

# TWO GROUP DISCRIMINANT ANALYSIS

## Discriminant

### Warnings

No COMBINED plot is available for a single discriminant function.

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### Analysis Case Processing Summary

Unweighted Cases		N	Percent
Valid		60	60.0
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	0	.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Unselected	40	40.0
	Total	40	40.0
Total		100	100.0

## TWO GROUP DISCRIMINANT ANALYSIS

### Group Statistics

X4 - Region		Mean	Std. Deviation	Valid N ... Unweighted
USA/North America	X6 - Product Quality	8.527	.8633	26
	X7 - E-Commerce Activities	3.388	.5645	26
	X8 - Technical Support	5.569	1.5859	26
	X9 - Complaint Resolution	5.577	1.1981	26
	X10 - Advertising	3.727	1.0106	26
	X11 - Product Line	6.785	.8974	26
	X12 - Salesforce Image	4.427	.9698	26
	X13 - Competitive Pricing	5.600	1.0331	26
	X14 - Warranty & Claims	6.050	.7654	26
	X15 - New Products	4.954	1.4986	26
	X16 - Order & Billing	4.231	.7760	26
	X17 - Price Flexibility	3.631	.5992	26
	X18 - Delivery Speed	3.873	.6983	26
Outside North America	X6 - Product Quality	7.297	1.4690	34
	X7 - E-Commerce Activities	3.626	.6877	34
	X8 - Technical Support	5.050	1.5695	34
	X9 - Complaint Resolution	5.253	1.4540	34
	X10 - Advertising	3.979	1.1643	34
	X11 - Product Line	5.274	1.3072	34
	X12 - Salesforce Image	5.238	1.0192	34
	X13 - Competitive Pricing	7.418	1.3659	34
	X14 - Warranty & Claims	5.918	.7461	34
	X15 - New Products	5.276	1.6717	34
	X16 - Order & Billing	4.153	1.1605	34
	X17 - Price Flexibility	4.932	1.0545	34
	X18 - Delivery Speed	3.794	.8326	34
Total	X6 - Product Quality	7.830	1.3786	60
	X7 - E-Commerce Activities	3.523	.6432	60

## TWO GROUP DISCRIMINANT ANALYSIS

### Group Statistics

X4 - Region		Valid N ... Weighted
USA/North America	X6 - Product Quality	26.000
	X7 - E-Commerce Activities	26.000
	X8 - Technical Support	26.000
	X9 - Complaint Resolution	26.000
	X10 - Advertising	26.000
	X11 - Product Line	26.000
	X12 - Salesforce Image	26.000
	X13 - Competitive Pricing	26.000
	X14 - Warranty & Claims	26.000
	X15 - New Products	26.000
	X16 - Order & Billing	26.000
	X17 - Price Flexibility	26.000
	X18 - Delivery Speed	26.000
Outside North America	X6 - Product Quality	34.000
	X7 - E-Commerce Activities	34.000
	X8 - Technical Support	34.000
	X9 - Complaint Resolution	34.000
	X10 - Advertising	34.000
	X11 - Product Line	34.000
	X12 - Salesforce Image	34.000
	X13 - Competitive Pricing	34.000
	X14 - Warranty & Claims	34.000
	X15 - New Products	34.000
	X16 - Order & Billing	34.000
	X17 - Price Flexibility	34.000
	X18 - Delivery Speed	34.000
Total	X6 - Product Quality	60.000
	X7 - E-Commerce Activities	60.000

## TWO GROUP DISCRIMINANT ANALYSIS

### Group Statistics

X4 - Region		Mean	Std. Deviation	Valid N ... Unweighted
	X8 - Technical Support	5.275	1.5845	60
	X9 - Complaint Resolution	5.393	1.3479	60
	X10 - Advertising	3.870	1.0986	60
	X11 - Product Line	5.928	1.3664	60
	X12 - Salesforce Image	4.887	1.0695	60
	X13 - Competitive Pricing	6.630	1.5234	60
	X14 - Warranty & Claims	5.975	.7510	60
	X15 - New Products	5.137	1.5939	60
	X16 - Order & Billing	4.187	1.0050	60
	X17 - Price Flexibility	4.368	1.0941	60
	X18 - Delivery Speed	3.828	.7720	60

### Group Statistics

X4 - Region		Valid N ... Weighted
	X8 - Technical Support	60.000
	X9 - Complaint Resolution	60.000
	X10 - Advertising	60.000
	X11 - Product Line	60.000
	X12 - Salesforce Image	60.000
	X13 - Competitive Pricing	60.000
	X14 - Warranty & Claims	60.000
	X15 - New Products	60.000
	X16 - Order & Billing	60.000
	X17 - Price Flexibility	60.000
	X18 - Delivery Speed	60.000

## TWO GROUP DISCRIMINANT ANALYSIS

### Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
X6 - Product Quality	.801	14.387	1	58	.000
X7 - E-Commerce Activities	.966	2.054	1	58	.157
X8 - Technical Support	.973	1.598	1	58	.211
X9 - Complaint Resolution	.986	.849	1	58	.361
X10 - Advertising	.987	.775	1	58	.382
X11 - Product Line	.695	25.500	1	58	.000
X12 - Salesforce Image	.856	9.733	1	58	.003
X13 - Competitive Pricing	.645	31.992	1	58	.000
X14 - Warranty & Claims	.992	.453	1	58	.503
X15 - New Products	.990	.600	1	58	.442
X16 - Order & Billing	.999	.087	1	58	.769
X17 - Price Flexibility	.647	31.699	1	58	.000
X18 - Delivery Speed	.997	.152	1	58	.698

### Analysis 1

### Box's Test of Equality of Covariance Matrices

#### Log Determinants

X4 - Region	Rank	Log Determinant
USA/North America	3	-1.291
Outside North America	3	.962
Pooled within-groups	3	.293

The ranks and natural logarithms of determinants printed are those of the group covariance matrices.

## TWO GROUP DISCRIMINANT ANALYSIS

### Test Results

Box's M		17.526
F	Approx.	2.752
	df1	6
	df2	20134.236
	Sig.	.011

Tests null hypothesis of equal population covariance matrices.

### Stepwise Statistics

#### Variables Entered/Removed<sup>a,b,c,d</sup>

		Min. D Squared					
Step	Entered	Statistic	Between Groups	Exact F			Sig.
				Statistic	df1	df2	
1	X13 - Competitive Pricing	2.171	USA/North America and Outside North America	31.992	1	58.000	4.991E-7
2	X17 - Price Flexibility	4.300	USA/North America and Outside North America	31.129	2	57.000	7.286E-10
3	X11 - Product Line	5.045	USA/North America and Outside North America	23.923	3	56.000	4.281E-10

At each step, the variable that maximizes the Mahalanobis distance between the two closest groups is entered.

- a. Maximum number of steps is 26.
- b. Minimum partial F to enter is 3.84.
- c. Maximum partial F to remove is 2.71.
- d. F level, tolerance, or VIN insufficient for further computation.

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables in the Analysis

Step		Tolerance	F to Remove	Min. D Squared	Between Groups
1	X13 - Competitive Pricing	1.000	31.992		
2	X13 - Competitive Pricing	1.000	20.113	2.152	USA/North America and Outside North America
	X17 - Price Flexibility	1.000	19.863	2.171	USA/North America and Outside North America
3	X13 - Competitive Pricing	.849	7.258	4.015	USA/North America and Outside North America
	X17 - Price Flexibility	.999	18.416	2.822	USA/North America and Outside North America
	X11 - Product Line	.848	5.068	4.300	USA/North America and Outside North America

## **TWO GROUP DISCRIMINANT ANALYSIS**

### **Variables Not in the Analysis**

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
0	X6 - Product Quality	1.000	1.000	14.387	.976
	X7 - E-Commerce Activities	1.000	1.000	2.054	.139
	X8 - Technical Support	1.000	1.000	1.598	.108
	X9 - Complaint Resolution	1.000	1.000	.849	.058
	X10 - Advertising	1.000	1.000	.775	.053
	X11 - Product Line	1.000	1.000	25.500	1.731
	X12 - Salesforce Image	1.000	1.000	9.733	.661
	X13 - Competitive Pricing	1.000	1.000	31.992	2.171
	X14 - Warranty & Claims	1.000	1.000	.453	.031
	X15 - New Products	1.000	1.000	.600	.041



## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Between Groups
0	X6 - Product Quality	USA/North America and Outside North America
	X7 - E-Commerce Activities	USA/North America and Outside North America
	X8 - Technical Support	USA/North America and Outside North America
	X9 - Complaint Resolution	USA/North America and Outside North America
	X10 - Advertising	USA/North America and Outside North America
	X11 - Product Line	USA/North America and Outside North America
	X12 - Salesforce Image	USA/North America and Outside North America
	X13 - Competitive Pricing	USA/North America and Outside North America
	X14 - Warranty & Claims	USA/North America and Outside North America
	X15 - New Products	USA/North America and Outside North America

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
	X16 - Order & Billing	1.000	1.000	.087	.006
	X17 - Price Flexibility	1.000	1.000	31.699	2.152
	X18 - Delivery Speed	1.000	1.000	.152	.010
1	X6 - Product Quality	.965	.965	4.926	2.699
	X7 - E-Commerce Activities	.917	.917	.026	2.174
	X8 - Technical Support	.966	.966	.033	2.175
	X9 - Complaint Resolution	.844	.844	1.292	2.310
	X10 - Advertising	.992	.992	.088	2.181
	X11 - Product Line	.849	.849	6.076	2.822
	X12 - Salesforce Image	.987	.987	3.949	2.595

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Between Groups
	X16 - Order & Billing	USA/North America and Outside North America
	X17 - Price Flexibility	USA/North America and Outside North America
	X18 - Delivery Speed	USA/North America and Outside North America
1	X6 - Product Quality	USA/North America and Outside North America
	X7 - E-Commerce Activities	USA/North America and Outside North America
	X8 - Technical Support	USA/North America and Outside North America
	X9 - Complaint Resolution	USA/North America and Outside North America
	X10 - Advertising	USA/North America and Outside North America
	X11 - Product Line	USA/North America and Outside North America
	X12 - Salesforce Image	USA/North America and Outside North America

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
	X14 - Warranty & Claims	.918	.918	.617	2.237
	X15 - New Products	1.000	1.000	.455	2.220
	X16 - Order & Billing	.836	.836	3.022	2.495
	X17 - Price Flexibility	1.000	1.000	19.863	4.300
	X18 - Delivery Speed	.910	.910	1.196	2.300
2	X6 - Product Quality	.884	.884	.681	4.400
	X7 - E-Commerce Activities	.804	.804	2.486	4.665
	X8 - Technical Support	.966	.966	.052	4.308
	X9 - Complaint Resolution	.610	.610	1.479	4.517
	X10 - Advertising	.901	.901	.881	4.429

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Between Groups
	X14 - Warranty & Claims	USA/North America and Outside North America
	X15 - New Products	USA/North America and Outside North America
	X16 - Order & Billing	USA/North America and Outside North America
	X17 - Price Flexibility	USA/North America and Outside North America
	X18 - Delivery Speed	USA/North America and Outside North America
2	X6 - Product Quality	USA/North America and Outside North America
	X7 - E-Commerce Activities	USA/North America and Outside North America
	X8 - Technical Support	USA/North America and Outside North America
	X9 - Complaint Resolution	USA/North America and Outside North America
	X10 - Advertising	USA/North America and Outside North America

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
	X11 - Product Line	.848	.848	5.068	5.045
	X12 - Salesforce Image	.944	.944	.849	4.425
	X14 - Warranty & Claims	.916	.916	.759	4.411
	X15 - New Products	.986	.986	.017	4.302
	X16 - Order & Billing	.625	.625	.245	4.336
	X18 - Delivery Speed	.519	.519	4.261	4.927
3	X6 - Product Quality	.802	.769	.019	5.048
	X7 - E-Commerce Activities	.801	.791	2.672	5.482
	X8 - Technical Support	.961	.832	.004	5.046
	X9 - Complaint Resolution	.233	.233	.719	5.163

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Between Groups
	X11 - Product Line	USA/North America and Outside North America
	X12 - Salesforce Image	USA/North America and Outside North America
	X14 - Warranty & Claims	USA/North America and Outside North America
	X15 - New Products	USA/North America and Outside North America
	X16 - Order & Billing	USA/North America and Outside North America
	X18 - Delivery Speed	USA/North America and Outside North America
3	X6 - Product Quality	USA/North America and Outside North America
	X7 - E-Commerce Activities	USA/North America and Outside North America
	X8 - Technical Support	USA/North America and Outside North America
	X9 - Complaint Resolution	USA/North America and Outside North America

## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step	Tolerance	Min. Tolerance	F to Enter	Min. D Squared
X10 - Advertising	.900	.840	.636	5.149
X12 - Salesforce Image	.931	.829	1.294	5.257
X14 - Warranty & Claims	.836	.775	2.318	5.424
X15 - New Products	.981	.844	.076	5.058
X16 - Order & Billing	.400	.400	1.025	5.213
X18 - Delivery Speed	.031	.031	.208	5.079



## TWO GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step	Between Groups
X10 - Advertising	USA/North America and Outside North America
X12 - Salesforce Image	USA/North America and Outside North America
X14 - Warranty & Claims	USA/North America and Outside North America
X15 - New Products	USA/North America and Outside North America
X16 - Order & Billing	USA/North America and Outside North America
X18 - Delivery Speed	USA/North America and Outside North America

### Wilks' Lambda

Step	Number of Variables	Lambda	df1	df2	df3	Statistic	Exact F df1	df2
1	1	.645	1	1	58	31.992	1	58.000
2	2	.478	2	1	58	31.129	2	57.000
3	3	.438	3	1	58	23.923	3	56.000

### Wilks' Lambda

Step	Exact F Sig.
1	.000
2	.000
3	.000

## TWO GROUP DISCRIMINANT ANALYSIS

### Pairwise Group Comparisons<sup>a,b,c</sup>

Step	X4 - Region		USA/North America	Outside North America
1	USA/North America	F		31.992
		Sig.		.000
	Outside North America	F	31.992	
		Sig.	.000	
2	USA/North America	F		31.129
		Sig.		.000
	Outside North America	F	31.129	
		Sig.	.000	
3	USA/North America	F		23.923
		Sig.		.000
	Outside North America	F	23.923	
		Sig.	.000	

a. 1, 58 degrees of freedom for step 1.

b. 2, 57 degrees of freedom for step 2.

c. 3, 56 degrees of freedom for step 3.

