#### The LOGISTIC Procedure

| Model Information                       |                          |  |  |  |  |
|---|--------------------------|--|--|--|--|
| Data Set                                | WORK.SORTTEMPTABLESORTED |  |  |  |  |
| Response Variable                       | D                        |  |  |  |  |
| <b>Number of Response Levels</b>        | 2                        |  |  |  |  |
| Model                                   | binary logit             |  |  |  |  |
| Optimization Technique Fisher's scoring |                          |  |  |  |  |

Number of Observations Read | 418 Number of Observations Used 276

| Response Profile |   |     |  |  |  |  |
|------------------|---|-----|--|--|--|--|
| Ordered Total    |   |     |  |  |  |  |
| Value D Frequenc |   |     |  |  |  |  |
| 1                | 0 | 165 |  |  |  |  |
| 2                | 1 | 111 |  |  |  |  |

#### Probability modeled is D='1'.

Note: 142 observations were deleted due to missing values for the response or explanatory variables.

| Class Level Information |       |                    |   |   |  |  |  |
|-------------------------|-------|--------------------|---|---|--|--|--|
| Class                   | Value | e Design Variables |   |   |  |  |  |
| <b>Z</b> 1              | 1     | 1                  |   |   |  |  |  |
|                         | 2     | 0                  |   |   |  |  |  |
| <b>Z6</b>               | 0     | 1                  |   |   |  |  |  |
|                         | 1     | 0                  |   |   |  |  |  |
| <b>Z</b> 3              | 0     | 1                  |   |   |  |  |  |
|                         | 1     | 0                  |   |   |  |  |  |
| <b>Z</b> 5              | 0     | 1                  |   |   |  |  |  |
|                         | 1     | 0                  |   |   |  |  |  |
| <b>Z</b> 7              | 0     | 1                  | 0 |   |  |  |  |
|                         | 1     | 0                  | 1 |   |  |  |  |
|                         | 0.5   | 0                  | 0 |   |  |  |  |
| <b>Z</b> 17             | 1     | 1                  | 0 | 0 |  |  |  |
|                         | 2     | 0                  | 1 | 0 |  |  |  |
|                         | 3     | 0                  | 0 | 1 |  |  |  |
|                         | 4     | 0                  | 0 | 0 |  |  |  |
| <b>Z4</b>               | 0     | 1                  |   |   |  |  |  |
|                         | 1     | 0                  |   |   |  |  |  |

**Model Convergence Status** Convergence criterion (GCONV=1E-8) satisfied.

#### The LOGISTIC Procedure

Note: 142 observations were deleted due to missing values for the response or explanatory variables.

| <b>Deviance and Pearson Goodness-of-Fit Statistics</b> |          |     |        |        |  |  |
|--|----------|-----|--------|--------|--|--|
| Criterion Value DF Value/DF Pr > ChiSq                 |          |     |        |        |  |  |
| Deviance   | 235.1165 | 255 | 0.9220 | 0.8091 |  |  |
| Pearson  | 390.8211 | 255 | 1.5326 | <.0001 |  |  |

#### Number of unique profiles: 276

| Model Fit Statistics |                |                                 |  |  |  |  |
|----------------------|----------------|---------------------------------|--|--|--|--|
| Criterion            | Intercept Only | <b>Intercept and Covariates</b> |  |  |  |  |
| AIC                  | 373.984        | 277.116                         |  |  |  |  |
| SC                   | 377.604        | 353.145                         |  |  |  |  |
| -2 Log L             | 371.984        | 235.116                         |  |  |  |  |

