9	1	3	2753	1350000
98	9	1	3	2370	790000
99	9	1	3	2930	559900
100	9	1	3	2500	662000
101	9	1	4	2480	840000
102	9	1	4	2240	592500
103	9	1	4	3650	2400000
104	9	1	4	1710	749000
105	9	1	4	3140	578000
106	9	1.5	2	2360	1087500
107	9	1.5	2	2460	1370000
108	9	1.5	2	1590	850000
109	9	1.5	2	2320	1150000
110	9	1.5	2	1410	399900
111	9	1.5	3	2070	850830

SAS Program for CRAC Design-HOUSE_PRICES

Obs	GRADE	FLOORS	BEDROOMS	SQFT_LIVING	PRICE
112	9	1.5	3	3950	784000
113	9	1.5	3	2170	876650
114	9	1.5	3	2730	1338750
115	9	1.5	3	2350	339000
116	9	1.5	4	2050	740000
117	9	1.5	4	5450	610000
118	9	1.5	4	3190	1249000
119	9	1.5	4	3040	870000
120	9	1.5	4	3160	1280000
121	9	2	2	1070	259950
122	9	2	2	1780	935000
123	9	2	2	1590	409900
124	9	2	2	2540	945000
125	9	2	2	1295	487028
126	9	2	3	2140	940000
127	9	2	3	2770	461000
128	9	2	3	2320	437500
129	9	2	3	2910	770000
130	9	2	3	2714	465000
131	9	2	4	2950	650000
132	9	2	4	2570	625000
133	9	2	4	2290	785000
134	9	2	4	2830	885000
135	9	2	4	3230	480000

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Number of Observations Read	135
Number of Observations Used	135

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	3.6802706E12	3.6802706E12	42.25	<.0001
Error	133	1.1585063E13	87105736271		
Corrected Total	134	1.5265333E13			

R-Square	Coeff Var	Root MSE	PRICE Mean
0.241087	47.93193	295136.8	615741.5

Source	DF	Type I SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	3.6802706E12	3.6802706E12	42.25	<.0001

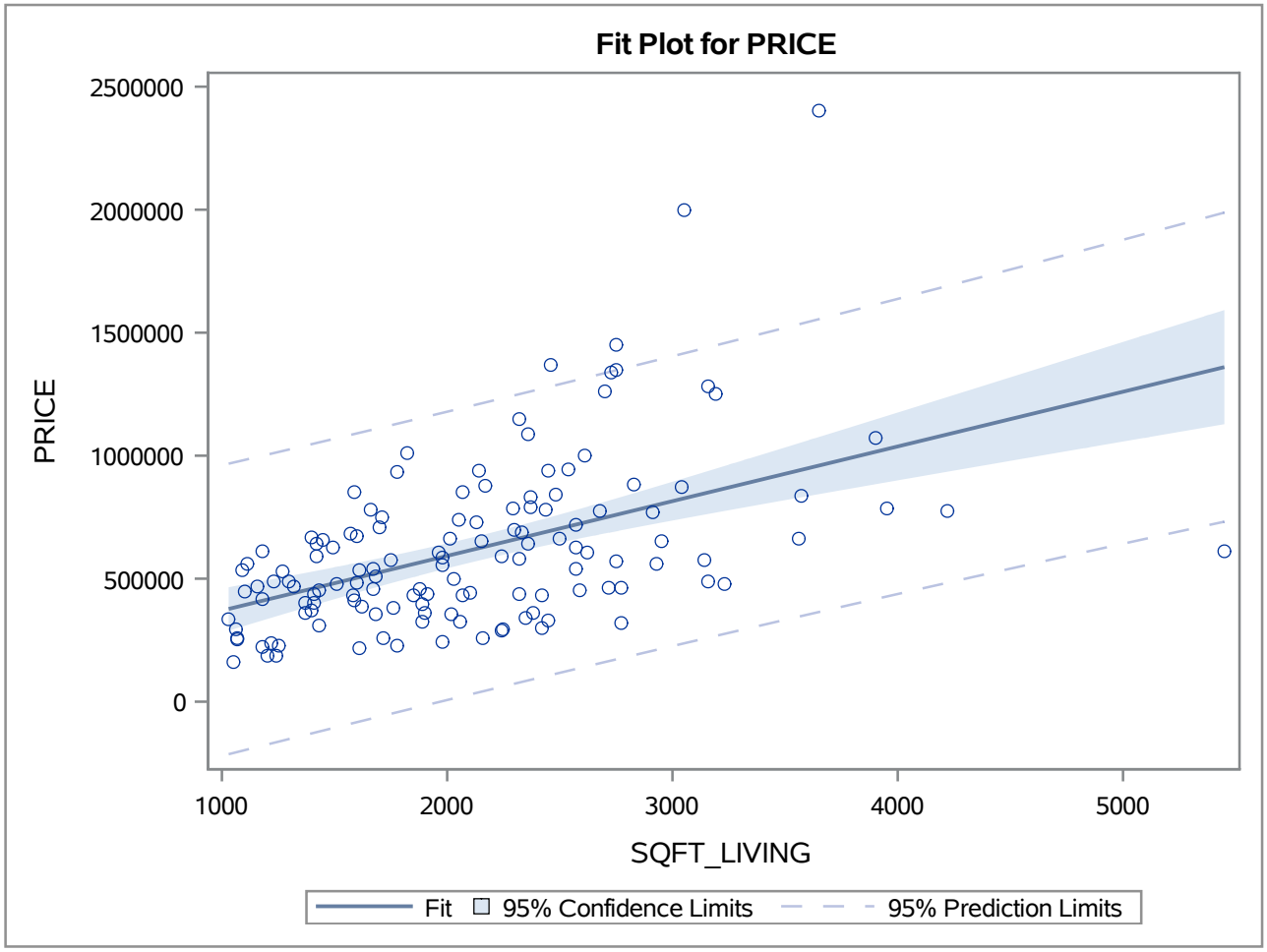
Source	DF	Type III SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	3.6802706E12	3.6802706E12	42.25	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	148022.6608	76308.10346	1.94	0.0545
SQFT_LIVING	222.3805	34.21214	6.50	<.0001