### Summary of Canonical Discriminant Functions

#### Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.282 <sup>a</sup>	100.0	100.0	.749

a. First 1 canonical discriminant functions were used in the analysis.

#### Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.438	46.606	3	.000

## TWO GROUP DISCRIMINANT ANALYSIS

### Standardized Canonical Discriminant Function Coefficients

	Function 1
X11 - Product Line	-.417
X13 - Competitive Pricing	.490
X17 - Price Flexibility	.664

### Structure Matrix

	Function 1
X13 - Competitive Pricing	.656
X17 - Price Flexibility	.653
X11 - Product Line	-.586
X7 - E-Commerce Activities <sup>a</sup>	.429
X6 - Product Quality <sup>a</sup>	-.418
X14 - Warranty & Claims <sup>a</sup>	-.329
X10 - Advertising <sup>a</sup>	.238
X9 - Complaint Resolution <sup>a</sup>	-.181
X12 - Salesforce Image <sup>a</sup>	.164
X16 - Order & Billing <sup>a</sup>	-.149
X8 - Technical Support <sup>a</sup>	-.136
X18 - Delivery Speed <sup>a</sup>	-.060
X15 - New Products <sup>a</sup>	.041

Pooled within-groups correlations  
between discriminating variables and  
standardized canonical discriminant  
functions

Variables ordered by absolute size of  
correlation within function.

a. This variable not used in the analysis.

## **TWO GROUP DISCRIMINANT ANALYSIS**

### **Canonical Discriminant Function Coefficients**

	Function 1
X11 - Product Line	-.363
X13 - Competitive Pricing	.398
X17 - Price Flexibility	.749
(Constant)	-3.752

Unstandardized coefficients

### **Functions at Group Centroids**

	Function 1
X4 - Region	
USA/North America	-1.273
Outside North America	.973

Unstandardized canonical  
discriminant functions evaluated at  
group means

## **Classification Statistics**

### **Classification Processing Summary**

Processed		100
Excluded	Missing or out-of-range group codes	0
	At least one missing discriminating variable	0
Used in Output		100

## TWO GROUP DISCRIMINANT ANALYSIS

### Prior Probabilities for Groups

X4 - Region	Prior	Cases Used in Analysis	
		Unweighted	Weighted
USA/North America	.433	26	26.000
Outside North America	.567	34	34.000
Total	1.000	60	60.000

### Classification Function Coefficients

	X4 - Region	
	USA/North America	Outside North America
X11 - Product Line	7.725	6.909
X13 - Competitive Pricing	6.456	7.349
X17 - Price Flexibility	4.231	5.912
(Constant)	-52.800	-60.623

Fisher's linear discriminant functions

### Casewise Statistics

	Case Number	Actual Group	Predicted Group	Highest Group		
				P(D>d   G=g)		P(G=g   D=d)
				p	df	
Original	1	1	1	.988	1	.944
	2	0	0	.981	1	.909
	3	1	0**	.701	1	.958
	4	1	1	.893	1	.957
	5	0	0	.506	1	.682
	6	1	1	.542	1	.985
	7	1	1	.262	1	.995
	8	1	1	.154	1	.998
	9	1	1	.376	1	.992
	10	0	0	.601	1	.746
	11	1	1	.432	1	.990

## TWO GROUP DISCRIMINANT ANALYSIS

**Casewise Statistics**

	Case Number	Highest Group	Second Highest Group		
		Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
Original	1	.000	0	.056	5.116
	2	.001	1	.091	5.152
	3	.148	1	.042	6.921
	4	.018	0	.043	5.670
	5	.441	1	.318	2.502
	6	.372	0	.015	8.159
	7	1.258	0	.005	11.343
	8	2.034	0	.002	13.485
	9	.783	0	.008	9.805
	10	.274	1	.254	2.968
	11	.618	0	.010	9.194

**Casewise Statistics**

	Case Number	Discriminant Scores
		Function 1
Original	1	.989
	2	-1.296
	3	-1.657
	4	1.108
	5	-.608
	6	1.584
	7	2.095
	8	2.399
	9	1.858
	10	-.749
	11	1.759

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

	Case Number	Actual Group	Predicted Group	Highest Group		
				P(D>d   G=g)		P(G=g   D=d)
				p	df	
	12	0	0	.446	1	.981
	13	1	1	.345	1	.993
	14	0	0	.656	1	.963
	15	1	1	.702	1	.975
	16	1	1	.209	1	.996
	17	1	0**	.507	1	.682
	18	0	0	.626	1	.966
	19	0	0	.626	1	.966
	20	1	1	.354	1	.992
	21	0	0	.474	1	.979
	22	1	0**	.362	1	.551
	23	1	1	.654	1	.978
	24	1	1	.898	1	.924
	25	0	0	.766	1	.949
	26	0	0	.506	1	.682
	27	1	1	.309	1	.623
	28	0	1**	.461	1	.757
	29	1	1	.708	1	.974
	30	0	0	.948	1	.917
	31	1	1	.528	1	.985
	32	0	0	.949	1	.892
	33	1	1	.054	1	.999
	34	1	0**	.821	1	.851
	35	0	0	.979	1	.900
	36	0	0	.981	1	.909
	37	1	0**	.414	1	.604
	38	0	0	.474	1	.979
	39	0	0	.594	1	.742
	40	0	0	.835	1	.938

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Second Highest Group		
	Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
12	.581	1	.019	9.050
13	.891	0	.007	10.176
14	.199	1	.037	7.246
15	.146	0	.025	6.910
16	1.575	0	.004	12.258
17	.440	1	.318	2.505
18	.238	1	.034	7.474
19	.238	1	.034	7.474
20	.860	0	.008	10.071
21	.513	1	.021	8.775
22	.832	1	.449	1.780
23	.201	0	.022	7.259
24	.017	0	.076	4.484
25	.089	1	.051	6.474
26	.441	1	.318	2.502
27	1.037	0	.377	1.508
28	.544	0	.243	2.275
29	.140	0	.026	6.867
30	.004	1	.083	5.344
31	.398	0	.015	8.277
32	.004	1	.108	4.763
33	3.719	0	.001	17.427
34	.051	1	.149	4.080
35	.001	1	.100	4.928
36	.001	1	.091	5.152
37	.667	1	.396	2.044
38	.513	1	.021	8.775
39	.284	1	.258	2.935
40	.043	1	.062	6.026



## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores
Case Number	Function 1	
12	-2.035	
13	1.917	
14	-1.719	
15	1.356	
16	2.228	
17	-.609	
18	-1.761	
19	-1.761	
20	1.901	
21	-1.989	
22	-.361	
23	1.421	
24	.845	
25	-1.571	
26	-.608	
27	-.045	
28	.236	
29	1.348	
30	-1.338	
31	1.604	
32	-1.209	
33	2.902	
34	-1.047	
35	-1.247	
36	-1.296	
37	-.456	
38	-1.989	
39	-.740	
40	-1.481	

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Actual Group	Predicted Group	Highest Group			
			P(D>d   G=g)		df	P(G=g   D=d)
			p			
41	1	1	.309		1	.624
42	0	0	.656		1	.963
43	0	0	.374		1	.564
44	1	0**	.549		1	.713
45	1	1	.381		1	.695
46	1	1	.702		1	.975
47	1	1	.880		1	.958
48	1	1	.396		1	.991
49	0	0	.404		1	.984
50	0	0	.759		1	.950
51	1	1	.263		1	.568
52	0	0	.586		1	.737
53	1	1	.396		1	.991
54	1	1	.547		1	.984
55	0	0	.865		1	.867
56	1	1	.314		1	.994
57	1	0**	.759		1	.950
58	0	0	.594		1	.742
59	0	0	.766		1	.949
60	1	1	.099		1	.998
61 <sup>u</sup>	1	1	.163		1	.997
62 <sup>u</sup>	0	1**	.400		1	.711
63 <sup>u</sup>	1	1	.528		1	.985
64 <sup>u</sup>	1	1	.189		1	.997
65 <sup>u</sup>	1	1	.471		1	.988
66 <sup>u</sup>	1	0**	.144		1	.996
67 <sup>u</sup>	0	0	.265		1	.992
68 <sup>u</sup>	1	1	.619		1	.980

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Second Highest Group		
	Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
41	1.036	0	.376	1.509
42	.199	1	.037	7.246
43	.790	1	.436	1.842
44	.359	1	.287	2.714
45	.766	0	.305	1.879
46	.146	0	.025	6.910
47	.023	0	.042	5.746
48	.721	0	.009	9.580
49	.696	1	.016	9.488
50	.094	1	.050	6.515
51	1.255	0	.432	1.268
52	.296	1	.263	2.897
53	.721	0	.009	9.580
54	.363	0	.016	8.113
55	.029	1	.133	4.311
56	1.013	0	.006	10.578
57	.094	1	.050	6.515
58	.284	1	.258	2.935
59	.089	1	.051	6.474
60	2.715	0	.002	15.162
61 <sup>u</sup>	1.946	0	.003	13.257
62 <sup>u</sup>	.709	0	.289	1.971
63 <sup>u</sup>	.398	0	.015	8.277
64 <sup>u</sup>	1.724	0	.003	12.669
65 <sup>u</sup>	.519	0	.012	8.799
66 <sup>u</sup>	2.132	1	.004	13.737
67 <sup>u</sup>	1.244	1	.008	11.301
68 <sup>u</sup>	.247	0	.020	7.526

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores
Case Number	Function 1	
41	-.044	
42	-1.719	
43	-.384	
44	-.674	
45	.098	
46	1.356	
47	1.124	
48	1.822	
49	-2.107	
50	-1.579	
51	-.147	
52	-.729	
53	1.822	
54	1.575	
55	-1.103	
56	1.980	
57	-1.579	
58	-.740	
59	-1.571	
60	2.621	
61 <sup>u</sup>	2.368	
62 <sup>u</sup>	.131	
63 <sup>u</sup>	1.604	
64 <sup>u</sup>	2.287	
65 <sup>u</sup>	1.693	
66 <sup>u</sup>	-2.733	
67 <sup>u</sup>	-2.388	
68 <sup>u</sup>	1.470	

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Actual Group	Predicted Group	Highest Group		P(G=g   D=d)
			P(D>d   G=g)		
			p	df	
69 <sup>u</sup>	1	1	.105	1	.998
70 <sup>u</sup>	1	1	.317	1	.994
71 <sup>u</sup>	1	1	.045	1	.999
72 <sup>u</sup>	1	1	.025	1	1.000
73 <sup>u</sup>	1	1	.432	1	.990
74 <sup>u</sup>	1	1	.118	1	.998
75 <sup>u</sup>	0	1 <sup>**</sup>	.735	1	.884
76 <sup>u</sup>	1	1	.381	1	.695
77 <sup>u</sup>	1	1	.045	1	.999
78 <sup>u</sup>	1	1	.180	1	.997
79 <sup>u</sup>	0	0	.949	1	.892
80 <sup>u</sup>	1	1	.979	1	.939
81 <sup>u</sup>	1	1	.054	1	.999
82 <sup>u</sup>	1	1	.105	1	.998
83 <sup>u</sup>	1	1	.209	1	.996
84 <sup>u</sup>	1	1	.524	1	.986
85 <sup>u</sup>	1	0 <sup>**</sup>	.821	1	.851
86 <sup>u</sup>	1	1	.988	1	.944
87 <sup>u</sup>	0	0	.586	1	.737
88 <sup>u</sup>	1	1	.375	1	.992
89 <sup>u</sup>	0	1 <sup>**</sup>	.735	1	.884
90 <sup>u</sup>	0	0	.601	1	.746
91 <sup>u</sup>	0	0	.813	1	.848
92 <sup>u</sup>	1	1	.741	1	.972
93 <sup>u</sup>	0	0	.865	1	.867
94 <sup>u</sup>	0	1 <sup>**</sup>	.646	1	.853
95 <sup>u</sup>	1	1	.469	1	.988

