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TIME: 11:21

P R E L I S 2.80

BY

Karl G. J”reskog & Dag S”rbom

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The following lines were read from file D:\2DATA712\data420.PR2:

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!PRELIS SYNTAX: Can be edited
SY='D:\2DATA712\data420.PSF'
SE 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144
SE 145 146 147
OU MA=CM XT
```

Total Sample Size = 420

Univariate Summary Statistics for Continuous Variables

| Variable | Mean | St.Dev. | T-Value | Skewness | Kurtosis | Minimum | Freq. | Maximum | Freq. |
|---|---|---|---|---|---|---|---|---|---|
| J1 | 3.743 | 0.418 | 183.432 | -0.454 | 0.629 | 2.000 | 1 | 5.000 | 1 |
| J2 | 3.725 | 0.431 | 177.079 | -0.225 | 0.006 | 2.400 | 2 | 5.000 | 1 |
| C1 | 4.173 | 0.586 | 145.834 | -0.225 | -0.700 | 2.667 | 2 | 5.000 | 78 |
| C2 | 4.037 | 0.678 | 122.096 | -0.130 | -0.828 | 2.333 | 3 | 5.000 | 82 |
| C3 | 4.231 | 0.653 | 132.728 | -0.408 | -0.857 | 2.333 | 1 | 5.000 | 116 |
| O1 | 3.672 | 0.464 | 162.138 | 0.456 | -0.124 | 2.800 | 1 | 5.000 | 7 |
| O2 | 3.880 | 0.441 | 180.504 | 0.269 | -0.091 | 2.800 | 1 | 5.000 | 6 |
| O3 | 3.748 | 0.413 | 185.836 | 0.279 | -0.479 | 3.000 | 24 | 4.800 | 4 |
| O4 | 3.718 | 0.482 | 158.153 | 0.103 | 0.026 | 2.000 | 1 | 5.000 | 3 |
| O5 | 4.126 | 0.475 | 178.162 | -0.214 | -0.377 | 3.000 | 14 | 5.000 | 19 |
| T1 | 3.542 | 0.475 | 152.690 | 0.168 | 0.110 | 2.000 | 1 | 5.000 | 4 |
| T2 | 3.462 | 0.475 | 149.480 | -0.144 | 0.543 | 2.000 | 3 | 5.000 | 2 |
| T3 | 3.285 | 0.531 | 126.849 | -0.060 | 0.374 | 1.667 | 2 | 5.000 | 1 |
| T4 | 3.360 | 0.531 | 129.571 | -0.147 | -0.270 | 2.000 | 8 | 5.000 | 1 |
| T5 | 3.302 | 0.530 | 127.610 | -0.072 | 0.146 | 1.667 | 1 | 5.000 | 2 |
| L1 | 3.528 | 0.448 | 161.337 | 0.228 | -0.484 | 2.278 | 1 | 4.778 | 1 |
| L2 | 3.470 | 0.427 | 166.645 | 0.306 | -0.395 | 2.300 | 1 | 4.700 | 2 |
| L3 | 3.442 | 0.428 | 164.883 | 0.100 | -0.338 | 2.000 | 1 | 4.700 | 1 |
| L4 | 3.365 | 0.393 | 175.482 | 0.568 | 0.499 | 2.222 | 2 | 4.667 | 2 |
| P1 | 3.760 | 0.455 | 169.336 | 0.240 | 0.139 | 2.500 | 1 | 5.000 | 8 |
| P2 | 3.782 | 0.468 | 165.504 | 0.169 | 0.177 | 2.333 | 1 | 5.000 | 9 |

Test of Univariate Normality for Continuous Variables

| Variable | Skewness Z-Score | Skewness P-Value | Kurtosis Z-Score | Kurtosis P-Value | Skewness and Kurtosis Chi-Square | Skewness and Kurtosis P-Value |
|---|---|---|---|---|---|---|
| J1 | -3.687 | 0.000 | 2.210 | 0.027 | 18.477 | 0.000 |
| J2 | -1.884 | 0.060 | 0.135 | 0.892 | 3.570 | 0.168 |
| C1 | -1.883 | 0.060 | -4.545 | 0.000 | 24.201 | 0.000 |
| C2 | -1.101 | 0.271 | -6.099 | 0.000 | 38.412 | 0.000 |