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE



SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

BEDROOMS=2

Number of Observations Read	45
Number of Observations Used	45

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

BEDROOMS=2

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1.8278629E12	1.8278629E12	42.34	<.0001
Error	43	1.8562477E12	43168550088		
Corrected Total	44	3.6841106E12			

R-Square	Coeff Var	Root MSE	PRICE Mean
0.496148	35.79903	207770.4	580380.0

Source	DF	Type I SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	1.8278629E12	1.8278629E12	42.34	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	1.8278629E12	1.8278629E12	42.34	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	28483.30854	90292.79314	0.32	0.7539
SQFT_LIVING	319.69303	49.12981	6.51	<.0001

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

BEDROOMS=2

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

BEDROOMS=3

Number of Observations Read	45
Number of Observations Used	45

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

BEDROOMS=3

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	836565823867	836565823867	8.66	0.0052
Error	43	4.1519958E12	96558041825		
Corrected Total	44	4.9885616E12			

R-Square	Coeff Var	Root MSE	PRICE Mean
0.167697	51.92233	310737.9	598466.8

Source	DF	Type I SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	836565823867	836565823867	8.66	0.0052

Source	DF	Type III SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	836565823867	836565823867	8.66	0.0052

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	168220.5484	153335.2455	1.10	0.2787
SQFT_LIVING	201.5897	68.4877	2.94	0.0052

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

BEDROOMS=3

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

BEDROOMS=4

Number of Observations Read	45
Number of Observations Used	45

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

BEDROOMS=4

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1.1584652E12	1.1584652E12	9.51	0.0036
Error	43	5.2398219E12	121856322240		
Corrected Total	44	6.3982871E12			

R-Square	Coeff Var	Root MSE	PRICE Mean
0.181059	52.22784	349079.2	668377.8

Source	DF	Type I SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	1.1584652E12	1.1584652E12	9.51	0.0036

Source	DF	Type III SS	Mean Square	F Value	Pr > F
SQFT_LIVING	1	1.1584652E12	1.1584652E12	9.51	0.0036

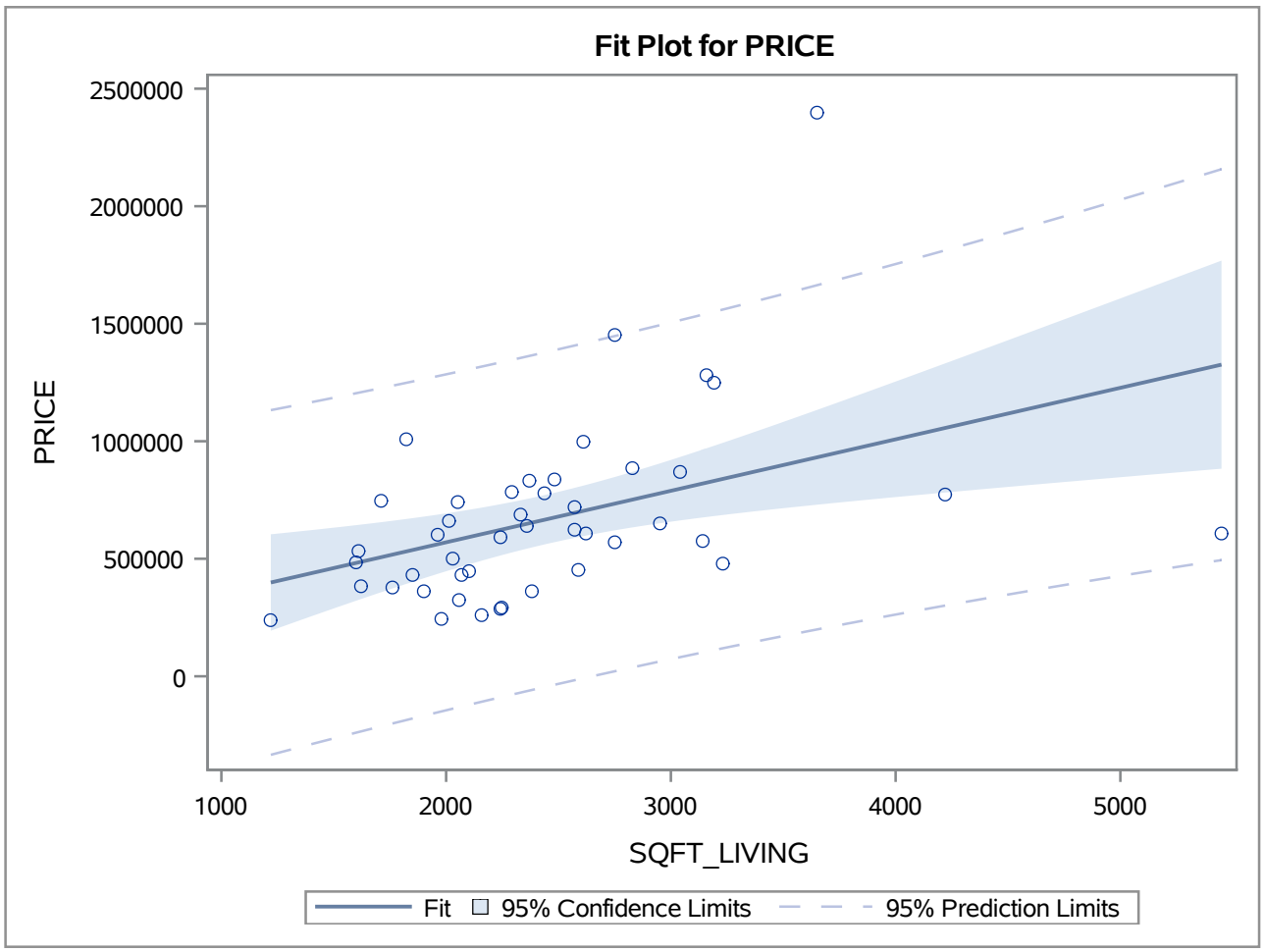
Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	131754.0795	181654.3451	0.73	0.4722
SQFT_LIVING	219.1096	71.0631	3.08	0.0036