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Group	Second Highest Group	
	Squared Mahalanobis Distance to Centroid		P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
69 <sup>u</sup>	2.628	0	.002	14.956
70 <sup>u</sup>	1.003	0	.006	10.548
71 <sup>u</sup>	4.012	0	.001	18.055
72 <sup>u</sup>	5.008	0	.000	20.106
73 <sup>u</sup>	.618	0	.010	9.194
74 <sup>u</sup>	2.444	0	.002	14.511
75 <sup>u</sup>	.115	0	.116	3.638
76 <sup>u</sup>	.766	0	.305	1.879
77 <sup>u</sup>	4.012	0	.001	18.055
78 <sup>u</sup>	1.799	0	.003	12.869
79 <sup>u</sup>	.004	1	.108	4.763
80 <sup>u</sup>	.001	0	.061	4.928
81 <sup>u</sup>	3.719	0	.001	17.427
82 <sup>u</sup>	2.628	0	.002	14.956
83 <sup>u</sup>	1.575	0	.004	12.258
84 <sup>u</sup>	.405	0	.014	8.311
85 <sup>u</sup>	.051	1	.149	4.080
86 <sup>u</sup>	.000	0	.056	5.116
87 <sup>u</sup>	.296	1	.263	2.897
88 <sup>u</sup>	.787	0	.008	9.818
89 <sup>u</sup>	.115	0	.116	3.638
90 <sup>u</sup>	.274	1	.254	2.968
91 <sup>u</sup>	.056	1	.152	4.038
92 <sup>u</sup>	.109	0	.028	6.640
93 <sup>u</sup>	.029	1	.133	4.311
94 <sup>u</sup>	.211	0	.147	3.193
95 <sup>u</sup>	.524	0	.012	8.821

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores
Case Number	Function 1	
69 <sup>u</sup>	2.594	
70 <sup>u</sup>	1.975	
71 <sup>u</sup>	2.976	
72 <sup>u</sup>	3.211	
73 <sup>u</sup>	1.759	
74 <sup>u</sup>	2.537	
75 <sup>u</sup>	.634	
76 <sup>u</sup>	.098	
77 <sup>u</sup>	2.976	
78 <sup>u</sup>	2.315	
79 <sup>u</sup>	-1.209	
80 <sup>u</sup>	.947	
81 <sup>u</sup>	2.902	
82 <sup>u</sup>	2.594	
83 <sup>u</sup>	2.228	
84 <sup>u</sup>	1.610	
85 <sup>u</sup>	-1.047	
86 <sup>u</sup>	.989	
87 <sup>u</sup>	-.729	
88 <sup>u</sup>	1.861	
89 <sup>u</sup>	.634	
90 <sup>u</sup>	-.749	
91 <sup>u</sup>	-1.036	
92 <sup>u</sup>	1.304	
93 <sup>u</sup>	-1.103	
94 <sup>u</sup>	.514	
95 <sup>u</sup>	1.697	

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

	Case Number	Actual Group	Predicted Group	Highest Group		
				P(D>d   G=g)		P(G=g   D=d)
				p	df	
	96 <sup>u</sup>	0	0	.704	1	.802
	97 <sup>u</sup>	0	0	.446	1	.981
	98 <sup>u</sup>	0	0	.484	1	.664
	99 <sup>u</sup>	1	1	.465	1	.988
	100 <sup>u</sup>	1	1	.874	1	.959
Cross-validated <sup>c</sup>	1	1	1	.885	3	.941
	2	0	0	.655	3	.901
	3	1	0 <sup>**</sup>	.786	3	.980
	4	1	1	.507	3	.952
	5	0	0	.761	3	.666
	6	1	1	.752	3	.984
	7	1	1	.033	3	.996
	8	1	1	.078	3	.998
	9	1	1	.523	3	.991
	10	0	0	.747	3	.731
	11	1	1	.667	3	.989
	12	0	0	.032	3	.979
	13	1	1	.046	3	.993
	14	0	0	.803	3	.960
	15	1	1	.332	3	.972
	16	1	1	.445	3	.996
	17	1	0 <sup>**</sup>	.734	3	.723
	18	0	0	.861	3	.964
	19	0	0	.861	3	.964
	20	1	1	.696	3	.992
	21	0	0	.673	3	.978
	22	1	0 <sup>**</sup>	.533	3	.597
	23	1	1	.426	3	.976



## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

	Case Number	Highest Group	Second Highest Group		
		Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
	96 <sup>u</sup>	.144	1	.198	3.483
	97 <sup>u</sup>	.581	1	.019	9.050
	98 <sup>u</sup>	.489	1	.336	2.392
	99 <sup>u</sup>	.534	0	.012	8.861
	100 <sup>u</sup>	.025	0	.041	5.780
Cross-validated <sup>c</sup>	1	.648	0	.059	5.638
	2	1.618	1	.099	6.562
	3	1.062	1	.020	9.420
	4	2.330	0	.048	7.775
	5	1.166	1	.334	3.086
	6	1.206	0	.016	8.877
	7	8.752	0	.004	19.021
	8	6.829	0	.002	18.619
	9	2.247	0	.009	11.203
	10	1.226	1	.269	3.758
	11	1.568	0	.011	10.054
	12	8.771	1	.021	16.989
	13	7.991	0	.007	17.310
	14	.993	1	.040	7.895
	15	3.418	0	.028	9.979
	16	2.673	0	.004	13.415
	17	1.281	1	.277	3.736
	18	.752	1	.036	7.855
	19	.752	1	.036	7.855
	20	1.442	0	.008	10.588
	21	1.542	1	.022	9.674
	22	2.193	1	.403	3.515
	23	2.784	0	.024	9.672

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores
	Case Number	Function 1
	96 <sup>u</sup>	-.893
	97 <sup>u</sup>	-2.035
	98 <sup>u</sup>	-.573
	99 <sup>u</sup>	1.704
	100 <sup>u</sup>	1.131
Cross-validated <sup>c</sup>	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	16	
	17	
	18	
	19	
	20	
	21	
	22	
	23	

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Actual Group	Predicted Group	Highest Group		P(G=g   D=d)
			P(D>d   G=g)		
			p	df	
24	1	1	.688	3	.918
25	0	0	.766	3	.945
26	0	0	.761	3	.666
27	1	1	.073	3	.520
28	0	1**	.636	3	.799
29	1	1	.200	3	.971
30	0	0	.777	3	.910
31	1	1	.281	3	.984
32	0	0	.064	3	.856
33	1	1	.024	3	1.000
34	1	0**	.706	3	.898
35	0	0	.782	3	.892
36	0	0	.655	3	.901
37	1	0**	.584	3	.650
38	0	0	.673	3	.978
39	0	0	.437	3	.709
40	0	0	.677	3	.933
41	1	1	.396	3	.586
42	0	0	.803	3	.960
43	0	1**	.196	3	.502
44	1	0**	.299	3	.801
45	1	1	.417	3	.663
46	1	1	.332	3	.972
47	1	1	.385	3	.953
48	1	1	.673	3	.991
49	0	0	.539	3	.983
50	0	0	.771	3	.946
51	1	0**	.224	3	.504
52	0	0	.505	3	.708

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Second Highest Group		
	Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
24	1.477	0	.082	5.769
25	1.146	1	.055	7.368
26	1.166	1	.334	3.086
27	6.975	0	.480	6.602
28	1.704	0	.201	3.927
29	4.637	0	.029	11.123
30	1.098	1	.090	6.269
31	3.823	0	.016	11.563
32	7.245	1	.144	11.341
33	9.483	0	.000	24.161
34	1.397	1	.102	6.276
35	1.081	1	.108	5.839
36	1.618	1	.099	6.562
37	1.944	1	.350	3.721
38	1.542	1	.022	9.674
39	2.719	1	.291	5.037
40	1.523	1	.067	7.315
41	2.973	0	.414	3.134
42	.993	1	.040	7.895
43	4.686	0	.498	4.167
44	3.674	1	.199	6.993
45	2.838	0	.337	3.651
46	3.418	0	.028	9.979
47	3.045	0	.047	8.530
48	1.539	0	.009	10.320
49	2.162	1	.017	10.838
50	1.127	1	.054	7.387
51	4.372	1	.496	4.942
52	2.337	1	.292	4.650

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores
Case Number	Function 1	
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		

## TWO GROUP DISCRIMINANT ANALYSIS

**Casewise Statistics**

Case Number	Actual Group	Predicted Group	Highest Group			
			P(D>d   G=g)		df	P(G=g   D=d)
			p			
53	1	1	.673		3	.991
54	1	1	.793		3	.983
55	0	0	.938		3	.860
56	1	1	.066		3	.994
57	1	0**	.781		3	.975
58	0	0	.437		3	.709
59	0	0	.766		3	.945
60	1	1	.241		3	.999

**Casewise Statistics**

Case Number	Highest Group Squared Mahalanobis Distance to Centroid	Second Highest Group		
		Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
53	1.539	0	.009	10.320
54	1.036	0	.017	8.672
55	.411	1	.140	4.586
56	7.178	0	.006	16.806
57	1.082	1	.025	8.973
58	2.719	1	.291	5.037
59	1.146	1	.055	7.368
60	4.198	0	.001	16.964

## TWO GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores
		Function 1
Case Number		
53		
54		
55		
56		
57		
58		
59		
60		

For the original data, squared Mahalanobis distance is based on canonical functions.

For the cross-validated data, squared Mahalanobis distance is based on observations.

\*\* . Misclassified case

..

u. Unselected case

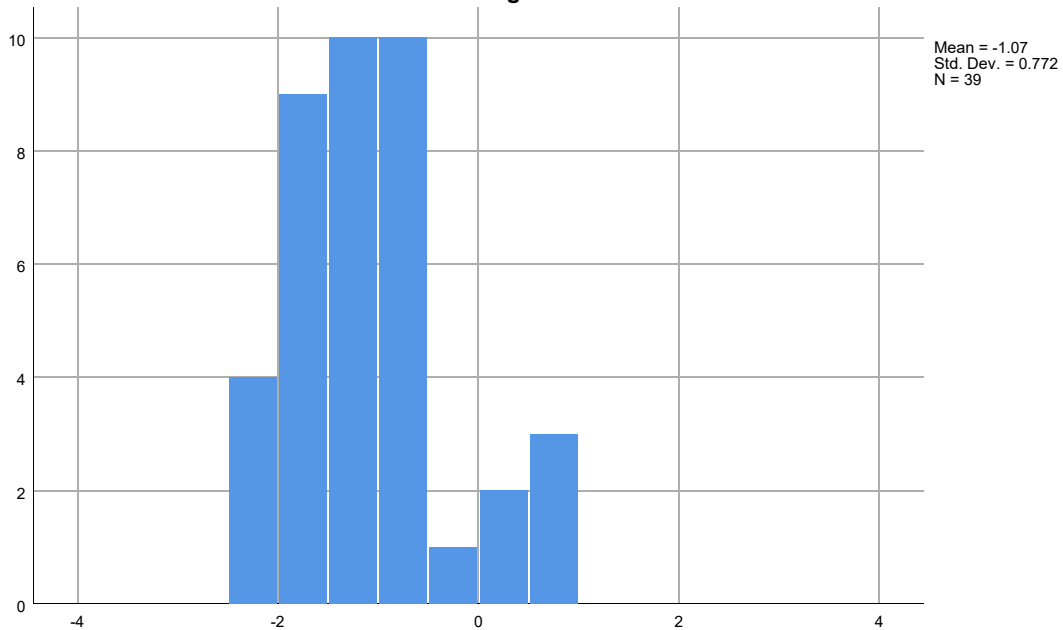
c. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

### Separate-Groups Graphs

# TWO GROUP DISCRIMINANT ANALYSIS

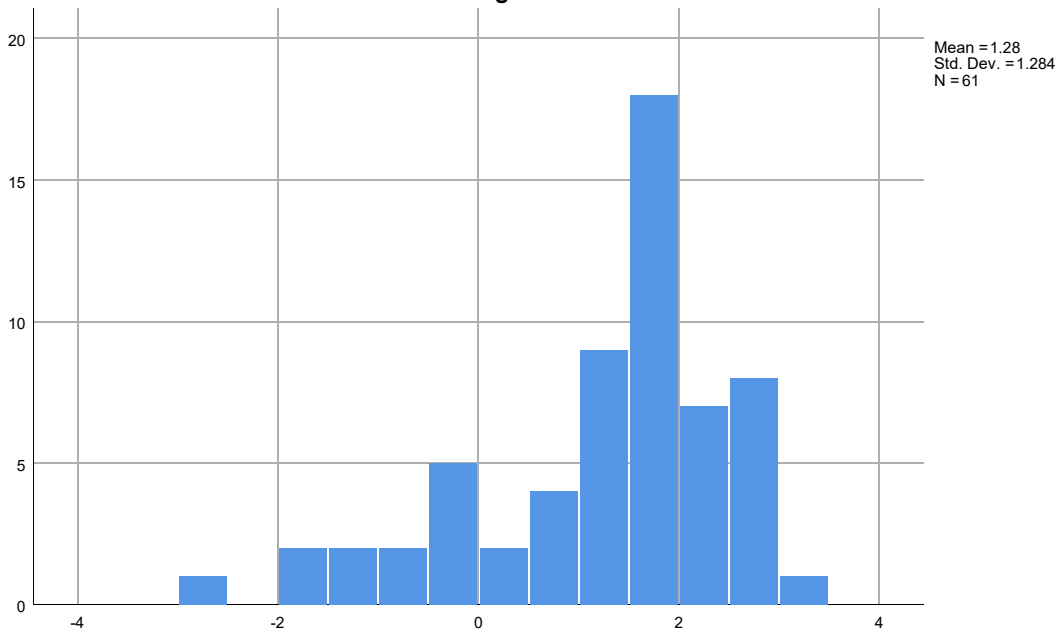
## Canonical Discriminant Function 1

X4 - Region = USA/North America



## Canonical Discriminant Function 1

X4 - Region = Outside North Americ





## TWO GROUP DISCRIMINANT ANALYSIS

### Classification Results<sup>a,b,d</sup>

			Predicted Group	
			X4 - Region	USA/North America
Cases Selected	Original	Count	USA/North America	25
			Outside North America	7
		%	USA/North America	96.2
			Outside North America	20.6
	Cross-validated <sup>c</sup>	Count	USA/North America	24
			Outside North America	8
		%	USA/North America	92.3
			Outside North America	23.5
Cases Not Selected	Original	Count	USA/North America	9
			Outside North America	2
		%	USA/North America	69.2
			Outside North America	7.4

### Classification Results<sup>a,b,d</sup>

				Predicted Group ...	
				Outside North America	Total
				X4 - Region	
Cases Selected	Original	Count	USA/North America	1	26
			Outside North America	27	34
		%	USA/North America	3.8	100.0
			Outside North America	79.4	100.0
	Cross-validated <sup>c</sup>	Count	USA/North America	2	26
			Outside North America	26	34
		%	USA/North America	7.7	100.0
			Outside North America	76.5	100.0
Cases Not Selected	Original	Count	USA/North America	4	13
			Outside North America	25	27
		%	USA/North America	30.8	100.0
			Outside North America	92.6	100.0

## **TWO GROUP DISCRIMINANT ANALYSIS**

- a. 86.7% of selected original grouped cases correctly classified.
- b. 85.0% of unselected original grouped cases correctly classified.
- c. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
- d. 83.3% of selected cross-validated grouped cases correctly classified.