| C3 | -3.335 | 0.001 | -6.523 | 0.000 | 53.663 | 0.000 |
| O1 | 3.702 | 0.000 | -0.453 | 0.651 | 13.911 | 0.001 |
| O2 | 2.246 | 0.025 | -0.296 | 0.767 | 5.131 | 0.077 |
| O3 | 2.326 | 0.020 | -2.581 | 0.010 | 12.069 | 0.002 |
| O4 | 0.875 | 0.382 | 0.222 | 0.824 | 0.814 | 0.666 |
| O5 | -1.796 | 0.072 | -1.870 | 0.061 | 6.725 | 0.035 |
| T1 | 1.412 | 0.158 | 0.557 | 0.577 | 2.304 | 0.316 |
| T2 | -1.213 | 0.225 | 1.976 | 0.048 | 5.376 | 0.068 |
| T3 | -0.508 | 0.611 | 1.480 | 0.139 | 2.449 | 0.294 |
| T4 | -1.242 | 0.214 | -1.219 | 0.223 | 3.030 | 0.220 |
| T5 | -0.609 | 0.542 | 0.696 | 0.486 | 0.856 | 0.652 |
| L1 | 1.913 | 0.056 | -2.617 | 0.009 | 10.509 | 0.005 |
| L2 | 2.542 | 0.011 | -1.991 | 0.047 | 10.423 | 0.005 |
| L3 | 0.847 | 0.397 | -1.622 | 0.105 | 3.348 | 0.188 |
| L4 | 4.509 | 0.000 | 1.854 | 0.064 | 23.772 | 0.000 |
| P1 | 2.011 | 0.044 | 0.671 | 0.502 | 4.495 | 0.106 |
| P2 | 1.422 | 0.155 | 0.811 | 0.417 | 2.682 | 0.262 |

Relative Multivariate Kurtosis = 1.085

Test of Multivariate Normality for Continuous Variables

| Skewness Value | Skewness Z-Score | Skewness P-Value | Kurtosis Value | Kurtosis Z-Score | Kurtosis P-Value | Skewness and Kurtosis Chi-Square | Skewness and Kurtosis P-Value |
|---|---|---|---|---|---|---|---|
| 41.930 | 16.385 | 0.000 | 524.049 | 10.187 | 0.000 | 372.237 | 0.000 |

Histograms for Continuous Variables

J1

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 1 | 0.2 | 2.000 |
| 4 | 1.0 | 2.300 |
| 7 | 1.7 | 2.600 |
| 53 | 12.6 | 2.900 |
| 39 | 9.3 | 3.200 |
| 151 | 36.0 | 3.500 |
| 103 | 24.5 | 3.800 |
| 52 | 12.4 | 4.100 |
| 7 | 1.7 | 4.400 |
| 3 | 0.7 | 4.700 |

J2

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 4 | 1.0 | 2.400 |
| 6 | 1.4 | 2.660 |
| 30 | 7.1 | 2.920 |
| 72 | 17.1 | 3.180 |

| | | |
|---|---|---|
| 73 | 17.4 | 3.440 |
| 75 | 17.9 | 3.700 |
| 127 | 30.2 | 3.960 |
| 19 | 4.5 | 4.220 |
| 11 | 2.6 | 4.480 |
| 3 | 0.7 | 4.740 |

C1

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 2 | 0.5 | 2.667 |
| 24 | 5.7 | 2.900 |
| 28 | 6.7 | 3.133 |
| 0 | 0.0 | 3.367 |
| 57 | 13.6 | 3.600 |
| 111 | 26.4 | 3.833 |
| 0 | 0.0 | 4.067 |
| 63 | 15.0 | 4.300 |
| 57 | 13.6 | 4.533 |
| 78 | 18.6 | 4.767 |

C2

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 3 | 0.7 | 2.333 |
| 9 | 2.1 | 2.600 |
| 39 | 9.3 | 2.867 |
| 46 | 11.0 | 3.133 |
| 55 | 13.1 | 3.400 |
| 0 | 0.0 | 3.667 |
| 107 | 25.5 | 3.933 |
| 42 | 10.0 | 4.200 |
| 37 | 8.8 | 4.467 |
| 82 | 19.5 | 4.733 |

C3

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 1 | 0.2 | 2.333 |
| 1 | 0.2 | 2.600 |
| 33 | 7.9 | 2.867 |
| 33 | 7.9 | 3.133 |
| 0 | 0.0 | 3.400 |
| 40 | 9.5 | 3.667 |