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

BEDROOMS=4



SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Class Level Information		
Class	Levels	Values
BEDROOMS	3	2 3 4

Number of Observations Read	135
Number of Observations Used	135

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	4.0172682E12	803453633406	9.21	<.0001
Error	129	1.1248065E13	87194304718		
Corrected Total	134	1.5265333E13			

R-Square	Coeff Var	Root MSE	PRICE Mean
0.263163	47.95629	295286.8	615741.5

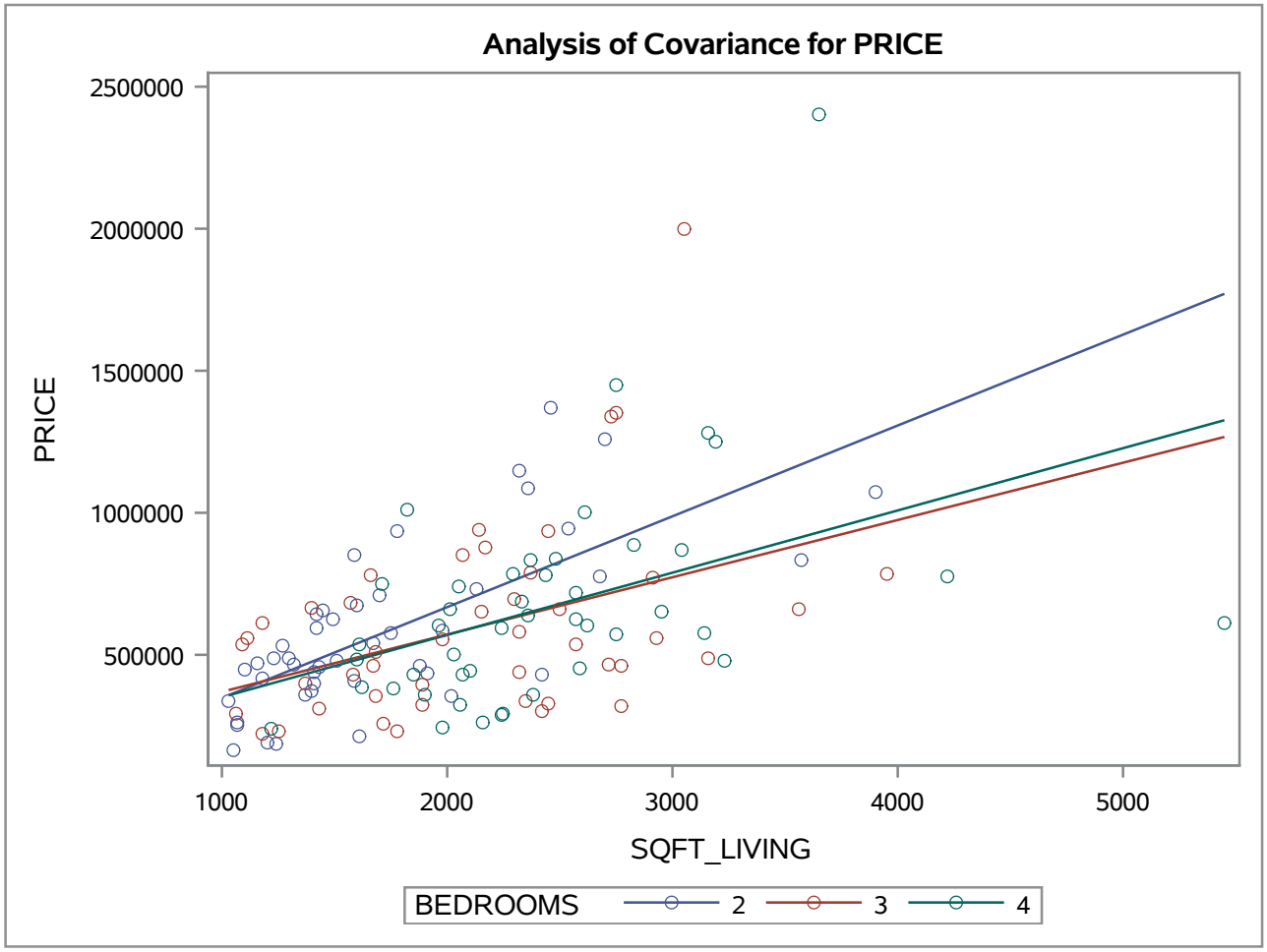
Source	DF	Type I SS	Mean Square	F Value	Pr > F
BEDROOMS	2	194374183732	97187091866	1.11	0.3312
SQFT_LIVING	1	3.6686802E12	3.6686802E12	42.07	<.0001
SQFT_LIVING*BEDROOMS	2	154213809781	77106904891	0.88	0.4155