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Discriminant**

#### **Warnings**

Both COEFFICIENT and STRUCTURE have been specified on the ROTATE subcommand. COEFFICIENT will be honored.

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#### **Analysis Case Processing Summary**

Unweighted Cases		N	Percent
Valid		60	60.0
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	0	.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Unselected	40	40.0
	Total	40	40.0
Total		100	100.0

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Group Statistics**

X1 - Customer Type		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
Less than 1 year	X6 - Product Quality	7.118	.9137	22	22.000
	X7 - E-Commerce Activities	3.514	.5971	22	22.000
	X8 - Technical Support	4.959	1.7151	22	22.000
	X9 - Complaint Resolution	4.064	.8267	22	22.000
	X10 - Advertising	3.745	1.0079	22	22.000
	X11 - Product Line	4.855	1.0550	22	22.000
	X12 - Salesforce Image	4.673	.9881	22	22.000
	X13 - Competitive Pricing	7.345	1.4647	22	22.000
	X14 - Warranty & Claims	5.705	.8403	22	22.000
	X15 - New Products	4.986	1.8460	22	22.000
	X16 - Order & Billing	3.291	.7283	22	22.000
	X17 - Price Flexibility	4.018	1.0145	22	22.000
	X18 - Delivery Speed	3.059	.5049	22	22.000
	1 to 5 years	X6 - Product Quality	6.785	1.4206	13
X7 - E-Commerce Activities		3.754	.6450	13	13.000
X8 - Technical Support		5.615	1.5947	13	13.000
X9 - Complaint Resolution		5.900	.9548	13	13.000
X10 - Advertising		4.277	1.1519	13	13.000
X11 - Product Line		5.577	.9816	13	13.000
X12 - Salesforce Image		5.346	.9315	13	13.000
X13 - Competitive Pricing		7.123	1.2438	13	13.000
X14 - Warranty & Claims		6.246	.7742	13	13.000
X15 - New Products		5.092	1.2148	13	13.000
X16 - Order & Billing		4.715	.7470	13	13.000
X17 - Price Flexibility		5.508	1.1892	13	13.000
X18 - Delivery Speed		4.246	.6186	13	13.000
Over 5 years		X6 - Product Quality	9.000	.6708	25
	X7 - E-Commerce Activities	3.412	.6747	25	25.000

## THREE GROUP DISCRIMINANT ANALYSIS

### Group Statistics

X1 - Customer Type		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
	X8 - Technical Support	5.376	1.4703	25	25.000
	X9 - Complaint Resolution	6.300	.8926	25	25.000
	X10 - Advertising	3.768	1.1401	25	25.000
	X11 - Product Line	7.056	.8282	25	25.000
	X12 - Salesforce Image	4.836	1.1683	25	25.000
	X13 - Competitive Pricing	5.744	1.2790	25	25.000
	X14 - Warranty & Claims	6.072	.5934	25	25.000
	X15 - New Products	5.292	1.5745	25	25.000
	X16 - Order & Billing	4.700	.7605	25	25.000
	X17 - Price Flexibility	4.084	.6600	25	25.000
	X18 - Delivery Speed	4.288	.4400	25	25.000
Total	X6 - Product Quality	7.830	1.3786	60	60.000
	X7 - E-Commerce Activities	3.523	.6432	60	60.000
	X8 - Technical Support	5.275	1.5845	60	60.000
	X9 - Complaint Resolution	5.393	1.3479	60	60.000
	X10 - Advertising	3.870	1.0986	60	60.000
	X11 - Product Line	5.928	1.3664	60	60.000
	X12 - Salesforce Image	4.887	1.0695	60	60.000
	X13 - Competitive Pricing	6.630	1.5234	60	60.000
	X14 - Warranty & Claims	5.975	.7510	60	60.000
	X15 - New Products	5.137	1.5939	60	60.000
	X16 - Order & Billing	4.187	1.0050	60	60.000
	X17 - Price Flexibility	4.368	1.0941	60	60.000
	X18 - Delivery Speed	3.828	.7720	60	60.000

## THREE GROUP DISCRIMINANT ANALYSIS

### Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
X6 - Product Quality	.469	32.311	2	57	.000
X7 - E-Commerce Activities	.959	1.221	2	57	.303
X8 - Technical Support	.973	.782	2	57	.462
X9 - Complaint Resolution	.414	40.292	2	57	.000
X10 - Advertising	.961	1.147	2	57	.325
X11 - Product Line	.467	32.583	2	57	.000
X12 - Salesforce Image	.943	1.708	2	57	.190
X13 - Competitive Pricing	.751	9.432	2	57	.000
X14 - Warranty & Claims	.916	2.619	2	57	.082
X15 - New Products	.992	.216	2	57	.807
X16 - Order & Billing	.532	25.048	2	57	.000
X17 - Price Flexibility	.694	12.551	2	57	.000
X18 - Delivery Speed	.415	40.176	2	57	.000

### Analysis 1

### Box's Test of Equality of Covariance Matrices

#### Log Determinants

X1 - Customer Type	Rank	Log Determinant
Less than 1 year	2	-1.667
1 to 5 years	2	-1.032
Over 5 years	2	-2.603
Pooled within-groups	2	-1.726

The ranks and natural logarithms of determinants printed are those of the group covariance matrices.

## THREE GROUP DISCRIMINANT ANALYSIS

### Test Results

Box's M		11.458
F	Approx.	1.802
	df1	6
	df2	19471.783
	Sig.	.094

Tests null hypothesis of equal population covariance matrices.

### Stepwise Statistics

#### Variables Entered/Removed<sup>a,b,c,d</sup>

Step	Entered	Removed	Statistic	Min. D Squared			
				Between Groups	Statistic	Exact F df1	df2
1	X11 - Product Line		.579	Less than 1 year and 1 to 5 years	4.729	1	57.000
2	X17 - Price Flexibility		3.322	1 to 5 years and Over 5 years	13.958	2	56.000
3	X6 - Product Quality		6.071	Less than 1 year and 1 to 5 years	15.957	3	55.000
4	X18 - Delivery Speed		6.920	Less than 1 year and 1 to 5 years	13.393	4	54.000
5		X17 - Price Flexibility	6.916	Less than 1 year and 1 to 5 years	18.177	3	55.000
6		X11 - Product Line	6.388	Less than 1 year and 1 to 5 years	25.642	2	56.000

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables Entered/Removed<sup>a,b,c,d</sup>**

Step	Min. D ...
	Exact F Sig.
1	.034
2	1.207E-5
3	1.388E-7
4	1.198E-7
5	2.551E-8
6	1.243E-8

At each step, the variable that maximizes the Mahalanobis distance between the two closest groups is entered.

- a. Maximum number of steps is 26.
- b. Minimum partial F to enter is 3.84.
- c. Maximum partial F to remove is 2.71.
- d.
- d. F level, tolerance, or VIN insufficient for further computation.



## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables in the Analysis**

Step		Tolerance	F to Remove	Min. D Squared	Between Groups
1	X11 - Product Line	1.000	32.583		
2	X11 - Product Line	.807	39.405	.005	Less than 1 year and Over 5 years
	X17 - Price Flexibility	.807	17.300	.579	Less than 1 year and 1 to 5 years
3	X11 - Product Line	.752	31.532	2.783	Less than 1 year and 1 to 5 years
	X17 - Price Flexibility	.589	24.299	.698	Less than 1 year and 1 to 5 years
	X6 - Product Quality	.730	24.444	3.322	1 to 5 years and Over 5 years
4	X11 - Product Line	.075	.918	6.830	Less than 1 year and 1 to 5 years
	X17 - Price Flexibility	.070	1.735	6.916	Less than 1 year and 1 to 5 years
	X6 - Product Quality	.680	27.701	3.598	1 to 5 years and Over 5 years
	X18 - Delivery Speed	.063	5.387	6.071	Less than 1 year and 1 to 5 years
5	X11 - Product Line	.701	2.552	6.388	Less than 1 year and 1 to 5 years
	X6 - Product Quality	.684	28.904	2.988	1 to 5 years and Over 5 years
	X18 - Delivery Speed	.529	30.883	.698	Less than 1 year and 1 to 5 years

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables in the Analysis**

Step		Tolerance	F to Remove	Min. D Squared	Between Groups
6	X6 - Product Quality	.754	50.494	.007	1 to 5 years and Over 5 years
	X18 - Delivery Speed	.754	60.646	.121	Less than 1 year and 1 to 5 years

### **Variables Not in the Analysis**

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
0	X6 - Product Quality	1.000	1.000	32.311	.121
	X7 - E-Commerce Activities	1.000	1.000	1.221	.025
	X8 - Technical Support	1.000	1.000	.782	.023
	X9 - Complaint Resolution	1.000	1.000	40.292	.205
	X10 - Advertising	1.000	1.000	1.147	.000
	X11 - Product Line	1.000	1.000	32.583	.579
	X12 - Salesforce Image	1.000	1.000	1.708	.024
	X13 - Competitive Pricing	1.000	1.000	9.432	.027
	X14 - Warranty & Claims	1.000	1.000	2.619	.057
	X15 - New Products	1.000	1.000	.216	.004

## THREE GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Between Groups
0	X6 - Product Quality	Less than 1 year and 1 to 5 years
	X7 - E-Commerce Activities	Less than 1 year and Over 5 years
	X8 - Technical Support	1 to 5 years and Over 5 years
	X9 - Complaint Resolution	1 to 5 years and Over 5 years
	X10 - Advertising	Less than 1 year and Over 5 years
	X11 - Product Line	Less than 1 year and 1 to 5 years
	X12 - Salesforce Image	Less than 1 year and Over 5 years
	X13 - Competitive Pricing	Less than 1 year and 1 to 5 years
	X14 - Warranty & Claims	1 to 5 years and Over 5 years
	X15 - New Products	Less than 1 year and 1 to 5 years

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables Not in the Analysis**

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
1	X16 - Order & Billing	1.000	1.000	25.048	.000
	X17 - Price Flexibility	1.000	1.000	12.551	.005
	X18 - Delivery Speed	1.000	1.000	40.176	.007
	X6 - Product Quality	1.000	1.000	17.426	.698
	X7 - E-Commerce Activities	.950	.950	1.171	.892
	X8 - Technical Support	.959	.959	.733	.649
	X9 - Complaint Resolution	.847	.847	15.446	2.455
	X10 - Advertising	.998	.998	1.113	.850
	X12 - Salesforce Image	.932	.932	3.076	1.328
	X13 - Competitive Pricing	.849	.849	.647	.599
	X14 - Warranty & Claims	.882	.882	2.299	.839
	X15 - New Products	.993	.993	.415	.596
	X16 - Order & Billing	.943	.943	12.176	2.590

## THREE GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Between Groups
	X16 - Order & Billing	1 to 5 years and Over 5 years
	X17 - Price Flexibility	Less than 1 year and Over 5 years
	X18 - Delivery Speed	1 to 5 years and Over 5 years
1	X6 - Product Quality	Less than 1 year and 1 to 5 years
	X7 - E-Commerce Activities	Less than 1 year and 1 to 5 years
	X8 - Technical Support	Less than 1 year and 1 to 5 years
	X9 - Complaint Resolution	1 to 5 years and Over 5 years
	X10 - Advertising	Less than 1 year and 1 to 5 years
	X12 - Salesforce Image	Less than 1 year and 1 to 5 years
	X13 - Competitive Pricing	Less than 1 year and 1 to 5 years
	X14 - Warranty & Claims	Less than 1 year and 1 to 5 years
	X15 - New Products	Less than 1 year and 1 to 5 years
	X16 - Order & Billing	1 to 5 years and Over 5 years

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables Not in the Analysis**

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
	X17 - Price Flexibility	.807	.807	17.300	3.322
	X18 - Delivery Speed	.773	.773	19.020	2.988
2	X6 - Product Quality	.730	.589	24.444	6.071
	X7 - E-Commerce Activities	.880	.747	.014	3.327
	X8 - Technical Support	.949	.791	1.023	3.655
	X9 - Complaint Resolution	.520	.475	3.932	3.608
	X10 - Advertising	.935	.756	.102	3.348
	X12 - Salesforce Image	.884	.765	.662	3.342
	X13 - Competitive Pricing	.794	.750	.989	3.372
	X14 - Warranty & Claims	.868	.750	2.733	4.225
	X15 - New Products	.963	.782	.504	3.505
	X16 - Order & Billing	.754	.645	2.456	3.323
	X18 - Delivery Speed	.067	.067	3.255	3.598

