

Obs	a	b	n	i	y
1	1	1	3	1	1
2	1	1	3	2	2
3	1	1	3	3	3
4	1	2	3	1	4
5	1	2	3	2	5
6	1	2	3	3	6
7	1	3	3	1	7
8	1	3	3	2	8
9	1	3	3	3	9
10	2	1	3	1	10
11	2	1	3	2	11
12	2	1	3	3	12
13	2	2	3	1	13
14	2	2	3	2	14
15	2	2	3	3	15
16	2	3	3	1	20
17	2	3	3	2	21
18	2	3	3	3	22

Obs	a	b	n	i	y
1	1	1	3	1	1
2	1	1	3	2	2
3	1	1	3	3	3
4	1	2	3	1	4
5	1	2	3	2	5
6	1	2	3	3	6
7	1	3	3	1	7
8	1	3	3	2	8
9	1	3	3	3	9
10	2	1	3	1	10
11	2	1	3	2	11
12	2	1	3	3	12
13	2	2	3	1	13
14	2	2	3	2	14
15	2	2	3	3	15
16	2	3	3	1	20
17	2	3	3	2	210
18	2	3	3	3	22

The GLM Procedure

Class Level Information		
Class	Levels	Values
a	2	1 2
b	3	1 2 3

Number of Observations Read	18
Number of Observations Used	18

The GLM Procedure

Dependent Variable: y

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	692.5000000	138.5000000	138.50	<.0001
Error	12	12.0000000	1.0000000		
Corrected Total	17	704.5000000			

R-Square	Coeff Var	Root MSE	y Mean
0.982967	9.836066	1.000000	10.16667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
a	1	480.5000000	480.5000000	480.50	<.0001
b	2	196.0000000	98.0000000	98.00	<.0001
a*b	2	16.0000000	8.0000000	8.00	0.0062

Source	DF	Type III SS	Mean Square	F Value	Pr > F
a	1	480.5000000	480.5000000	480.50	<.0001
b	2	196.0000000	98.0000000	98.00	<.0001
a*b	2	16.0000000	8.0000000	8.00	0.0062

The GLM Procedure

Class Level Information		
Class	Levels	Values
a	2	1 2
b	3	1 2 3

Number of Observations Read	18
Number of Observations Used	18

The GLM Procedure

Dependent Variable: y

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	14710.00000	2942.00000	1.48	0.2665
Error	12	23826.00000	1985.50000		
Corrected Total	17	38536.00000			

R-Square	Coeff Var	Root MSE	y Mean
0.381721	215.6078	44.55895	20.66667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
a	1	4418.000000	4418.000000	2.23	0.1616
b	2	5803.000000	2901.500000	1.46	0.2704
a*b	2	4489.000000	2244.500000	1.13	0.3550

Source	DF	Type III SS	Mean Square	F Value	Pr > F
a	1	4418.000000	4418.000000	2.23	0.1616
b	2	5803.000000	2901.500000	1.46	0.2704
a*b	2	4489.000000	2244.500000	1.13	0.3550

The ROBUSTREG Procedure

Model Information	
Data Set	WORK.TABLE922
Dependent Variable	y
Number of Independent Variables	2
Number of Continuous Independent Variables	0
Number of Class Independent Variables	2
Number of Observations	18
Method	M Estimation

Number of Observations Read	18
Number of Observations Used	18

Class Level Information		
Name	Levels	Values
a	2	1 2
b	3	1 2 3

Summary Statistics						
Variable	Q1	Median	Q3	Mean	Standard Deviation	MAD
y	5.0000	9.5000	14.0000	10.1667	6.4375	6.6717

Parameter Estimates									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept			1	21.0000	0.6036	19.8170	22.1830	1210.56	<.0001
a	1		1	-13.0000	0.8536	-14.6730	-11.3270	231.96	<.0001
a	2		0	0.0000	.	.	.	.	.
b	1		1	-10.0000	0.8536	-11.6730	-8.3270	137.25	<.0001
b	2		1	-7.0000	0.8536	-8.6730	-5.3270	67.25	<.0001
b	3		0	0.0000	.	.	.	.	.
a*b	1	1	1	4.0000	1.2071	1.6341	6.3659	10.98	0.0009
a*b	1	2	1	4.0000	1.2071	1.6341	6.3659	10.98	0.0009
a*b	1	3	0	0.0000	.	.	.	.	.
a*b	2	1	0	0.0000	.	.	.	.	.
a*b	2	2	0	0.0000	.	.	.	.	.