Source	DF	Type III SS	Mean Square	F Value	Pr > F
BEDROOMS	2	49891654421	24945827210	0.29	0.7517
SQFT_LIVING	1	3.756365E12	3.756365E12	43.08	<.0001
SQFT_LIVING*BEDROOMS	2	154213809781	77106904891	0.88	0.4155

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Dependent Variable: PRICE PRICE



SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
BEDROOMS	3	2 3 4

Number of Observations Read	135
Number of Observations Used	135

SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

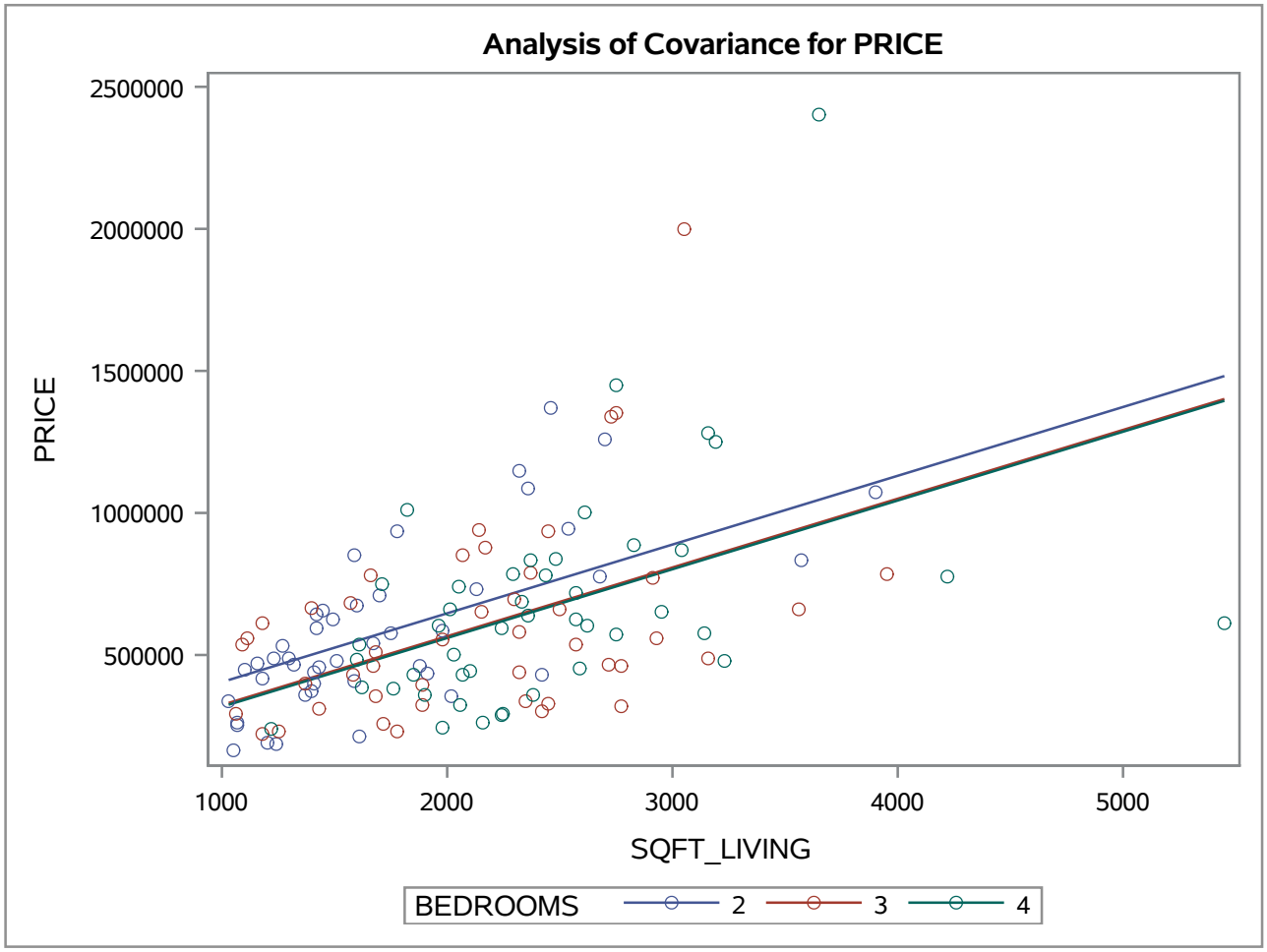
Dependent Variable: PRICE PRICE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	3.8630544E12	1.2876848E12	14.79	<.0001
Error	131	1.1402279E13	87040298613		
Corrected Total	134	1.5265333E13			