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables Not in the Analysis**

Step		Between Groups
	X17 - Price Flexibility	1 to 5 years and Over 5 years
	X18 - Delivery Speed	1 to 5 years and Over 5 years
2	X6 - Product Quality	Less than 1 year and 1 to 5 years
	X7 - E-Commerce Activities	1 to 5 years and Over 5 years
	X8 - Technical Support	1 to 5 years and Over 5 years
	X9 - Complaint Resolution	1 to 5 years and Over 5 years
	X10 - Advertising	1 to 5 years and Over 5 years
	X12 - Salesforce Image	1 to 5 years and Over 5 years
	X13 - Competitive Pricing	1 to 5 years and Over 5 years
	X14 - Warranty & Claims	1 to 5 years and Over 5 years
	X15 - New Products	1 to 5 years and Over 5 years
	X16 - Order & Billing	1 to 5 years and Over 5 years
	X18 - Delivery Speed	1 to 5 years and Over 5 years

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables Not in the Analysis**

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
3	X7 - E-Commerce Activities	.871	.568	.183	6.075
	X8 - Technical Support	.945	.580	.814	6.380
	X9 - Complaint Resolution	.491	.351	.704	6.384
	X10 - Advertising	.932	.568	.004	6.072
	X12 - Salesforce Image	.872	.578	1.030	6.315
	X13 - Competitive Pricing	.792	.553	.899	6.298
	X14 - Warranty & Claims	.847	.568	2.137	6.962
	X15 - New Products	.935	.556	.349	6.239
	X16 - Order & Billing	.685	.428	1.377	6.512
	X18 - Delivery Speed	.063	.063	5.387	6.920
4	X7 - E-Commerce Activities	.870	.063	.226	6.931
	X8 - Technical Support	.940	.063	.793	7.164
	X9 - Complaint Resolution	.453	.058	.292	7.019



## THREE GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Between Groups
3	X7 - E-Commerce Activities	Less than 1 year and 1 to 5 years
	X8 - Technical Support	Less than 1 year and 1 to 5 years
	X9 - Complaint Resolution	Less than 1 year and 1 to 5 years
	X10 - Advertising	Less than 1 year and 1 to 5 years
	X12 - Salesforce Image	Less than 1 year and 1 to 5 years
	X13 - Competitive Pricing	Less than 1 year and 1 to 5 years
	X14 - Warranty & Claims	Less than 1 year and 1 to 5 years
	X15 - New Products	Less than 1 year and 1 to 5 years
	X16 - Order & Billing	Less than 1 year and 1 to 5 years
	X18 - Delivery Speed	Less than 1 year and 1 to 5 years
4	X7 - E-Commerce Activities	Less than 1 year and 1 to 5 years
	X8 - Technical Support	Less than 1 year and 1 to 5 years
	X9 - Complaint Resolution	Less than 1 year and 1 to 5 years

## THREE GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
	X10 - Advertising	.932	.063	.006	6.921
	X12 - Salesforce Image	.843	.061	.315	7.031
	X13 - Competitive Pricing	.790	.063	.924	7.193
	X14 - Warranty & Claims	.843	.063	2.023	7.696
	X15 - New Products	.927	.062	.227	7.028
	X16 - Order & Billing	.671	.062	1.478	7.210
5	X7 - E-Commerce Activities	.879	.515	.128	6.925
	X8 - Technical Support	.951	.524	.683	7.163
	X9 - Complaint Resolution	.453	.290	.322	7.014
	X10 - Advertising	.935	.511	.020	6.916
	X12 - Salesforce Image	.856	.509	.469	7.030
	X13 - Competitive Pricing	.791	.496	1.054	7.191
	X14 - Warranty & Claims	.858	.516	1.849	7.693

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables Not in the Analysis**

Step		Between Groups
	X10 - Advertising	Less than 1 year and 1 to 5 years
	X12 - Salesforce Image	Less than 1 year and 1 to 5 years
	X13 - Competitive Pricing	Less than 1 year and 1 to 5 years
	X14 - Warranty & Claims	Less than 1 year and 1 to 5 years
	X15 - New Products	Less than 1 year and 1 to 5 years
	X16 - Order & Billing	Less than 1 year and 1 to 5 years
5	X7 - E-Commerce Activities	Less than 1 year and 1 to 5 years
	X8 - Technical Support	Less than 1 year and 1 to 5 years
	X9 - Complaint Resolution	Less than 1 year and 1 to 5 years
	X10 - Advertising	Less than 1 year and 1 to 5 years
	X12 - Salesforce Image	Less than 1 year and 1 to 5 years
	X13 - Competitive Pricing	Less than 1 year and 1 to 5 years
	X14 - Warranty & Claims	Less than 1 year and 1 to 5 years

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Variables Not in the Analysis**

Step		Tolerance	Min. Tolerance	F to Enter	Min. D Squared
	X15 - New Products	.954	.509	.221	7.028
	X16 - Order & Billing	.675	.379	1.755	7.198
	X17 - Price Flexibility	.070	.063	1.735	6.920
6	X7 - E-Commerce Activities	.954	.728	.177	6.474
	X8 - Technical Support	.999	.753	.269	6.495

### **Variables Not in the Analysis**

Step		Between Groups
	X15 - New Products	Less than 1 year and 1 to 5 years
	X16 - Order & Billing	Less than 1 year and 1 to 5 years
	X17 - Price Flexibility	Less than 1 year and 1 to 5 years
6	X7 - E-Commerce Activities	Less than 1 year and 1 to 5 years
	X8 - Technical Support	Less than 1 year and 1 to 5 years

## THREE GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step	Tolerance	Min. Tolerance	F to Enter	Min. D Squared
X9 - Complaint Resolution	.453	.349	.376	6.490
X10 - Advertising	.954	.742	.128	6.402
X11 - Product Line	.701	.529	2.552	6.916
X12 - Salesforce Image	.957	.730	.641	6.697
X13 - Competitive Pricing	.994	.749	1.440	6.408
X14 - Warranty & Claims	.991	.751	.657	6.694
X15 - New Products	.984	.744	.151	6.428
X16 - Order & Billing	.682	.514	2.397	6.750
X17 - Price Flexibility	.652	.628	3.431	6.830

## THREE GROUP DISCRIMINANT ANALYSIS

### Variables Not in the Analysis

Step	Between Groups
X9 - Complaint Resolution	Less than 1 year and 1 to 5 years
X10 - Advertising	Less than 1 year and 1 to 5 years
X11 - Product Line	Less than 1 year and 1 to 5 years
X12 - Salesforce Image	Less than 1 year and 1 to 5 years
X13 - Competitive Pricing	Less than 1 year and 1 to 5 years
X14 - Warranty & Claims	Less than 1 year and 1 to 5 years
X15 - New Products	Less than 1 year and 1 to 5 years
X16 - Order & Billing	Less than 1 year and 1 to 5 years
X17 - Price Flexibility	Less than 1 year and 1 to 5 years

### Wilks' Lambda

Step	Number of Variables	Lambda	df1	df2	df3	Statistic	Exact F df1	df2
1	1	.467	1	2	57	32.583	2	57.000
2	2	.288	2	2	57	24.139	4	112.000
3	3	.153	3	2	57	28.585	6	110.000
4	4	.127	4	2	57	24.340	8	108.000
5	3	.135	3	2	57	31.478	6	110.000
6	2	.148	2	2	57	44.774	4	112.000

## THREE GROUP DISCRIMINANT ANALYSIS

### Wilks' Lambda

Step	Exact F Sig.
1	.000
2	.000
3	.000
4	.000
5	.000
6	.000

### Pairwise Group Comparisons<sup>a,b,c,d,e,f</sup>

Step	X1 - Customer Type		Less than 1 year	1 to 5 years	Over 5 years
1	Less than 1 year	F		4.729	62.893
		Sig.		.034	.000
	1 to 5 years	F	4.729		20.749
		Sig.	.034		.000
	Over 5 years	F	62.893	20.749	
		Sig.	.000	.000	
2	Less than 1 year	F		21.054	39.360
		Sig.		.000	.000
	1 to 5 years	F	21.054		13.958
		Sig.	.000		.000
	Over 5 years	F	39.360	13.958	
		Sig.	.000	.000	
3	Less than 1 year	F		15.957	60.542
		Sig.		.000	.000
	1 to 5 years	F	15.957		21.625
		Sig.	.000		.000
	Over 5 years	F	60.542	21.625	
		Sig.	.000	.000	
4	Less than 1 year	F		13.393	56.164
		Sig.		.000	.000
	1 to 5 years	F	13.393		18.477
		Sig.	.000		.000

## THREE GROUP DISCRIMINANT ANALYSIS

### Pairwise Group Comparisons<sup>a,b,c,d,e,f</sup>

Step	X1 - Customer Type		Less than 1 year	1 to 5 years	Over 5 years
5	Over 5 years	F	56.164	18.477	
		Sig.	.000	.000	
	Less than 1 year	F		18.177	72.377
		Sig.		.000	.000
	1 to 5 years	F	18.177		22.602
		Sig.	.000		.000
	Over 5 years	F	72.377	22.602	
		Sig.	.000	.000	
6	Less than 1 year	F		25.642	110.261
		Sig.		.000	.000
	1 to 5 years	F	25.642		30.756
		Sig.	.000		.000
	Over 5 years	F	110.261	30.756	
		Sig.	.000	.000	

- a. 1, 57 degrees of freedom for step 1.
- b. 2, 56 degrees of freedom for step 2.
- c. 3, 55 degrees of freedom for step 3.
- d. 4, 54 degrees of freedom for step 4.
- e. 3, 55 degrees of freedom for step 5.
- f. 2, 56 degrees of freedom for step 6.

### Summary of Canonical Discriminant Functions

#### Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	3.950 <sup>a</sup>	91.5	91.5	.893
2	.365 <sup>a</sup>	8.5	100.0	.517

- a. First 2 canonical discriminant functions were used in the analysis.



## THREE GROUP DISCRIMINANT ANALYSIS

### Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.148	107.932	4	.000
2	.733	17.569	1	.000

### Standardized Canonical Discriminant Function Coefficients

	Function	
	1	2
X6 - Product Quality	.969	.622
X18 - Delivery Speed	1.021	-.533

### Structure Matrix

	Function	
	1	2
X9 - Complaint Resolution <sup>a</sup>	.572 <sup>*</sup>	-.470
X16 - Order & Billing <sup>a</sup>	.499 <sup>*</sup>	-.263
X11 - Product Line <sup>a</sup>	.483 <sup>*</sup>	-.256
X15 - New Products <sup>a</sup>	.125 <sup>*</sup>	-.005
X8 - Technical Support <sup>a</sup>	.030 <sup>*</sup>	-.017
X6 - Product Quality	.463	.886 <sup>*</sup>
X18 - Delivery Speed	.540	-.842 <sup>*</sup>
X17 - Price Flexibility <sup>a</sup>	.106	-.580 <sup>*</sup>
X10 - Advertising <sup>a</sup>	.028	-.213 <sup>*</sup>
X7 - E-Commerce Activities <sup>a</sup>	-.095	-.193 <sup>*</sup>
X12 - Salesforce Image <sup>a</sup>	-.088	-.188 <sup>*</sup>
X14 - Warranty & Claims <sup>a</sup>	.030	-.088 <sup>*</sup>
X13 - Competitive Pricing <sup>a</sup>	-.055	-.059 <sup>*</sup>

## **THREE GROUP DISCRIMINANT ANALYSIS**

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions

Variables ordered by absolute size of correlation within function.

\*. Largest absolute correlation between each variable and any discriminant function

a. This variable not used in the analysis.

### **Rotation Statistics**

#### **Varimax Transformation Matrix**

Function	1	2
1	.738	.675
2	-.675	.738

#### **Rotated Standardized Canonical Discriminant Function Coefficients<sup>a</sup>**

	Function	
	1	2
X18 - Delivery Speed	1.113 <sup>*</sup>	.295
X6 - Product Quality	.295	1.113 <sup>*</sup>

Variables ordered by absolute size of correlation within function.

\*. Largest absolute coefficient of the variable among the discriminant functions

a. % of variance by function 1 = 53.7, function 2 = 46.3

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Correlations Between Variables and Rotated Functions**

	Function	
	1	2
X6 - Product Quality	-.257	.967
X18 - Delivery Speed	.967	-.257
X7 - E-Commerce Activities <sup>a</sup>	.061	-.207
X8 - Technical Support <sup>a</sup>	.033	.008
X9 - Complaint Resolution <sup>a</sup>	.739	.039
X10 - Advertising <sup>a</sup>	.165	-.138
X11 - Product Line <sup>a</sup>	.529	.137
X12 - Salesforce Image <sup>a</sup>	.061	-.198
X13 - Competitive Pricing <sup>a</sup>	-.001	-.080
X14 - Warranty & Claims <sup>a</sup>	.081	-.044
X15 - New Products <sup>a</sup>	.096	.080
X16 - Order & Billing <sup>a</sup>	.546	.143
X17 - Price Flexibility <sup>a</sup>	.470	-.356

Pooled within-groups correlations between discriminating variables and rotated standardized canonical discriminant functions

a. This variable not used in the analysis.