The ROBUSTREG Procedure

Parameter Estimates									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
a*b	2	3	0	0.0000	.	.	.	.	.
Scale			1	1.4826					

Diagnostics Summary		
Observation Type	Proportion	Cutoff
Outlier	0.0000	3.0000

Goodness-of-Fit	
Statistic	Value
R-Square	0.9373
AICR	8.9908
BICR	22.6891
Deviance	11.7530

Reduced Model Parameter Estimates for MAINA									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept			1	21.0000	0.4741	20.0708	21.9292	1961.99	<.0001
a	1		0	0.0000	.	.	.	.	.
a	2		0	0.0000	.	.	.	.	.
b	1		1	-10.0000	0.8212	-11.6095	-8.3905	148.30	<.0001
b	2		1	-7.0000	0.8212	-8.6095	-5.3905	72.67	<.0001
b	3		0	0.0000	.	.	.	.	.
a*b	1	1	1	-9.0000	0.9482	-10.8584	-7.1416	90.09	<.0001
a*b	1	2	1	-9.0000	0.9482	-10.8584	-7.1416	90.09	<.0001
a*b	1	3	0	0.0000	.	.	.	.	.
a*b	2	1	0	0.0000	.	.	.	.	.
a*b	2	2	0	0.0000	.	.	.	.	.
a*b	2	3	0	0.0000	.	.	.	.	.
Scale			0	1.4826					

The ROBUSTREG Procedure

Robust Linear Tests					
MAINA					
Test	Test Statistic	Lambda	DF	Chi-Square	Pr > ChiSq
Rho	21.0581	0.7977	1	26.40	<.0001
Rn2	231.9562		1	231.96	<.0001

Reduced Model Parameter Estimates for INTER									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept			1	19.6394	0.7129	18.2422	21.0367	758.93	<.0001
a	1		1	-10.2788	0.7129	-11.6761	-8.8816	207.89	<.0001
a	2		0	0.0000	.	.	.	.	.
b	1		1	-8.0000	0.8731	-9.7113	-6.2887	83.95	<.0001
b	2		1	-5.0000	0.8731	-6.7113	-3.2887	32.79	<.0001
b	3		0	0.0000	.	.	.	.	.
a*b	1	1	0	0.0000	.	.	.	.	.
a*b	1	2	0	0.0000	.	.	.	.	.
a*b	1	3	0	0.0000	.	.	.	.	.
a*b	2	1	0	0.0000	.	.	.	.	.
a*b	2	2	0	0.0000	.	.	.	.	.
a*b	2	3	0	0.0000	.	.	.	.	.
Scale			0	1.4826					

Robust Linear Tests					
INTER					
Test	Test Statistic	Lambda	DF	Chi-Square	Pr > ChiSq
Rho	3.2480	0.7977	2	4.07	0.1306
Rn2	14.6402		2	14.64	0.0007

The ROBUSTREG Procedure

Model Information	
Data Set	WORK.BAD922
Dependent Variable	y
Number of Independent Variables	2
Number of Continuous Independent Variables	0
Number of Class Independent Variables	2
Number of Observations	18
Method	M Estimation

Number of Observations Read	18
Number of Observations Used	18

Class Level Information		
Name	Levels	Values
a	2	1 2
b	3	1 2 3

Summary Statistics						
Variable	Q1	Median	Q3	Mean	Standard Deviation	MAD
y	5.0000	9.5000	14.0000	20.6667	47.6112	6.6717