R-Square	Coeff Var	Root MSE	PRICE Mean
0.253061	47.91392	295025.9	615741.5

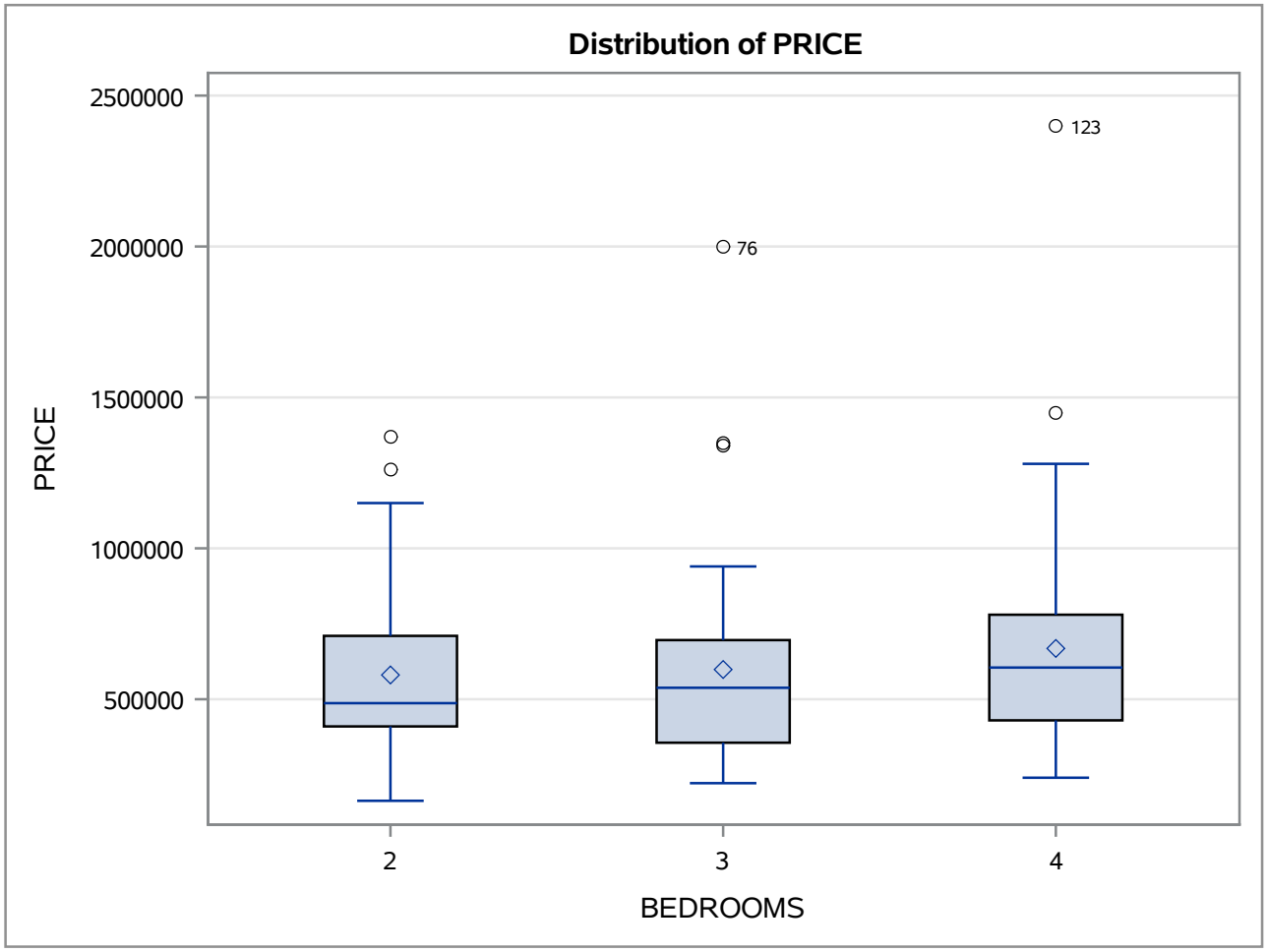
Source	DF	Type I SS	Mean Square	F Value	Pr > F
BEDROOMS	2	194374183732	97187091866	1.12	0.3305
SQFT_LIVING	1	3.6686802E12	3.6686802E12	42.15	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
BEDROOMS	2	182783805619	91391902809	1.05	0.3529
SQFT_LIVING	1	3.6686802E12	3.6686802E12	42.15	<.0001



SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure



SAS Program for CRAC Design-HOUSE_PRICES

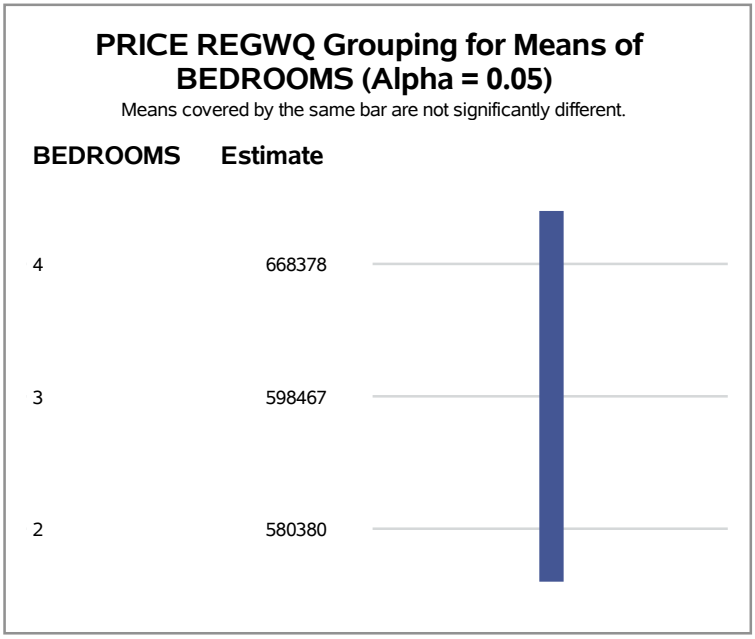
The GLM Procedure

Ryan-Einot-Gabriel-Welsch Multiple Range Test for PRICE

Note: This test controls the Type I experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	131
Error Mean Square	8.704E10