### **Canonical Discriminant Function Coefficients**

	Function	
	1	2
X6 - Product Quality	.308	1.159
X18 - Delivery Speed	2.200	.584
(Constant)	-10.832	-11.313

Unstandardized coefficients

## THREE GROUP DISCRIMINANT ANALYSIS

### Functions at Group Centroids

X1 - Customer Type	Function	
	1	2
Less than 1 year	-1.911	-1.274
1 to 5 years	.597	-.968
Over 5 years	1.371	1.625

Unstandardized canonical discriminant functions evaluated at group means

### Classification Statistics

#### Classification Processing Summary

Processed		100
Excluded	Missing or out-of-range group codes	0
	At least one missing discriminating variable	0
Used in Output		100

#### Prior Probabilities for Groups

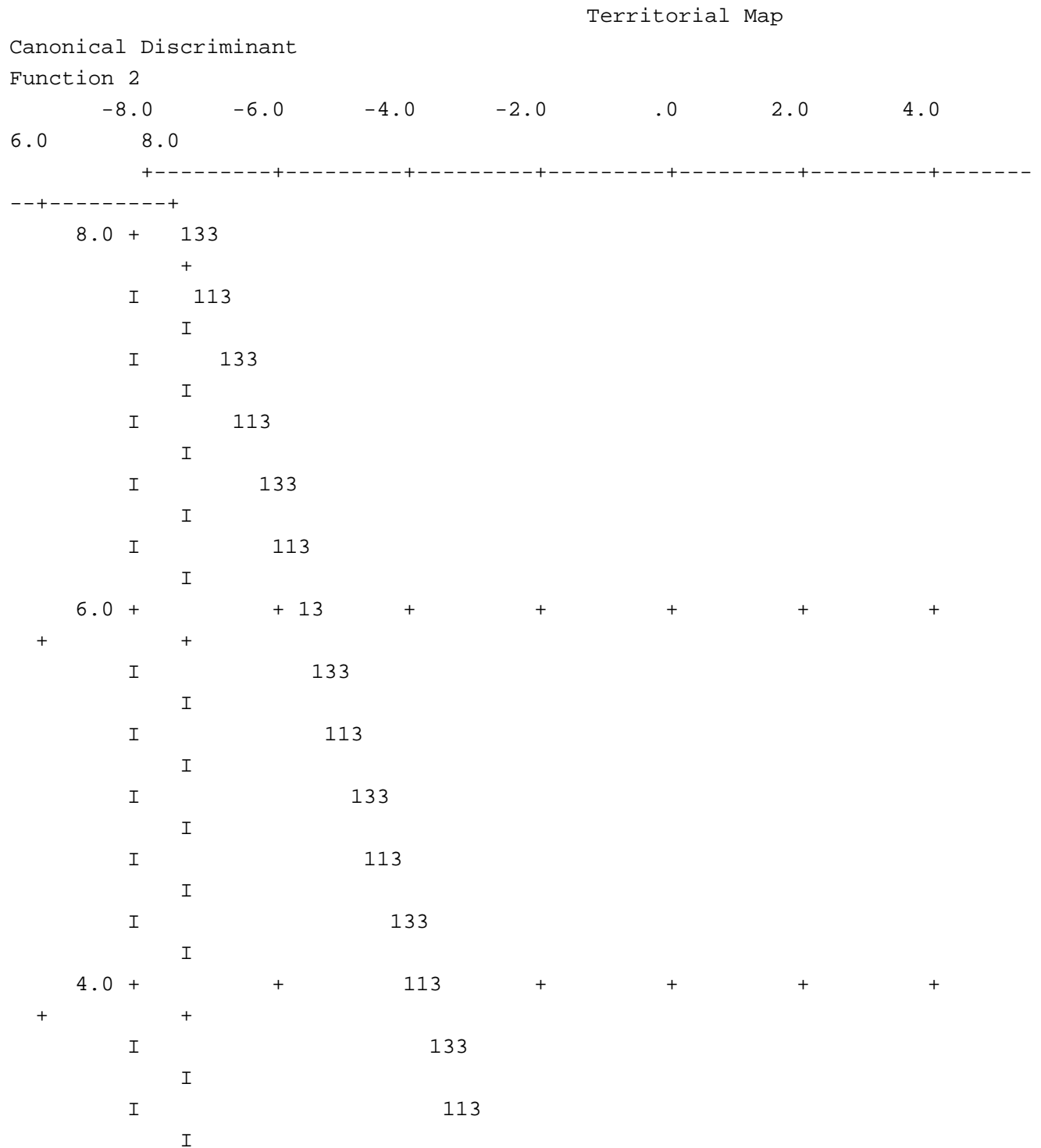
X1 - Customer Type	Prior	Cases Used in Analysis	
		Unweighted	Weighted
Less than 1 year	.367	22	22.000
1 to 5 years	.217	13	13.000
Over 5 years	.417	25	25.000
Total	1.000	60	60.000

#### Classification Function Coefficients

	X1 - Customer Type		
	Less than 1 year	1 to 5 years	Over 5 years
X6 - Product Quality	14.382	15.510	18.753
X18 - Delivery Speed	25.487	31.185	34.401
(Constant)	-91.174	-120.351	-159.022

Fisher's linear discriminant functions

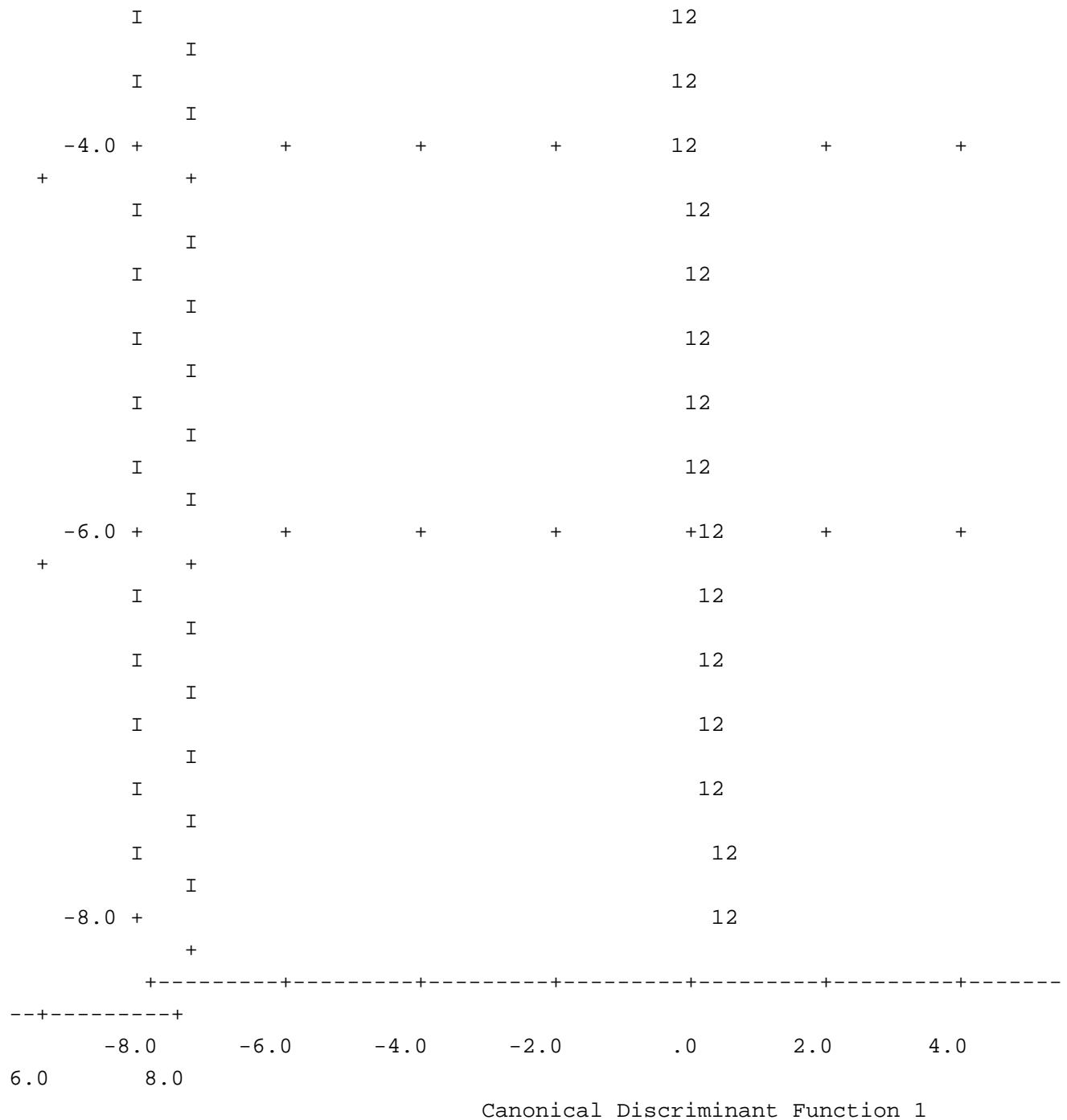
# THREE GROUP DISCRIMINANT ANALYSIS



## THREE GROUP DISCRIMINANT ANALYSIS

	I				133					
		I								
	I				113					
		I								
	I				133					
		I								
2.0	+		+	+	113	+	+	+		
+		+								
	I				133		*			
		I								
	I				113					
		I								
	I				133					
		I								
	I				1133					
		I								
	I				1233333					
		I								
.0	+		+	+	+	122222333333+			+	
+		+								
	I				12	22222333333				
		I								
	I				12	2222233333				
		I								
	I				12	*	22222333333			
		I								
	I				*	12		2222223		
3333		I								
	I				12				2	
2222333333		I								
-2.0	+		+	+	+	12+	+	+		
+	2222223333+									
	I				12					
	222I									
	I				12					
		I								
	I				12					
		I								

## THREE GROUP DISCRIMINANT ANALYSIS



Symbols used in territorial map

## THREE GROUP DISCRIMINANT ANALYSIS

Symbol	Group	Label
-----	-----	-----
1	1	Less than 1 year
2	2	1 to 5 years
3	3	Over 5 years
*		Indicates a group centroid

### Casewise Statistics

	Case Number	Actual Group	Predicted Group	Highest Group		
				P(D>d   G=g)		P(G=g   D=d)
				p	df	
Original	1	2	3**	.229	2	.645
	2	3	3	.464	2	.976
	3	3	3	.817	2	.996
	4	1	1	.646	2	.992
	5	2	3**	.200	2	.809
	6	1	1	.800	2	.954
	7	1	1	.039	2	1.000
	8	2	1**	.417	2	.751
	9	1	2**	.916	2	.936
	10	3	3	.673	2	.916
	11	1	1	.547	2	.983
	12	3	3	.975	2	.991
	13	2	2	.150	2	.819
	14	3	3	.909	2	.982
	15	2	2	.527	2	.944
	16	3	3	.947	2	.993
	17	3	3	.765	2	.997
	18	3	3	.872	2	.955
	19	3	3	.872	2	.955
	20	1	1	.384	2	.646
	21	1	1	.893	2	.930
	22	1	1	.536	2	.947



## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

	Case Number	Highest Group	Second Highest Group		
		Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
Original	1	2.947	2	.290	3.241
	2	1.535	2	.024	7.603
	3	.405	2	.004	10.387
	4	.875	2	.008	9.556
	5	3.217	2	.136	5.468
	6	.447	2	.045	5.484
	7	6.505	2	.000	25.455
	8	1.747	2	.249	2.902
	9	.175	1	.042	7.449
	10	.793	2	.082	4.315
	11	1.206	2	.017	8.284
	12	.050	2	.009	8.102
	13	3.800	3	.181	8.128
	14	.190	2	.018	6.928
	15	1.281	1	.052	8.116
	16	.110	2	.007	8.800
	17	.535	2	.003	11.165
	18	.273	2	.045	5.070
	19	.273	2	.045	5.070
	20	1.916	2	.333	2.193
	21	.227	2	.070	4.361
	22	1.248	2	.050	6.095

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores	
	Case Number	Function 1	Function 2
Original	1	-.076	.702
	2	2.471	1.055
	3	1.899	1.980
	4	-2.262	-2.141
	5	-.362	1.165
	6	-1.572	-1.850
	7	-4.308	-2.146
	8	-.784	-1.965
	9	.818	-1.324
	10	.645	1.109
	11	-1.915	-2.372
	12	1.239	1.805
	13	2.547	-.973
	14	1.745	1.401
	15	.822	-2.077
	16	1.648	1.806
	17	1.930	2.096
	18	1.464	1.111
	19	1.464	1.111
	20	-.793	-.458
	21	-1.449	-1.387
	22	-1.739	-.171

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

	Case Number	Actual Group	Predicted Group	Highest Group		
				P(D>d   G=g)		P(G=g   D=d)
				p	df	
	23	1	1	.792	2	.904
	24	1	1	.684	2	.842
	25	1	1	.244	2	.994
	26	2	3**	.200	2	.809
	27	3	3	.178	2	1.000
	28	3	3	.932	2	.995
	29	2	2	.196	2	.901
	30	3	3	.548	2	.916
	31	2	2	.500	2	.976
	32	3	3	.283	2	.993
	33	2	2	.165	2	.968
	34	3	3	.607	2	.997
	35	3	3	.426	2	.684
	36	3	3	.464	2	.976
	37	3	3	.585	2	.999
	38	1	1	.893	2	.930
	39	3	3	.174	2	.883
	40	3	2**	.695	2	.700
	41	3	3	.640	2	.998
	42	3	3	.909	2	.982
	43	1	1	.176	2	.914
	44	1	1	.652	2	.997
	45	1	1	.578	2	.997
	46	2	2	.527	2	.944
	47	2	2	.333	2	.821
	48	1	1	.559	2	.788
	49	1	1	.899	2	.981
	50	3	3	.642	2	.998
	51	1	1	.710	2	.997
	52	3	3	.546	2	.996