#### R-Square 0.3910 Max-rescaled R-Square 0.5282

| Testing Global Null Hypothesis: BETA=0 |          |    |        |  |  |  |
|--|----------|----|--------|--|--|--|
| Test   Chi-Square   DF   Pr > ChiSq    |          |    |        |  |  |  |
| <b>Likelihood Ratio</b>                | 136.8671 | 20 | <.0001 |  |  |  |
| Score                                  | 108.2980 | 20 | <.0001 |  |  |  |
| Wald                                   | 64.5753  | 20 | <.0001 |  |  |  |

|               | Type 3 Analysis of Effects |            |            |  |  |
|---------------|----------------------------|------------|------------|--|--|
|               |                            | Wald       |            |  |  |
| <b>Effect</b> | DF                         | Chi-Square | Pr > ChiSq |  |  |
| <b>Z</b> 8    | 1                          | 3.3689     | 0.0664     |  |  |
| <b>Z2</b>     | 1                          | 8.0751     | 0.0045     |  |  |
| <b>Z9</b>     | 1                          | 0.1407     | 0.7076     |  |  |
| <b>Z10</b>    | 1                          | 0.0791     | 0.7786     |  |  |
| <b>Z11</b>    | 1                          | 1.3027     | 0.2537     |  |  |
| <b>Z12</b>    | 1                          | 9.0973     | 0.0026     |  |  |
| <b>Z13</b>    | 1                          | 3.2853     | 0.0699     |  |  |
| Z14           | 1                          | 0.5644     | 0.4525     |  |  |
| <b>Z</b> 15   | 1                          | 0.0002     | 0.9880     |  |  |
| <b>Z</b> 16   | 1                          | 11.7498    | 0.0006     |  |  |
| <b>Z</b> 1    | 1                          | 0.8201     | 0.3652     |  |  |
| <b>Z</b> 6    | 1                          | 0.7797     | 0.3772     |  |  |
| <b>Z</b> 3    | 1                          | 1.4500     | 0.2285     |  |  |
| <b>Z</b> 5    | 1                          | 0.0818     | 0.7749     |  |  |
| <b>Z</b> 7    | 2                          | 0.3166     | 0.8536     |  |  |
| <b>Z17</b>    | 3                          | 3.8750     | 0.2753     |  |  |
| <b>Z</b> 4    | 1                          | 0.5746     | 0.4484     |  |  |

### The LOGISTIC Procedure

|                  | Analysis of Maximum Likelihood Estimates |    |          |               |            |            |  |
|------------------|--|----|----------|---------------|------------|------------|--|
|                  |  |    |          | Standard Wald |            |            |  |
| <b>Parameter</b> |  | DF | Estimate | Error         | Chi-Square | Pr > ChiSq |  |
| Intercept        |  | 1  | -11.7684 | 3.5604        | 10.9257    | 0.0009     |  |
| <b>Z</b> 8       |  | 1  | 0.1532   | 0.0835        | 3.3689     | 0.0664     |  |
| <b>Z</b> 2       |  | 1  | 0.0519   | 0.0183        | 8.0751     | 0.0045     |  |
| <b>Z</b> 9       |  | 1  | 0.000322 | 0.000857      | 0.1407     | 0.7076     |  |
| <b>Z</b> 10      |  | 1  | -0.1408  | 0.5006        | 0.0791     | 0.7786     |  |
| Z11              |  | 1  | 0.00285  | 0.00250       | 1.3027     | 0.2537     |  |
| <b>Z</b> 12      |  | 1  | 0.000271 | 0.000090      | 9.0973     | 0.0026     |  |
| <b>Z</b> 13      |  | 1  | 0.00584  | 0.00322       | 3.2853     | 0.0699     |  |
| <b>Z</b> 14      |  | 1  | 0.00248  | 0.00330       | 0.5644     | 0.4525     |  |
| Z15              |  | 1  | -0.00003 | 0.00199       | 0.0002     | 0.9880     |  |
| <b>Z</b> 16      |  | 1  | 0.7345   | 0.2143        | 11.7498    | 0.0006     |  |
| <b>Z</b> 1       | 1  | 1  | 0.3091   | 0.3413        | 0.8201     | 0.3652     |  |
| <b>Z6</b>        | 0  | 1  | -0.3533  | 0.4001        | 0.7797     | 0.3772     |  |
| <b>Z</b> 3       | 0  | 1  | 0.6448   | 0.5355        | 1.4500     | 0.2285     |  |
| <b>Z</b> 5       | 0  | 1  | -0.1144  | 0.4000        | 0.0818     | 0.7749     |  |
| <b>Z</b> 7       | 0  | 1  | 0.0705   | 0.6022        | 0.0137     | 0.9068     |  |
| <b>Z</b> 7       | 1  | 1  | 0.8463   | 1.5059        | 0.3158     | 0.5741     |  |
| Z17              | 1  | 1  | -2.8148  | 1.4855        | 3.5905     | 0.0581     |  |
| Z17              | 2  | 1  | -0.2192  | 0.5444        | 0.1621     | 0.6872     |  |
| Z17              | 3  | 1  | 0.0260   | 0.4429        | 0.0034     | 0.9532     |  |
| <b>Z</b> 4       | 0  | 1  | -1.0535  | 1.3898        | 0.5746     | 0.4484     |  |