Parameter Estimates									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept			1	84.0000	0.7054	82.6175	85.3825	14181.7	<.0001
a	1		1	-76.0000	0.9975	-77.9551	-74.0449	5804.51	<.0001
a	2		0	0.0000	.	.	.	.	.
b	1		1	-73.0000	0.9975	-74.9551	-71.0449	5355.30	<.0001
b	2		1	-70.0000	0.9975	-71.9551	-68.0449	4924.19	<.0001
b	3		0	0.0000	.	.	.	.	.
a*b	1	1	1	67.0000	1.4107	64.2350	69.7650	2255.58	<.0001
a*b	1	2	1	67.0000	1.4107	64.2350	69.7650	2255.58	<.0001
a*b	1	3	0	0.0000	.	.	.	.	.
a*b	2	1	0	0.0000	.	.	.	.	.
a*b	2	2	0	0.0000	.	.	.	.	.

The ROBUSTREG Procedure

Parameter Estimates									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
a*b	2	3	0	0.0000	.	.	.	.	.
Scale			1	1.4826					

Diagnostics		
Obs	Standardized Robust Residual	Outlier
16	-43.1673	*
17	84.9857	*
18	-41.8184	*

Diagnostics Summary		
Observation Type	Proportion	Cutoff
Outlier	0.1667	3.0000

Goodness-of-Fit	
Statistic	Value
R-Square	0.6902
AICR	30.0488
BICR	43.7472
Deviance	58.0410

Reduced Model Parameter Estimates for MAINA									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept			1	84.0000	1.1057	81.8330	86.1670	5771.88	<.0001
a	1		0	0.0000	.	.	.	.	.
a	2		0	0.0000	.	.	.	.	.
b	1		1	-73.0000	1.9151	-76.7534	-69.2466	1453.06	<.0001
b	2		1	-70.0000	1.9151	-73.7534	-66.2466	1336.08	<.0001
b	3		0	0.0000	.	.	.	.	.
a*b	1	1	1	67.0000	2.2113	62.6659	71.3341	918.01	<.0001
a*b	1	2	1	67.0000	2.2113	62.6659	71.3341	918.01	<.0001
a*b	1	3	0	0.0000	.	.	.	.	.

The ROBUSTREG Procedure

Reduced Model Parameter Estimates for MAINA									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
a*b	2	1	0	0.0000	.	.	.	.	.
a*b	2	2	0	0.0000	.	.	.	.	.
a*b	2	3	0	0.0000	.	.	.	.	.
Scale			0	1.4826					

Robust Linear Tests					
MAINA					
Test	Test Statistic	Lambda	DF	Chi-Square	Pr > ChiSq
Rho	63.1742	0.7977	1	79.20	<.0001
Rn2	5804.511		1	5804.51	<.0001

Reduced Model Parameter Estimates for INTER									
Parameter			DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept			1	84.0000	0.7887	82.4541	85.5459	11342.6	<.0001
a	1		1	-76.0000	0.7887	-77.5459	-74.4541	9284.98	<.0001
a	2		0	0.0000	.	.	.	.	.
b	1		1	-73.0000	0.9660	-74.8933	-71.1067	5710.95	<.0001
b	2		1	-70.0000	0.9660	-71.8933	-68.1067	5251.20	<.0001
b	3		0	0.0000	.	.	.	.	.
a*b	1	1	0	0.0000	.	.	.	.	.
a*b	1	2	0	0.0000	.	.	.	.	.
a*b	1	3	0	0.0000	.	.	.	.	.
a*b	2	1	0	0.0000	.	.	.	.	.
a*b	2	2	0	0.0000	.	.	.	.	.
a*b	2	3	0	0.0000	.	.	.	.	.
Scale			0	1.4826					

The ROBUSTREG Procedure

Robust Linear Tests					
INTER					
Test	Test Statistic	Lambda	DF	Chi-Square	Pr > ChiSq
Rho	21.0581	0.7977	2	26.40	<.0001
Rn2	3007.439		2	3007.44	<.0001

y	a	b
1	1	1
2	1	1
3	1	1
4	1	2
5	1	2
6	1	2
7	1	3
8	1	3
9	1	3
10	2	1
11	2	1
12	2	1
13	2	2
14	2	2
15	2	2
20	2	3
210	2	3
22	2	3