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Second Highest Group		
	Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
23	.468	2	.095	3.913
24	.759	2	.157	3.066
25	2.824	2	.006	12.017
26	3.217	2	.136	5.468
27	3.453	2	.000	18.603
28	.140	2	.005	9.484
29	3.258	1	.098	8.741
30	1.202	2	.083	4.686
31	1.388	3	.016	10.885
32	2.522	2	.007	11.260
33	3.604	3	.031	11.825
34	1.000	2	.003	11.663
35	1.706	2	.312	1.967
36	1.535	2	.024	7.603
37	1.072	2	.001	12.995
38	.227	2	.070	4.361
39	3.493	2	.078	7.048
40	.727	3	.221	4.341
41	.893	2	.002	12.200
42	.190	2	.018	6.928
43	3.476	2	.060	7.884
44	.856	2	.003	11.164
45	1.098	2	.003	11.607
46	1.281	1	.052	8.116
47	2.202	1	.178	6.307
48	1.164	2	.205	2.806
49	.214	2	.019	7.079
50	.887	2	.002	12.161
51	.686	2	.003	11.208
52	1.210	2	.003	11.229

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Discriminant Scores	
	Function 1	Function 2
23	-1.290	-1.560
24	-1.070	-1.502
25	-2.654	.233
26	-.362	1.165
27	2.902	2.678
28	1.490	1.980
29	.637	-2.773
30	1.970	.706
31	1.544	-1.670
32	-.054	2.324
33	2.362	-1.668
34	.795	2.442
35	1.059	.357
36	2.471	1.055
37	2.181	2.271
38	-1.449	-1.387
39	-.490	1.454
40	.307	-.166
41	1.015	2.500
42	1.745	1.401
43	-1.744	.582
44	-2.742	-.868
45	-2.641	-2.026
46	.822	-2.077
47	.321	-2.426
48	-1.044	-.633
49	-1.950	-1.735
50	2.150	2.155
51	-2.707	-1.505
52	.575	2.383

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Actual Group	Predicted Group	Highest Group		P(G=g   D=d)
			P(D>d   G=g)		
			p	df	
53	1	1	.559	2	.788
54	1	1	.044	2	.997
55	2	3**	.303	2	.529
56	1	1	.319	2	.999
57	3	3	.642	2	.998
58	3	3	.174	2	.883
59	1	1	.244	2	.994
60	2	1**	.244	2	.543
61 <sup>u</sup>	2	2	.577	2	.967
62 <sup>u</sup>	1	3**	.750	2	.998
63 <sup>u</sup>	2	2	.500	2	.976
64 <sup>u</sup>	2	2	.463	2	.939
65 <sup>u</sup>	1	1	.114	2	.989
66 <sup>u</sup>	3	3	.764	2	.998
67 <sup>u</sup>	2	3**	.615	2	.886
68 <sup>u</sup>	1	2**	.423	2	.593
69 <sup>u</sup>	2	2	.550	2	.564
70 <sup>u</sup>	1	1	.379	2	.546
71 <sup>u</sup>	2	3**	.424	2	.682
72 <sup>u</sup>	2	3**	.707	2	.917
73 <sup>u</sup>	1	1	.547	2	.983
74 <sup>u</sup>	2	3**	.330	2	.670
75 <sup>u</sup>	2	3**	.900	2	.993
76 <sup>u</sup>	1	1	.640	2	.997
77 <sup>u</sup>	2	3**	.424	2	.682
78 <sup>u</sup>	2	3**	.049	2	.954
79 <sup>u</sup>	3	3	.283	2	.993
80 <sup>u</sup>	2	3**	.130	2	.447

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Second Highest Group		
	Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
53	1.164	2	.205	2.806
54	6.228	2	.003	16.927
55	2.390	2	.462	1.354
56	2.283	2	.001	16.224
57	.887	2	.002	12.161
58	3.493	2	.078	7.048
59	2.824	2	.006	12.017
60	2.820	2	.392	2.420
61 <sup>u</sup>	1.100	1	.027	9.300
62 <sup>u</sup>	.576	2	.002	11.861
63 <sup>u</sup>	1.388	3	.016	10.885
64 <sup>u</sup>	1.538	1	.058	8.148
65 <sup>u</sup>	4.342	2	.011	12.310
66 <sup>u</sup>	.538	2	.002	11.828
67 <sup>u</sup>	.972	2	.110	3.845
68 <sup>u</sup>	1.723	1	.406	3.536
69 <sup>u</sup>	1.194	1	.434	2.770
70 <sup>u</sup>	1.943	2	.446	1.294
71 <sup>u</sup>	1.717	2	.310	1.984
72 <sup>u</sup>	.694	2	.083	4.189
73 <sup>u</sup>	1.206	2	.017	8.284
74 <sup>u</sup>	2.220	2	.302	2.504
75 <sup>u</sup>	.210	2	.007	8.916
76 <sup>u</sup>	.893	2	.003	11.177
77 <sup>u</sup>	1.717	2	.310	1.984
78 <sup>u</sup>	6.041	2	.046	10.779
79 <sup>u</sup>	2.522	2	.007	11.260
80 <sup>u</sup>	4.088	2	.383	3.090

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Discriminant Scores	
	Function 1	Function 2
53	-1.044	-.633
54	-2.473	-3.706
55	.998	.125
56	-3.367	-1.680
57	2.150	2.155
58	-.490	1.454
59	-2.654	.233
60	-.701	-.111
61 <sup>u</sup>	1.073	-1.903
62 <sup>u</sup>	1.772	2.270
63 <sup>u</sup>	1.544	-1.670
64 <sup>u</sup>	.791	-2.193
65 <sup>u</sup>	-1.972	-3.357
66 <sup>u</sup>	1.582	2.327
67 <sup>u</sup>	.615	.993
68 <sup>u</sup>	-.186	-2.021
69 <sup>u</sup>	-.282	-1.616
70 <sup>u</sup>	-.538	-1.037
71 <sup>u</sup>	.870	.414
72 <sup>u</sup>	1.591	.821
73 <sup>u</sup>	-1.915	-2.372
74 <sup>u</sup>	.302	.587
75 <sup>u</sup>	1.081	1.979
76 <sup>u</sup>	-2.610	-1.911
77 <sup>u</sup>	.870	.414
78 <sup>u</sup>	3.545	.478
79 <sup>u</sup>	-.054	2.324
80 <sup>u</sup>	-.327	.527



## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

	Case Number	Actual Group	Predicted Group	Highest Group		P(G=g   D=d)
				P(D>d   G=g)		
				p	df	
	81 <sup>u</sup>	2	2	.165	2	.968
	82 <sup>u</sup>	2	2	.550	2	.564
	83 <sup>u</sup>	3	3	.947	2	.993
	84 <sup>u</sup>	2	2	.782	2	.931
	85 <sup>u</sup>	3	3	.607	2	.997
	86 <sup>u</sup>	2	3 <sup>**</sup>	.229	2	.645
	87 <sup>u</sup>	3	3	.546	2	.996
	88 <sup>u</sup>	1	2 <sup>**</sup>	.666	2	.700
	89 <sup>u</sup>	2	3 <sup>**</sup>	.900	2	.993
	90 <sup>u</sup>	3	3	.673	2	.916
	91 <sup>u</sup>	2	1 <sup>**</sup>	.230	2	.891
	92 <sup>u</sup>	1	1	.001	2	1.000
	93 <sup>u</sup>	2	3 <sup>**</sup>	.303	2	.529
	94 <sup>u</sup>	2	3 <sup>**</sup>	.708	2	.966
	95 <sup>u</sup>	2	2	.314	2	.987
	96 <sup>u</sup>	3	3	.091	2	.670
	97 <sup>u</sup>	3	3	.975	2	.991
	98 <sup>u</sup>	1	3 <sup>**</sup>	.180	2	.622
	99 <sup>u</sup>	1	2 <sup>**</sup>	.554	2	.543
	100 <sup>u</sup>	2	2	.562	2	.626
Cross-validated <sup>c</sup>	1	2	3 <sup>**</sup>	.234	2	.712
	2	3	3	.431	2	.972
	3	3	3	.804	2	.996
	4	1	1	.619	2	.992
	5	2	3 <sup>**</sup>	.205	2	.880
	6	1	1	.784	2	.951
	7	1	1	.019	2	1.000
	8	2	1 <sup>**</sup>	.421	2	.807

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

	Case Number	Highest Group	Second Highest Group		
		Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
	81 <sup>u</sup>	3.604	3	.031	11.825
	82 <sup>u</sup>	1.194	1	.434	2.770
	83 <sup>u</sup>	.110	2	.007	8.800
	84 <sup>u</sup>	.492	3	.057	7.383
	85 <sup>u</sup>	1.000	2	.003	11.663
	86 <sup>u</sup>	2.947	2	.290	3.241
	87 <sup>u</sup>	1.210	2	.003	11.229
	88 <sup>u</sup>	.813	3	.160	5.071
	89 <sup>u</sup>	.210	2	.007	8.916
	90 <sup>u</sup>	.793	2	.082	4.315
	91 <sup>u</sup>	2.940	2	.082	6.660
	92 <sup>u</sup>	14.609	2	.000	39.245
	93 <sup>u</sup>	2.390	2	.462	1.354
	94 <sup>u</sup>	.689	2	.033	6.163
	95 <sup>u</sup>	2.314	1	.007	13.257
	96 <sup>u</sup>	4.804	1	.174	7.244
	97 <sup>u</sup>	.050	2	.009	8.102
	98 <sup>u</sup>	3.428	2	.279	3.727
	99 <sup>u</sup>	1.180	1	.423	2.731
	100 <sup>u</sup>	1.152	3	.274	4.112
Cross-validated <sup>c</sup>	1	2.902	2	.216	3.983
	2	1.684	2	.028	7.485
	3	.435	2	.004	10.259
	4	.959	2	.008	9.463
	5	3.170	2	.066	7.036
	6	.486	2	.048	5.388
	7	7.967	2	.000	28.362
	8	1.732	2	.193	3.541

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores	
	Case Number	Function 1	Function 2
	81 <sup>u</sup>	2.362	-1.668
	82 <sup>u</sup>	-.282	-1.616
	83 <sup>u</sup>	1.648	1.806
	84 <sup>u</sup>	1.288	-1.091
	85 <sup>u</sup>	.795	2.442
	86 <sup>u</sup>	-.076	.702
	87 <sup>u</sup>	.575	2.383
	88 <sup>u</sup>	.087	-.225
	89 <sup>u</sup>	1.081	1.979
	90 <sup>u</sup>	.645	1.109
	91 <sup>u</sup>	-1.585	.409
	92 <sup>u</sup>	-5.342	-2.959
	93 <sup>u</sup>	.998	.125
	94 <sup>u</sup>	.549	1.514
	95 <sup>u</sup>	1.641	-2.075
	96 <sup>u</sup>	-.771	1.164
	97 <sup>u</sup>	1.239	1.805
	98 <sup>u</sup>	-.265	.759
	99 <sup>u</sup>	-.415	-.573
	100 <sup>u</sup>	.148	.007
Cross-validated <sup>c</sup>	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Actual Group	Predicted Group	Highest Group		P(G=g   D=d)
			P(D>d   G=g)		
			p	df	
9	1	2**	.914	2	.959
10	3	3	.651	2	.911
11	1	1	.514	2	.981
12	3	3	.974	2	.990
13	2	2	.094	2	.737
14	3	3	.903	2	.981
15	2	2	.469	2	.935
16	3	3	.943	2	.993
17	3	3	.750	2	.997
18	3	3	.864	2	.953
19	3	3	.864	2	.953
20	1	1	.343	2	.620
21	1	1	.884	2	.928
22	1	1	.502	2	.941
23	1	1	.775	2	.900
24	1	1	.660	2	.836
25	1	1	.201	2	.993
26	2	3**	.205	2	.880
27	3	3	.140	2	1.000
28	3	3	.928	2	.995
29	2	2	.135	2	.863
30	3	3	.519	2	.909
31	2	2	.440	2	.972
32	3	3	.244	2	.991
33	2	2	.107	2	.956
34	3	3	.581	2	.997
35	3	3	.391	2	.668
36	3	3	.431	2	.972
37	3	3	.558	2	.999
38	1	1	.884	2	.928

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Second Highest Group		
	Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
9	.180	3	.024	8.882
10	.858	2	.086	4.261
11	1.330	2	.019	8.183
12	.053	2	.010	7.963
13	4.722	3	.263	8.092
14	.203	2	.019	6.807
15	1.513	1	.061	8.017
16	.117	2	.007	8.657
17	.575	2	.003	11.056
18	.292	2	.047	4.999
19	.292	2	.047	4.999
20	2.142	2	.359	2.179
21	.246	2	.072	4.300
22	1.377	2	.055	5.993
23	.509	2	.099	3.863
24	.830	2	.163	3.042
25	3.212	2	.007	12.146
26	3.170	2	.066	7.036
27	3.929	2	.000	19.317
28	.150	2	.005	9.341
29	4.005	1	.137	8.744
30	1.310	2	.091	4.613
31	1.644	3	.019	10.811
32	2.818	2	.008	11.259
33	4.461	3	.044	11.947
34	1.085	2	.003	11.589
35	1.877	2	.327	1.995
36	1.684	2	.028	7.485
37	1.166	2	.001	12.976
38	.246	2	.072	4.300