| Association of Predicted Probabilities and Observed Responses |              |           |       |  |  |  |
|---|--------------|-----------|-------|--|--|--|
| Ob  | serveu ivesh | Ulises    |       |  |  |  |
| Percent Concordant  | 88.8         | Somers' D | 0.775 |  |  |  |
| Percent Discordant 11.2 Gamma 0.775                           |              |           |       |  |  |  |
| Percent Tied 0.0 Tau-a 0.374                                  |              |           |       |  |  |  |
| Pairs   | 18315        | С         | 0.888 |  |  |  |

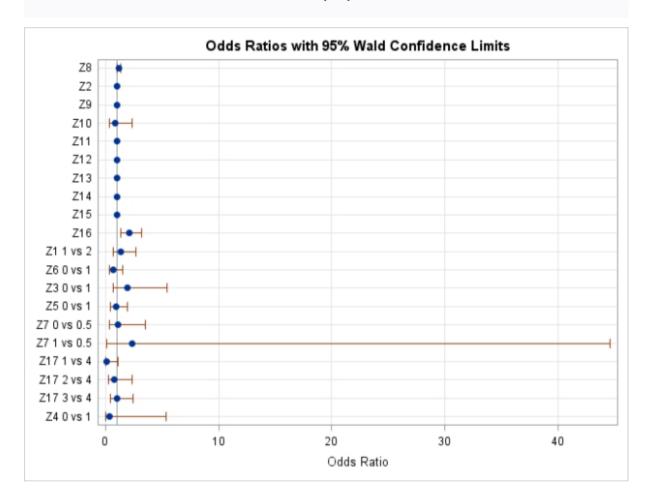
| <b>Parameter Estimates and Wald Confidence Intervals</b> |          |            |             |  |  |  |
|--|----------|------------|-------------|--|--|--|
| Parameter  | Estimate | 95% Confid | ence Limits |  |  |  |
| Intercept  | -11.7684 | -18.7466   | -4.7902     |  |  |  |
| <b>Z</b> 8   | 0.1532   | -0.0104    | 0.3168      |  |  |  |
| <b>Z</b> 2   | 0.0519   | 0.0161     | 0.0876      |  |  |  |
| <b>Z9</b>  | 0.000322 | -0.00136   | 0.00200     |  |  |  |
| Z10  | -0.1408  | -1.1218    | 0.8403      |  |  |  |
| Z11  | 0.00285  | -0.00205   | 0.00775     |  |  |  |
| Z12  | 0.000271 | 0.000095   | 0.000447    |  |  |  |
| Z13  | 0.00584  | -0.00047   | 0.0121      |  |  |  |