Number of Means	**2**	**3**
Critical Range	123040.37	147447.27



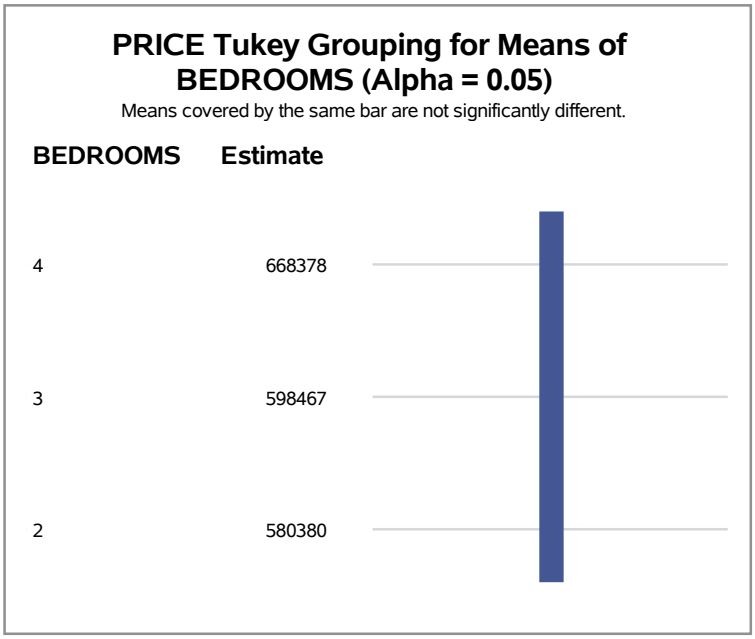
SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure

Tukey's Studentized Range (HSD) Test for PRICE

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

Alpha	0.05
Error Degrees of Freedom	131
Error Mean Square	8.704E10
Critical Value of Studentized Range	3.35261
Minimum Significant Difference	147447



SAS Program for CRAC Design-HOUSE_PRICES

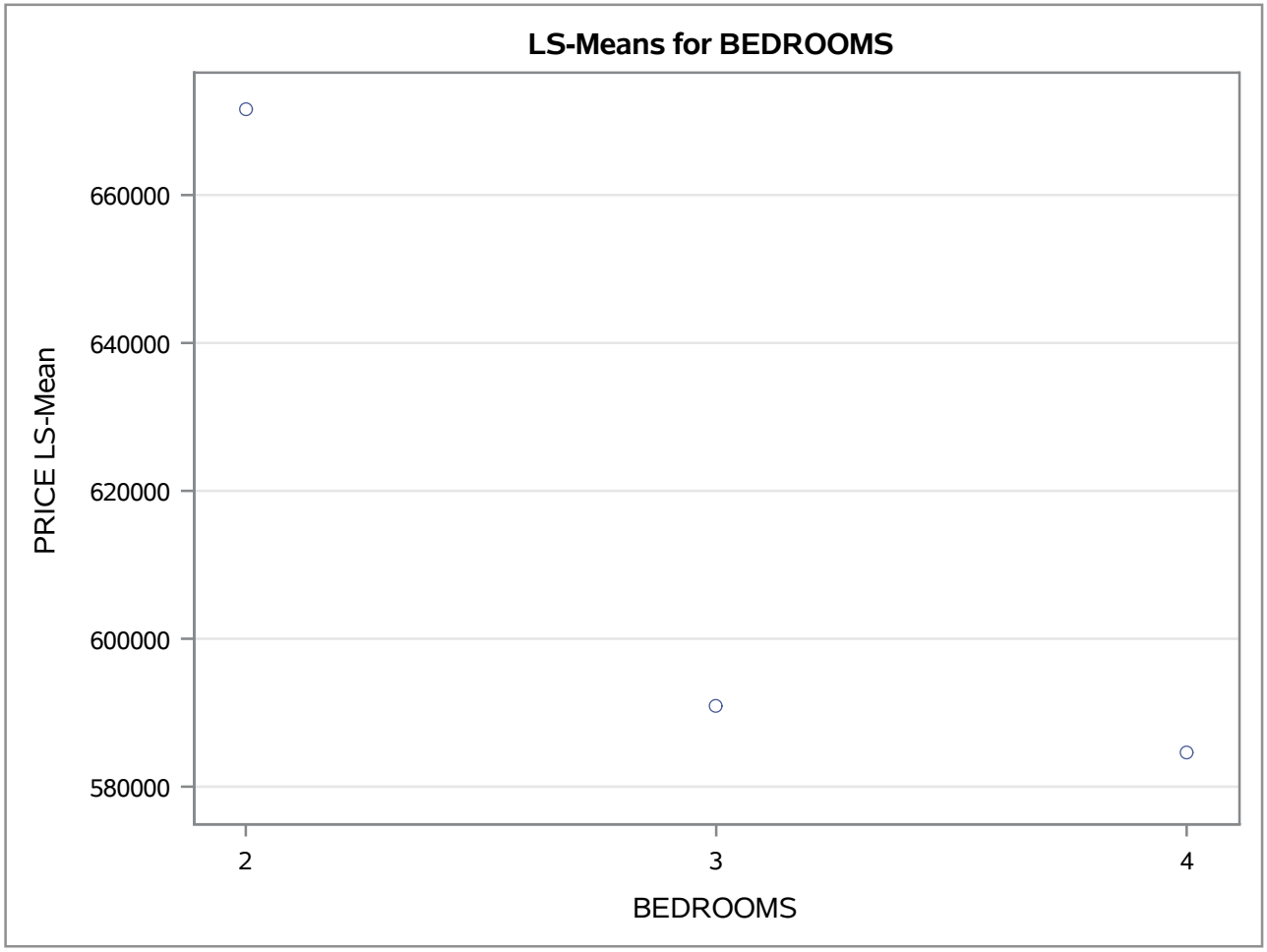
The GLM Procedure
Least Squares Means
Adjustment for Multiple Comparisons: Tukey-Kramer