| 89 | 21.2 | 3.933 |
| 57 | 13.6 | 4.200 |
| 50 | 11.9 | 4.467 |
| 116 | 27.6 | 4.733 |

O1

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 53 | 12.6 | 2.800 |
| 48 | 11.4 | 3.020 |
| 62 | 14.8 | 3.240 |
| 70 | 16.7 | 3.460 |
| 37 | 8.8 | 3.680 |
| 91 | 21.7 | 3.900 |
| 24 | 5.7 | 4.120 |
| 12 | 2.9 | 4.340 |
| 14 | 3.3 | 4.560 |
| 9 | 2.1 | 4.780 |

O2

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 21 | 5.0 | 2.800 |
| 8 | 1.9 | 3.020 |
| 38 | 9.0 | 3.240 |
| 90 | 21.4 | 3.460 |
| 83 | 19.8 | 3.680 |
| 54 | 12.9 | 3.900 |
| 55 | 13.1 | 4.120 |
| 32 | 7.6 | 4.340 |
| 18 | 4.3 | 4.560 |
| 21 | 5.0 | 4.780 |

O3

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 24 | 5.7 | 3.000 |
| 25 | 6.0 | 3.180 |
| 85 | 20.2 | 3.360 |
| 67 | 16.0 | 3.540 |
| 76 | 18.1 | 3.720 |
| 59 | 14.0 | 3.900 |
| 35 | 8.3 | 4.080 |
| 31 | 7.4 | 4.260 |
| 14 | 3.3 | 4.440 |
| 4 | 1.0 | 4.620 |

O4

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 1 | 0.2 | 2.000 |
| 1 | 0.2 | 2.300 |
| 11 | 2.6 | 2.600 |
| 54 | 12.9 | 2.900 |
| 100 | 23.8 | 3.200 |
| 60 | 14.3 | 3.500 |
| 104 | 24.8 | 3.800 |
| 58 | 13.8 | 4.100 |
| 22 | 5.2 | 4.400 |
| 9 | 2.1 | 4.700 |

O5

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 20 | 4.8 | 3.000 |
| 12 | 2.9 | 3.200 |
| 51 | 12.1 | 3.400 |
| 49 | 11.7 | 3.600 |
| 68 | 16.2 | 3.800 |
| 64 | 15.2 | 4.000 |
| 58 | 13.8 | 4.200 |
| 45 | 10.7 | 4.400 |
| 34 | 8.1 | 4.600 |
| 19 | 4.5 | 4.800 |

T1

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 1 | 0.2 | 2.000 |
| 5 | 1.2 | 2.300 |
| 3 | 0.7 | 2.600 |
| 103 | 24.5 | 2.900 |
| 82 | 19.5 | 3.200 |

| | | |
|---|---|---|
| 103 | 24.5 | 3.500 |
| 95 | 22.6 | 3.800 |
| 18 | 4.3 | 4.100 |
| 6 | 1.4 | 4.400 |
| 4 | 1.0 | 4.700 |

T2

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 3 | 0.7 | 2.000 |
| 10 | 2.4 | 2.300 |
| 19 | 4.5 | 2.600 |
| 78 | 18.6 | 2.900 |
| 101 | 24.0 | 3.200 |
| 127 | 30.2 | 3.500 |
| 61 | 14.5 | 3.800 |
| 15 | 3.6 | 4.100 |
| 4 | 1.0 | 4.400 |
| 2 | 0.5 | 4.700 |

T3

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 2 | 0.5 | 1.667 |
| 9 | 2.1 | 2.000 |
| 19 | 4.5 | 2.333 |
| 31 | 7.4 | 2.667 |
| 126 | 30.0 | 3.000 |
| 85 | 20.2 | 3.333 |
| 89 | 21.2 | 3.667 |
| 43 | 10.2 | 4.000 |
| 10 | 2.4 | 4.333 |
| 6 | 1.4 | 4.667 |

T4

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 8 | 1.9 | 2.000 |
| 13 | 3.1 | 2.300 |
| 39 | 9.3 | 2.600 |
| 106 | 25.2 | 2.900 |
| 76 | 18.1 | 3.200 |
| 87 | 20.7 | 3.500 |
| 75 | 17.9 | 3.800 |
| 13 | 3.1 | 4.100 |
| 2 | 0.5 | 4.400 |
| 1 | 0.2 | 4.700 |

T5

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 1 | 0.2 | 1.667 |
| 7 | 1.7 | 2.000 |
| 22 | 5.2 | 2.333 |
| 40 | 9.5 | 2.667 |