### The LOGISTIC Procedure

| Parameter Estimates and Wald Confidence Intervals |   |          |            |             |  |  |  |
|---|---|----------|------------|-------------|--|--|--|
| Parameter   |   | Estimate | 95% Confid | ence Limits |  |  |  |
| Z14   |   | 0.00248  | -0.00399   | 0.00895     |  |  |  |
| Z15   |   | -0.00003 | -0.00393   | 0.00387     |  |  |  |
| <b>Z</b> 16                                       |   | 0.7345   | 0.3145     | 1.1545      |  |  |  |
| <b>Z</b> 1  | 1 | 0.3091   | -0.3599    | 0.9781      |  |  |  |
| <b>Z6</b>   | 0 | -0.3533  | -1.1374    | 0.4309      |  |  |  |
| <b>Z</b> 3  | 0 | 0.6448   | -0.4047    | 1.6943      |  |  |  |
| <b>Z</b> 5  | 0 | -0.1144  | -0.8983    | 0.6695      |  |  |  |
| <b>Z</b> 7  | 0 | 0.0705   | -1.1099    | 1.2508      |  |  |  |
| <b>Z</b> 7  | 1 | 0.8463   | -2.1052    | 3.7978      |  |  |  |
| <b>Z</b> 17                                       | 1 | -2.8148  | -5.7263    | 0.0967      |  |  |  |
| <b>Z</b> 17                                       | 2 | -0.2192  | -1.2861    | 0.8477      |  |  |  |
| <b>Z</b> 17                                       | 3 | 0.0260   | -0.8420    | 0.8941      |  |  |  |
| <b>Z</b> 4  | 0 | -1.0535  | -3.7774    | 1.6704      |  |  |  |

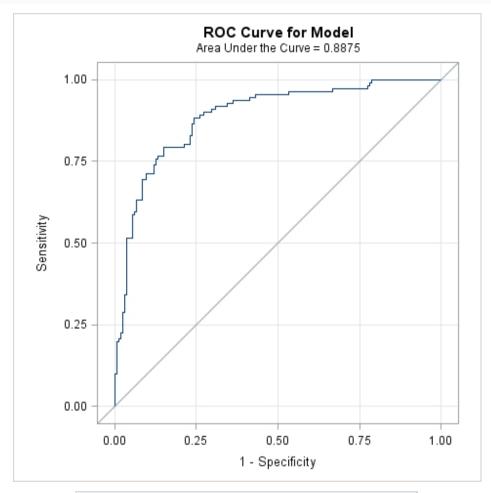
| <b>Odds Ratio Estimates and Wald Confidence Intervals</b> |        |                 |            |              |  |  |
|---|--------|-----------------|------------|--------------|--|--|
| Effect  | Unit   | <b>Estimate</b> | 95% Confid | lence Limits |  |  |
| <b>Z</b> 8  | 1.0000 | 1.166           | 0.990      | 1.373        |  |  |
| <b>Z2</b>   | 1.0000 | 1.053           | 1.016      | 1.092        |  |  |
| <b>Z9</b>   | 1.0000 | 1.000           | 0.999      | 1.002        |  |  |
| <b>Z10</b>  | 1.0000 | 0.869           | 0.326      | 2.317        |  |  |
| Z11   | 1.0000 | 1.003           | 0.998      | 1.008        |  |  |
| <b>Z</b> 12   | 1.0000 | 1.000           | 1.000      | 1.000        |  |  |
| <b>Z13</b>  | 1.0000 | 1.006           | 1.000      | 1.012        |  |  |
| Z14   | 1.0000 | 1.002           | 0.996      | 1.009        |  |  |
| Z15   | 1.0000 | 1.000           | 0.996      | 1.004        |  |  |
| <b>Z</b> 16   | 1.0000 | 2.085           | 1.370      | 3.173        |  |  |
| Z1 1 vs 2   | 1.0000 | 1.362           | 0.698      | 2.659        |  |  |
| <b>Z6</b> 0 vs 1  | 1.0000 | 0.702           | 0.321      | 1.539        |  |  |
| Z3 0 vs 1   | 1.0000 | 1.906           | 0.667      | 5.443        |  |  |
| <b>Z5 0 vs 1</b>  | 1.0000 | 0.892           | 0.407      | 1.953        |  |  |
| <b>Z7</b> 0 vs 0.5  | 1.0000 | 1.073           | 0.330      | 3.493        |  |  |
| <b>Z7</b> 1 vs 0.5  | 1.0000 | 2.331           | 0.122      | 44.604       |  |  |
| Z17 1 vs 4  | 1.0000 | 0.060           | 0.003      | 1.102        |  |  |
| Z17 2 vs 4  | 1.0000 | 0.803           | 0.276      | 2.334        |  |  |
| Z17 3 vs 4  | 1.0000 | 1.026           | 0.431      | 2.445        |  |  |
| Z4 0 vs 1   | 1.0000 | 0.349           | 0.023      | 5.314        |  |  |