BEDROOMS	PRICE LSMEAN	Standard Error	Pr > |t|	LSMEAN Number
2	671622.552	46170.836	<.0001	1
3	590954.988	43995.086	<.0001	2
4	584647.060	45831.894	<.0001	3

Least Squares Means for effect BEDROOMS
Pr > |t| for H0: LSMean(i)=LSMean(j)

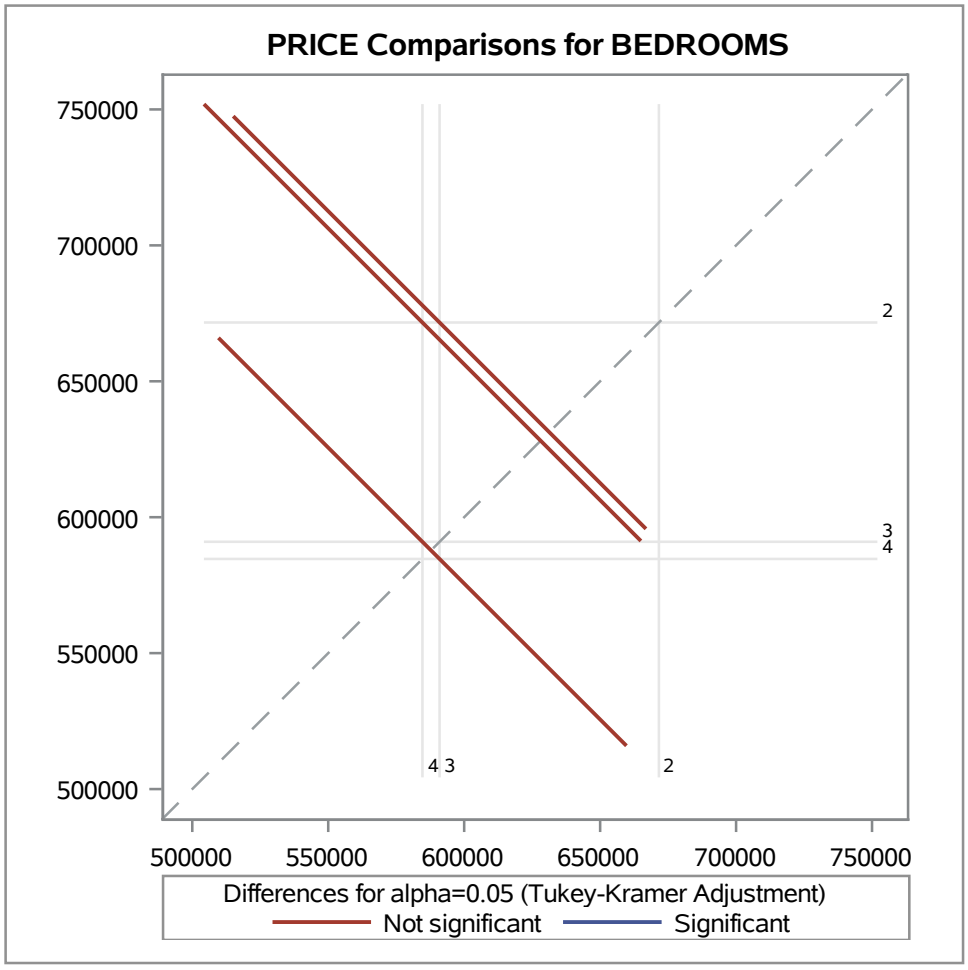
Dependent Variable: PRICE

i/j	1	2	3
1		0.4204	0.4072
2	0.4204		0.9945
3	0.4072	0.9945	



SAS Program for CRAC Design-HOUSE_PRICES

The GLM Procedure
Least Squares Means
Adjustment for Multiple Comparisons: Tukey-Kramer



SAS Program for CRAC Design-HOUSE_PRICES

The UNIVARIATE Procedure
Variable: PRICE (PRICE)

BEDROOMS=2

Moments			
N	45	**Sum Weights**	45
Mean	580380.044	**Sum Observations**	26117102
Std Deviation	289360.996	**Variance**	8.37298E10
Skewness	0.97435185	**Kurtosis**	0.53730398
Uncorrected SS	1.8842E13	**Corrected SS**	3.68411E12
Coeff Variation	49.8571581	**Std Error Mean**	43135.3905

Basic Statistical Measures			
Location		**Variability**	
Mean	580380.0	**Std Deviation**	289361
Median	487028.0	**Variance**	8.37298E10
Mode	.	**Range**	1206500
		Interquartile Range	300100