## **THREE GROUP DISCRIMINANT ANALYSIS**

### **Casewise Statistics**

Case Number	Discriminant Scores	
	Function 1	Function 2
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Actual Group	Predicted Group	Highest Group P(D>d   G=g)		P(G=g   D=d)
			p	df	
39	3	3	.137	2	.853
40	3	2**	.691	2	.755
41	3	3	.616	2	.998
42	3	3	.903	2	.981
43	1	1	.135	2	.889
44	1	1	.626	2	.996
45	1	1	.547	2	.997
46	2	2	.469	2	.935
47	2	2	.266	2	.778
48	1	1	.527	2	.776
49	1	1	.891	2	.980
50	3	3	.618	2	.998
51	1	1	.688	2	.997
52	3	3	.517	2	.996
53	1	1	.527	2	.776
54	1	1	.023	2	.997
55	2	3**	.300	2	.557
56	1	1	.277	2	.999
57	3	3	.618	2	.998
58	3	3	.137	2	.853
59	1	1	.201	2	.993
60	2	1**	.249	2	.598

## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

Case Number	Highest Group	Second Highest Group		
	Squared Mahalanobis Distance to Centroid	Group	P(G=g   D=d)	Squared Mahalanobis Distance to Centroid
39	3.978	2	.099	6.974
40	.739	3	.170	5.027
41	.968	2	.002	12.138
42	.203	2	.019	6.807
43	4.003	2	.076	7.865
44	.937	2	.004	11.113
45	1.208	2	.003	11.587
46	1.513	1	.061	8.017
47	2.649	1	.221	6.218
48	1.283	2	.217	2.784
49	.232	2	.020	6.958
50	.961	2	.002	12.098
51	.749	2	.003	11.150
52	1.319	2	.004	11.153
53	1.283	2	.217	2.784
54	7.584	2	.003	18.063
55	2.409	2	.434	1.602
56	2.570	2	.001	16.631
57	.961	2	.002	12.098
58	3.978	2	.099	6.974
59	3.212	2	.007	12.146
60	2.777	2	.328	2.925



## THREE GROUP DISCRIMINANT ANALYSIS

### Casewise Statistics

		Discriminant Scores	
	Case Number	Function 1	Function 2
	39		
	40		
	41		
	42		
	43		
	44		
	45		
	46		
	47		
	48		
	49		
	50		
	51		
	52		
	53		
	54		
	55		
	56		
	57		
	58		
	59		
	60		

For the original data, squared Mahalanobis distance is based on canonical functions.

For the cross-validated data, squared Mahalanobis distance is based on observations.

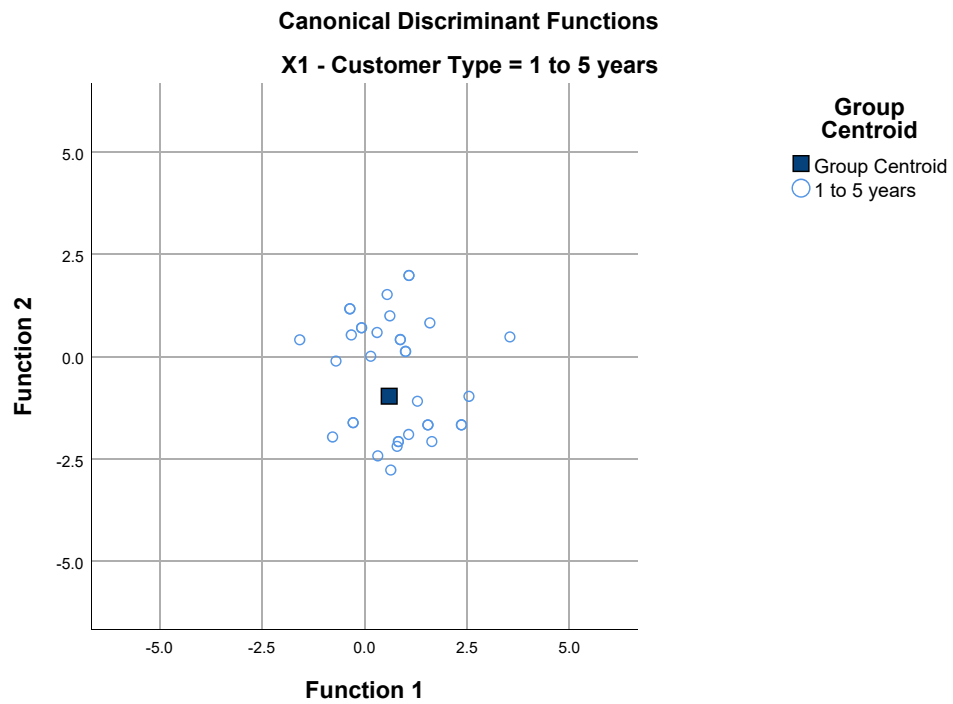
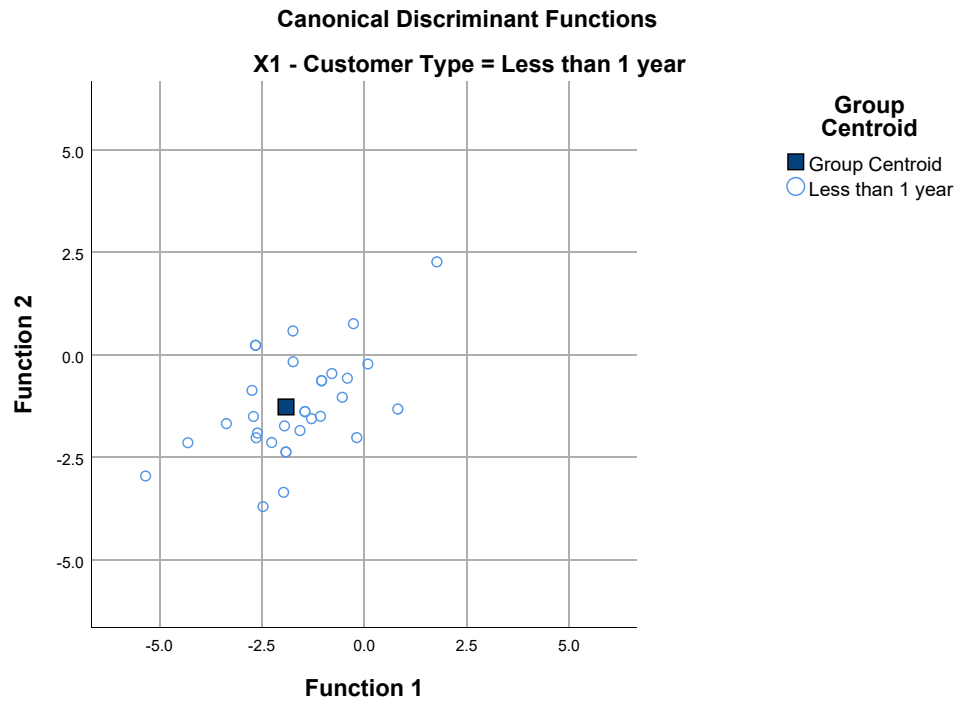
\*\* . Misclassified case

u. Unselected case

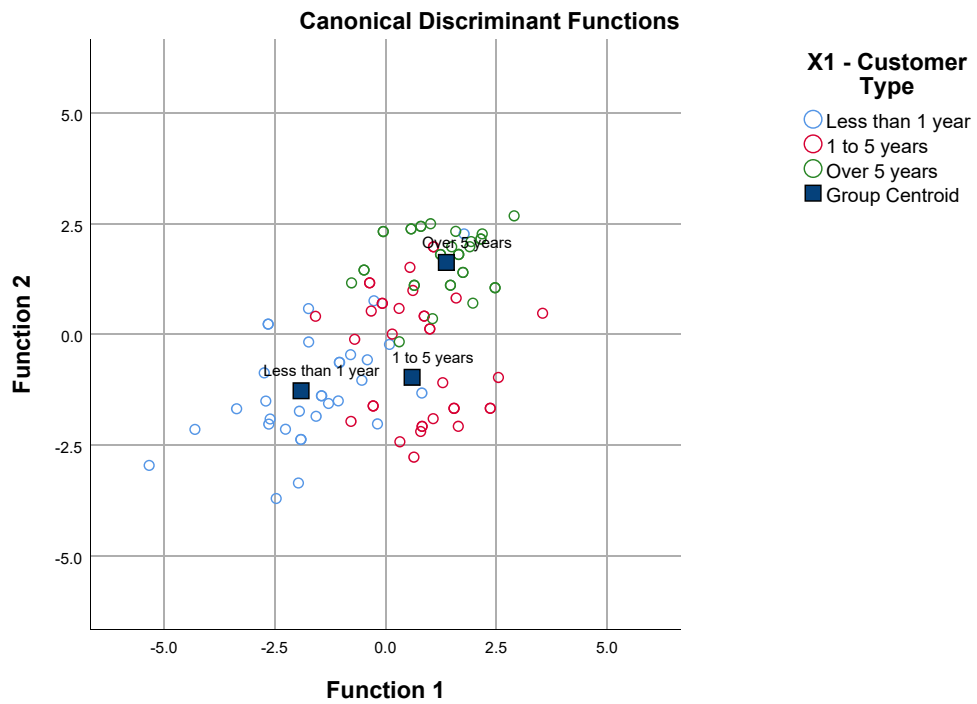
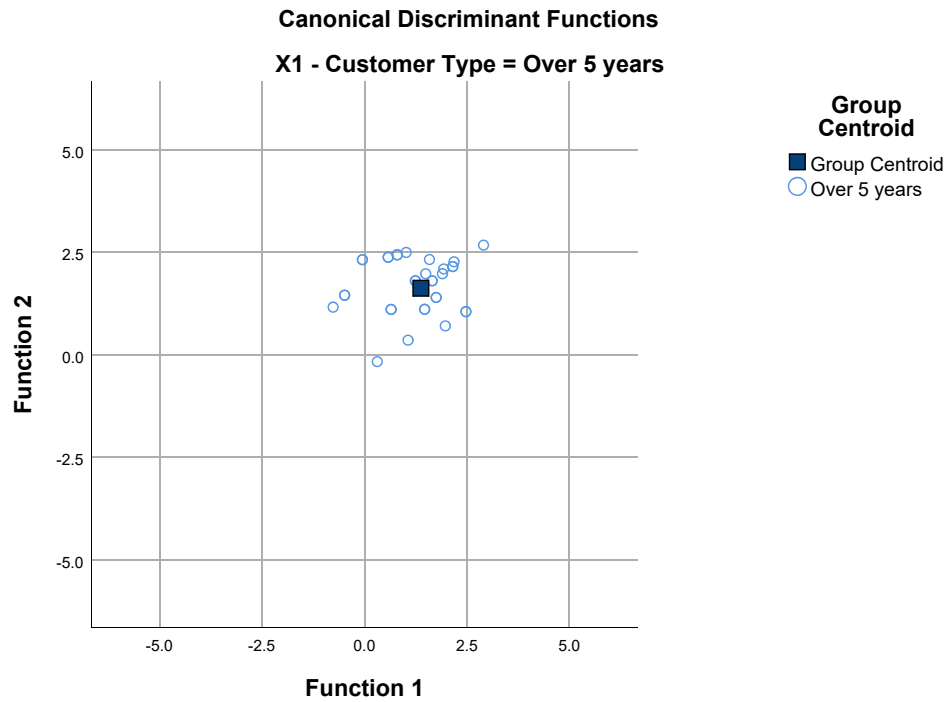
c. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

### Separate-Groups Graphs

# THREE GROUP DISCRIMINANT ANALYSIS



# THREE GROUP DISCRIMINANT ANALYSIS



## THREE GROUP DISCRIMINANT ANALYSIS

### Classification Results<sup>a,b,d</sup>

			Predicted Group Membership		
			X1 - Customer Type	Less than 1 year	1 to 5 years
Cases Selected	Original	Count	Less than 1 year	21	1
			1 to 5 years	2	7
			Over 5 years	0	1
		%	Less than 1 year	95.5	4.5
			1 to 5 years	15.4	53.8
			Over 5 years	.0	4.0
	Cross-validated <sup>c</sup>	Count	Less than 1 year	21	1
			1 to 5 years	2	7
			Over 5 years	0	1
		%	Less than 1 year	95.5	4.5
			1 to 5 years	15.4	53.8
			Over 5 years	.0	4.0
Cases Not Selected	Original	Count	Less than 1 year	5	3
			1 to 5 years	1	9
			Over 5 years	0	0
		%	Less than 1 year	50.0	30.0
			1 to 5 years	4.5	40.9
			Over 5 years	.0	.0

## THREE GROUP DISCRIMINANT ANALYSIS

### Classification Results<sup>a,b,d</sup>

			Predicted ...		
			X1 - Customer Type	Over 5 years	Total
Cases Selected	Original	Count	Less than 1 year	0	22
			1 to 5 years	4	13
			Over 5 years	24	25
		%	Less than 1 year	.0	100.0
			1 to 5 years	30.8	100.0
			Over 5 years	96.0	100.0
	Cross-validated <sup>c</sup>	Count	Less than 1 year	0	22
			1 to 5 years	4	13
			Over 5 years	24	25
		%	Less than 1 year	.0	100.0
			1 to 5 years	30.8	100.0
			Over 5 years	96.0	100.0
Cases Not Selected	Original	Count	Less than 1 year	2	10
			1 to 5 years	12	22
			Over 5 years	8	8
		%	Less than 1 year	20.0	100.0
			1 to 5 years	54.5	100.0
			Over 5 years	100.0	100.0

- a. 86.7% of selected original grouped cases correctly classified.
- b. 55.0% of unselected original grouped cases correctly classified.
- c. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
- d. 86.7% of selected cross-validated grouped cases correctly classified.