#### The LOGISTIC Procedure



#### The LOGISTIC Procedure

### Number of unique profiles: 276

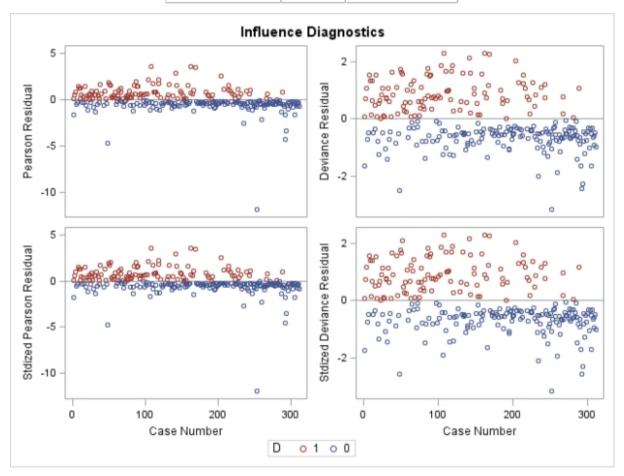


| Partition for the Hosmer and Lemeshow Test |       |          |                 |          |          |  |
|--|-------|----------|-----------------|----------|----------|--|
|  |       | D = 1    |                 | D = 0    |          |  |
| Group                                      | Total | Observed | <b>Expected</b> | Observed | Expected |  |
| 1  | 28    | 0        | 0.99            | 28       | 27.01    |  |
| 2  | 28    | 3        | 2.31            | 25       | 25.69    |  |
| 3  | 28    | 2        | 3.40            | 26       | 24.60    |  |
| 4  | 28    | 2        | 4.86            | 26       | 23.14    |  |
| 5  | 28    | 8        | 7.10            | 20       | 20.90    |  |
| 6  | 28    | 11       | 9.89            | 17       | 18.11    |  |
| 7  | 28    | 16       | 14.81           | 12       | 13.19    |  |
| 8  | 28    | 23       | 19.86           | 5        | 8.14     |  |
| 9  | 28    | 24       | 24.09           | 4        | 3.91     |  |
| 10   | 24    | 22       | 23.68           | 2        | 0.32     |  |

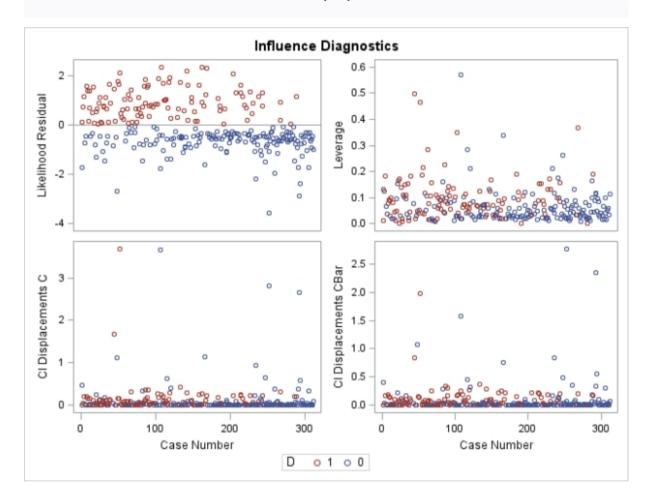
Generated by the SAS System ('Local', W32\_8PRO) on October 30, 2015 at 4:01:20 PM