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	13.45485	**Pr > |t|**	<.0001
Sign	**M**	22.5	**Pr >= |M|**	<.0001
Signed Rank	**S**	517.5	**Pr >= |S|**	<.0001

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.92146	**Pr < W**	0.0047
Kolmogorov-Smirnov	**D**	0.155944	**Pr > D**	<0.0100
Cramer-von Mises	**W-Sq**	0.217957	**Pr > W-Sq**	<0.0050
Anderson-Darling	**A-Sq**	1.222571	**Pr > A-Sq**	<0.0050

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	1370000
99%	1370000
95%	1150000
90%	1072000
75% Q3	710000

SAS Program for CRAC Design-HOUSE_PRICES

The UNIVARIATE Procedure
Variable: PRICE (PRICE)

BEDROOMS=2

Quantiles (Definition 5)	
Level	**Quantile**
50% Median	487028
25% Q1	409900
10%	252700
5%	189000
1%	163500
0% Min	163500

Extreme Observations					
Lowest			**Highest**		
Value	**BEDROOMS**	**Obs**	**Value**	**BEDROOMS**	**Obs**
163500	2	14	1072000	2	17
188500	2	16	1087500	2	36
189000	2	2	1150000	2	39
215000	2	11	1260000	2	23
252700	2	3	1370000	2	37

SAS Program for CRAC Design-HOUSE_PRICES

The UNIVARIATE Procedure
Variable: PRICE (PRICE)

BEDROOMS=3

Moments			
N	45	**Sum Weights**	45
Mean	598466.778	**Sum Observations**	26931005
Std Deviation	336714.123	**Variance**	1.13376E11
Skewness	2.07099645	**Kurtosis**	6.19673932
Uncorrected SS	2.11059E13	**Corrected SS**	4.98856E12
Coeff Variation	56.2627927	**Std Error Mean**	50194.3778

Basic Statistical Measures			
Location		**Variability**	
Mean	598466.8	**Std Deviation**	336714
Median	538000.0	**Variance**	1.13376E11
Mode	.	**Range**	1778100
		Interquartile Range	340000

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	11.92298	**Pr > |t|**	<.0001
Sign	**M**	22.5	**Pr >= |M|**	<.0001
Signed Rank	**S**	517.5	**Pr >= |S|**	<.0001

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.823099	**Pr < W**	<0.0001
Kolmogorov-Smirnov	**D**	0.141593	**Pr > D**	0.0229
Cramer-von Mises	**W-Sq**	0.256803	**Pr > W-Sq**	<0.0050
Anderson-Darling	**A-Sq**	1.757739	**Pr > A-Sq**	<0.0050

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	2000000
99%	2000000
95%	1338750
90%	937000
75% Q3	696000

SAS Program for CRAC Design-HOUSE_PRICES

The UNIVARIATE Procedure
Variable: PRICE (PRICE)

BEDROOMS=3

Quantiles (Definition 5)	
Level	**Quantile**
50% Median	538000
25% Q1	356000
10%	291850
5%	230000
1%	221900
0% Min	221900

Extreme Observations					
Lowest			**Highest**		
Value	**BEDROOMS**	**Obs**	**Value**	**BEDROOMS**	**Obs**
221900	3	46	937000	3	72
229500	3	48	940000	3	86
230000	3	50	1338750	3	84
257500	3	57	1350000	3	77
291850	3	47	2000000	3	76

SAS Program for CRAC Design-HOUSE_PRICES

The UNIVARIATE Procedure
Variable: PRICE (PRICE)

BEDROOMS=4

Moments			
N	45	**Sum Weights**	45
Mean	668377.778	**Sum Observations**	30077000
Std Deviation	381333.995	**Variance**	1.45416E11
Skewness	2.42502487	**Kurtosis**	8.91279282
Uncorrected SS	2.65011E13	**Corrected SS**	6.39829E12
Coeff Variation	57.0536615	**Std Error Mean**	56845.9156

Basic Statistical Measures			
Location		**Variability**	
Mean	668377.8	**Std Deviation**	381334
Median	605000.0	**Variance**	1.45416E11
Mode	360000.0	**Range**	2160000
		Interquartile Range	350000

Note: The mode displayed is the smallest of 2 modes with a count of 2.

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	11.75771	**Pr > |t|**	<.0001
Sign	**M**	22.5	**Pr >= |M|**	<.0001
Signed Rank	**S**	517.5	**Pr >= |S|**	<.0001

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.79734	**Pr < W**	<0.0001
Kolmogorov-Smirnov	**D**	0.157646	**Pr > D**	<0.0100
Cramer-von Mises	**W-Sq**	0.299757	**Pr > W-Sq**	<0.0050
Anderson-Darling	**A-Sq**	1.899034	**Pr > A-Sq**	<0.0050

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	2400000
99%	2400000
95%	1280000
90%	1010000
75% Q3	780000

SAS Program for CRAC Design-HOUSE_PRICES

The UNIVARIATE Procedure
Variable: PRICE (PRICE)

BEDROOMS=4

Quantiles (Definition 5)	
Level	**Quantile**
50% Median	605000
25% Q1	430000
10%	292500
5%	260000
1%	240000
0% Min	240000

Extreme Observations					
Lowest			**Highest**		
Value	**BEDROOMS**	**Obs**	**Value**	**BEDROOMS**	**Obs**
240000	4	94	1010000	4	114
243500	4	104	1249000	4	128
260000	4	107	1280000	4	130
287000	4	102	1450000	4	111
292500	4	101	2400000	4	123