| 100 | 23.8 | 3.000 |
| 97 | 23.1 | 3.333 |
| 88 | 21.0 | 3.667 |
| 50 | 11.9 | 4.000 |
| 13 | 3.1 | 4.333 |
| 2 | 0.5 | 4.667 |

L1

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 3 | 0.7 | 2.278 |
| 4 | 1.0 | 2.528 |
| 62 | 14.8 | 2.778 |
| 70 | 16.7 | 3.028 |
| 71 | 16.9 | 3.278 |
| 72 | 17.1 | 3.528 |
| 85 | 20.2 | 3.778 |
| 35 | 8.3 | 4.028 |
| 11 | 2.6 | 4.278 |
| 7 | 1.7 | 4.528 |

L2

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 3 | 0.7 | 2.300 |
| 6 | 1.4 | 2.540 |
| 85 | 20.2 | 2.780 |
| 57 | 13.6 | 3.020 |
| 64 | 15.2 | 3.260 |
| 92 | 21.9 | 3.500 |
| 36 | 8.6 | 3.740 |
| 61 | 14.5 | 3.980 |
| 10 | 2.4 | 4.220 |
| 6 | 1.4 | 4.460 |

L3

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 2 | 0.5 | 2.000 |
| 3 | 0.7 | 2.270 |
| 14 | 3.3 | 2.540 |
| 92 | 21.9 | 2.810 |
| 72 | 17.1 | 3.080 |
| 95 | 22.6 | 3.350 |
| 55 | 13.1 | 3.620 |
| 72 | 17.1 | 3.890 |
| 12 | 2.9 | 4.160 |
| 3 | 0.7 | 4.430 |

L4

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 5 | 1.2 | 2.222 |
| 1 | 0.2 | 2.467 |
| 20 | 4.8 | 2.711 |
| 128 | 30.5 | 2.956 |
| 90 | 21.4 | 3.200 |
| 98 | 23.3 | 3.444 |
| 34 | 8.1 | 3.689 |
| 33 | 7.9 | 3.933 |
| 5 | 1.2 | 4.178 |
| 6 | 1.4 | 4.422 |

P1

| Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 1 | 0.2 | 2.500 |
| 2 | 0.5 | 2.750 |
| 36 | 8.6 | 3.000 |
| 46 | 11.0 | 3.250 |
| 80 | 19.0 | 3.500 |
| 66 | 15.7 | 3.750 |

| | | |
|---|---|---|
| 129 | 30.7 | 4.000 |
| 26 | 6.2 | 4.250 |
| 15 | 3.6 | 4.500 |
| 19 | 4.5 | 4.750 |

| P2 Frequency | Percentage | Lower Class Limit |
|---|---|---|
| 1 | 0.2 | 2.333 |
| 2 | 0.5 | 2.600 |
| 41 | 9.8 | 2.867 |
| 70 | 16.7 | 3.133 |
| 0 | 0.0 | 3.400 |
| 97 | 23.1 | 3.667 |
| 155 | 36.9 | 3.933 |
| 19 | 4.5 | 4.200 |
| 26 | 6.2 | 4.467 |
| 9 | 2.1 | 4.733 |

Covariance Matrix

| | J1 | J2 | C1 | C2 | C3 | O1 |
|---|---|---|---|---|---|---|
| J1 | 0.175 | | | | | |
| J2 | 0.129 | 0.186 | | | | |
| C1 | 0.099 | 0.116 | 0.344 | | | |
| C2 | 0.107 | 0.135 | 0.272 | 0.459 | | |
| C3 | 0.097 | 0.129 | 0.284 | 0.315 | 0.427 | |
| O1 | 0.089 | 0.078 | 0.099 | 0.085 | 0.099 | 0.215 |
| O2 | 0.067 | 0.083 | 0.066 | 0.083 | 0.075 | 0.058 |
| O3 | 0.059 | 0.071 | 0.060 | 0.060 | 0.065 | 0.040 |
| O4 | 0.107 | 0.099 | 0.126 | 0.117 | 0.120 | 0.134 |
| O5 | 0.072 | 0.086 | 0.097 | 0.127 | 0.127 | 0.061 |
| T1 | 0.101 | 0.097 | 0.082 | 0.067 | 0.089 | 0.093 |
| T2 | 0.110 | 0.116 | 0.105 | 0.108 | 0.112 | 0.100 |
| T3 | 0.079 | 0.072 | 0.087 | 0.063 | 0.061 | 0.112 |
| T4 | 0.108 | 0.101 | 0.085 | 0.086 | 0.084 | 0.104 |
| T5 | 0.100 | 0.101 | 0.076 | 0.078 | 0.081 | 0.101 |
| L1 | 0.091 | 0.107 | 0.094 | 0.115 | 0.115 | 0.081 |
| L2 | 0.087 | 0.095 | 0.092 | 0.116 | 0.112 | 0.082 |