#### The LOGISTIC Procedure

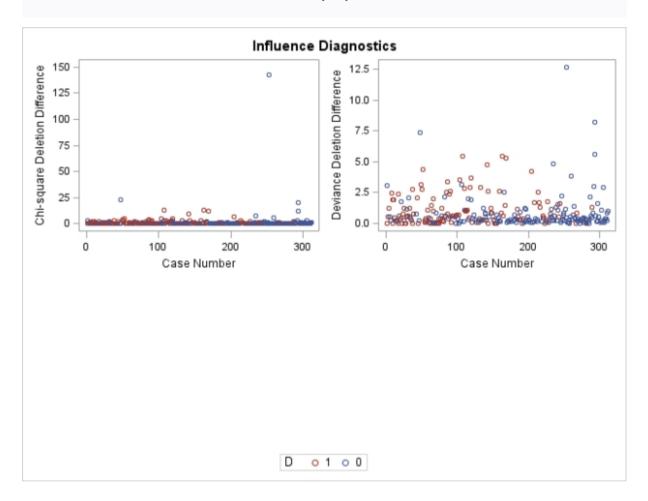
| Hosmer and Lemeshow Goodness-of-Fit |    |            |  |  |  |  |
|-------------------------------------|----|------------|--|--|--|--|
| Test                                |    |            |  |  |  |  |
| Chi-Square                          | DF | Pr > ChiSq |  |  |  |  |
| 15.1985                             | 8  | 0.0554     |  |  |  |  |



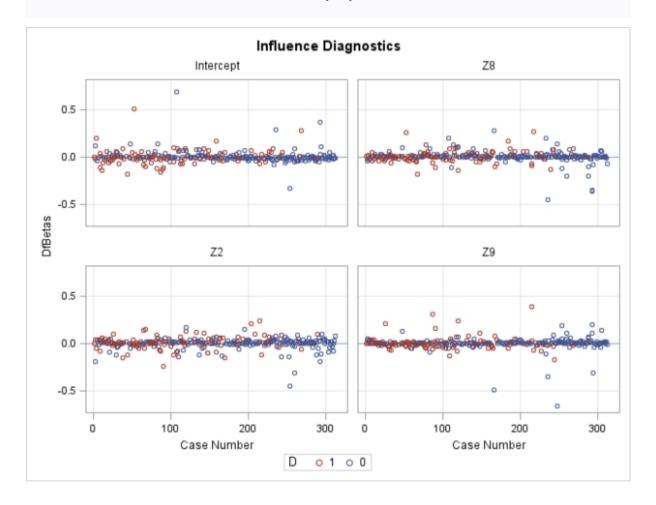
#### The LOGISTIC Procedure



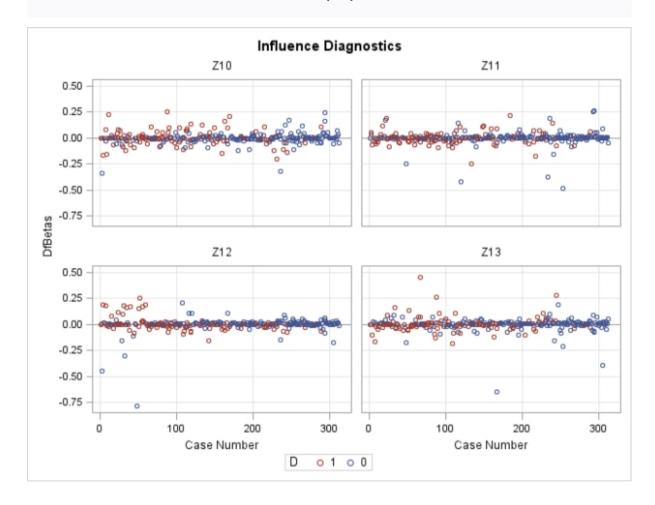
#### The LOGISTIC Procedure



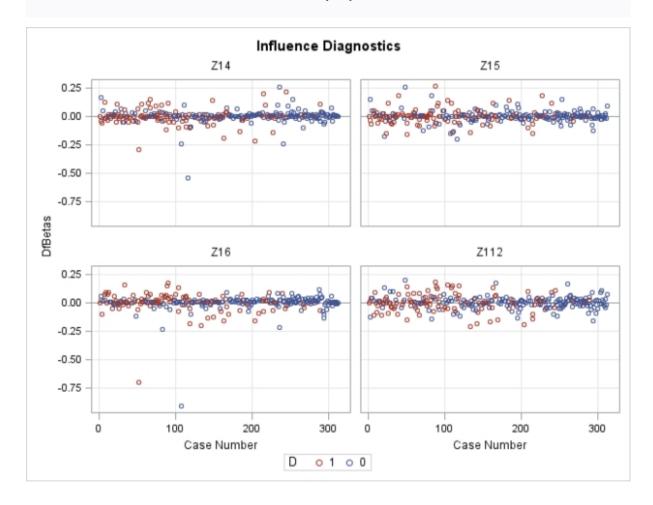
#### The LOGISTIC Procedure



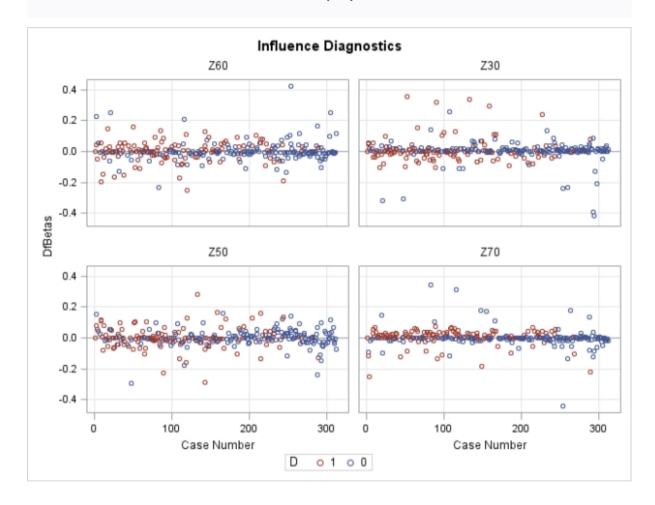
#### The LOGISTIC Procedure



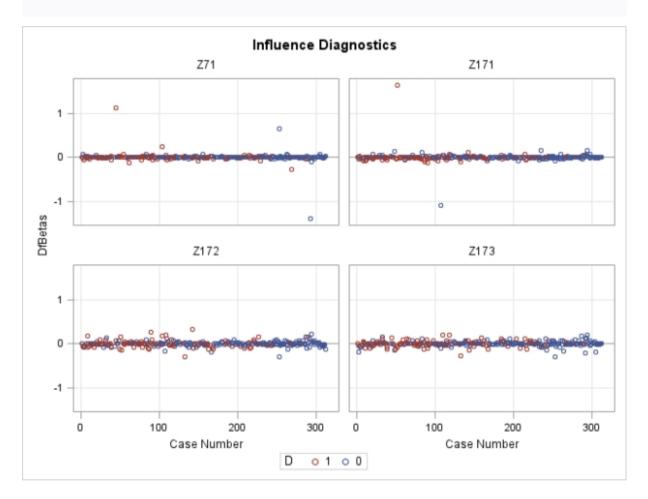
#### The LOGISTIC Procedure



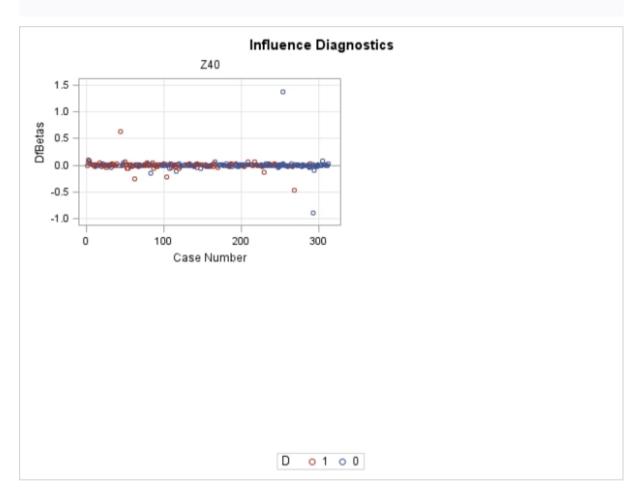