| L3 | 0.092 | 0.106 | 0.093 | 0.114 | 0.105 | 0.089 |
| L4 | 0.079 | 0.086 | 0.093 | 0.107 | 0.102 | 0.085 |
| P1 | 0.077 | 0.093 | 0.116 | 0.130 | 0.110 | 0.088 |
| P2 | 0.080 | 0.096 | 0.117 | 0.128 | 0.112 | 0.094 |

Covariance Matrix

| | O2 | O3 | O4 | O5 | T1 | T2 |
|---|---|---|---|---|---|---|
| O2 | 0.194 | | | | | |
| O3 | 0.107 | 0.171 | | | | |
| O4 | 0.066 | 0.050 | 0.232 | | | |
| O5 | 0.116 | 0.091 | 0.099 | 0.225 | | |
| T1 | 0.055 | 0.051 | 0.095 | 0.060 | 0.226 | |
| T2 | 0.068 | 0.058 | 0.108 | 0.067 | 0.118 | 0.225 |
| T3 | 0.041 | 0.030 | 0.098 | 0.025 | 0.109 | 0.123 |
| T4 | 0.051 | 0.049 | 0.113 | 0.036 | 0.099 | 0.139 |
| T5 | 0.039 | 0.040 | 0.101 | 0.039 | 0.089 | 0.139 |

| | | | | | | |
|---|---|---|---|---|---|---|
| L1 | 0.073 | 0.057 | 0.094 | 0.072 | 0.071 | 0.093 |
| L2 | 0.069 | 0.052 | 0.094 | 0.078 | 0.072 | 0.091 |
| L3 | 0.069 | 0.058 | 0.094 | 0.069 | 0.079 | 0.097 |
| L4 | 0.048 | 0.043 | 0.088 | 0.060 | 0.061 | 0.080 |
| P1 | 0.060 | 0.060 | 0.092 | 0.073 | 0.071 | 0.095 |
| P2 | 0.071 | 0.066 | 0.096 | 0.078 | 0.063 | 0.092 |

Covariance Matrix

| | T3 | T4 | T5 | L1 | L2 | L3 |
|---|---|---|---|---|---|---|
| T3 | 0.282 | | | | | |
| T4 | 0.119 | 0.282 | | | | |
| T5 | 0.145 | 0.163 | 0.281 | | | |
| L1 | 0.063 | 0.080 | 0.087 | 0.201 | | |
| L2 | 0.060 | 0.069 | 0.080 | 0.150 | 0.182 | |
| L3 | 0.071 | 0.078 | 0.089 | 0.146 | 0.148 | 0.183 |
| L4 | 0.073 | 0.072 | 0.080 | 0.110 | 0.110 | 0.125 |
| P1 | 0.082 | 0.088 | 0.088 | 0.079 | 0.079 | 0.080 |
| P2 | 0.077 | 0.102 | 0.081 | 0.085 | 0.071 | 0.077 |

Covariance Matrix

| | L4 | P1 | P2 |
|---|---|---|---|
| L4 | 0.154 | | |
| P1 | 0.072 | 0.207 | |
| P2 | 0.075 | 0.142 | 0.219 |

Means

| J1 | J2 | C1 | C2 | C3 | O1 |
|---|---|---|---|---|---|
| 3.743 | 3.725 | 4.173 | 4.037 | 4.231 | 3.672 |

Means

| O2 | O3 | O4 | O5 | T1 | T2 |
|---|---|---|---|---|---|
| 3.880 | 3.748 | 3.718 | 4.126 | 3.542 | 3.462 |

Means

| T3 | T4 | T5 | L1 | L2 | L3 |
|---|---|---|---|---|---|
| 3.285 | 3.360 | 3.302 | 3.528 | 3.470 | 3.442 |

Means

| L4 | P1 | P2 |
|---|---|---|
| 3.365 | 3.760 | 3.782 |

Standard Deviations

| J1 | J2 | C1 | C2 | C3 | O1 |
|---|---|---|---|---|---|
| 0.418 | 0.431 | 0.586 | 0.678 | 0.653 | 0.464 |

Standard Deviations

| O2 | O3 | O4 | O5 | T1 | T2 |
|---|---|---|---|---|---|
| 0.441 | 0.413 | 0.482 | 0.475 | 0.475 | 0.475 |

Standard Deviations

| T3 | T4 | T5 | L1 | L2 | L3 |
|---|---|---|---|---|---|
| 0.531 | 0.531 | 0.530 | 0.448 | 0.427 | 0.428 |

Standard Deviations

| L4 | P1 | P2 |
|---|---|---|
| 0.393 | 0.455 | 0.468 |

The Problem used 49064 Bytes (= 0.1% of available workspace)