#### The LOGISTIC Procedure



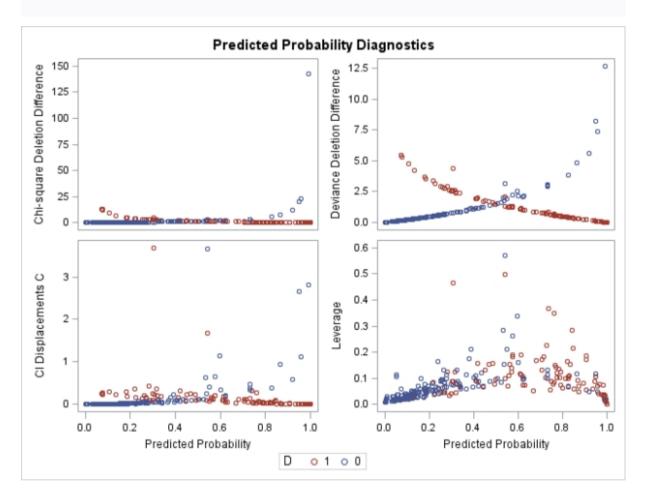
#### The LOGISTIC Procedure



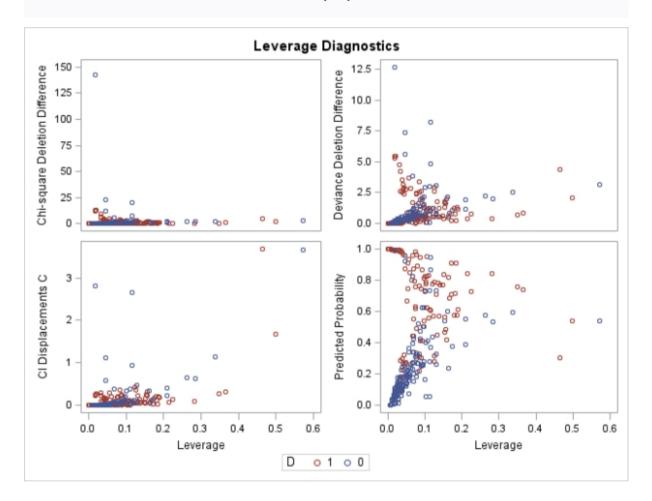
#### The LOGISTIC Procedure



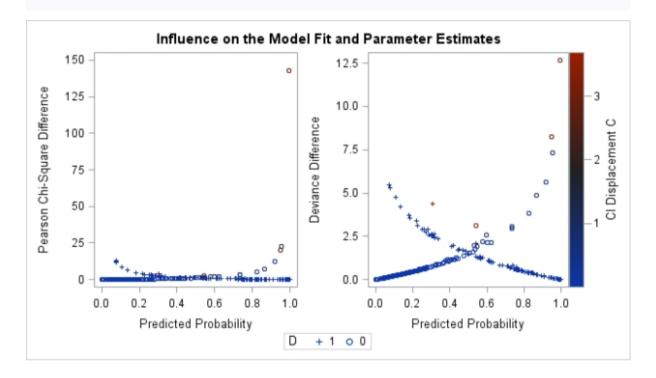
#### The LOGISTIC Procedure



#### The LOGISTIC Procedure



#### The LOGISTIC Procedure



#### The LOGISTIC Procedure

