The SAS System

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
MinorInjuries	25077	0.9584081	0.8054394	0	8.0000000
ModerateInjuries	25077	0.3560234	0.5592728	0	10.0000000
FatalInjuries	25077	0.0208159	0.1485204	0	3.0000000
Log_Distance	25077	0.0357503	0.7234893	-4.5983107	4.3826165

The SAS System

The FREQ Procedure

SpeedingFlag	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	25077	100.00	25077	100.00

HitAndRunFlag	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	25077	100.00	25077	100.00

CityDamageFlag_Num	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-0.096768396	23230	92.63	23230	92.63
0.9032316037	1847	7.37	25077	100.00

Crash Frequency Over Years

The FACTOR Procedure

Input Data Type	Raw Data
Number of Records Read	25077
Number of Records Used	25077
N for Significance Tests	25077

Crash Frequency Over Years

The FACTOR Procedure
Initial Factor Method: Principal Components

Prior Communality Estimates: ONE

Eigenvalues of the Correlation Matrix: Total = 3 Average = 1				
	Eigenvalue	Difference	Proportion	Cumulative
1	1.06850646	0.09785146	0.3562	0.3562
2	0.97065500	0.00981646	0.3236	0.6797
3	0.96083854		0.3203	1.0000

2 factors will be retained by the NFACTOR criterion.

Factor Pattern		
	Factor1	Factor2
CityDamageFlag_Num	0.61963	-0.21649
Log_Distance	0.59994	-0.53482
IntersectionNumber	0.56977	0.79859

Variance Explained by Each Factor	
Factor1	Factor2
1.0685065	0.9706550

Final Communality Estimates: Total = 2.039161		
CityDamageFlag_Num	Log_Distance	IntersectionNumber
0.43080775	0.64597111	0.96238260

Crash Frequency Over Years

The FACTOR Procedure
Rotation Method: Varimax

Orthogonal Transformation Matrix		
	1	2
1	0.83440	0.55115
2	-0.55115	0.83440

Rotated Factor Pattern		
	Factor1	Factor2
CityDamageFlag_Num	0.63634	0.16087
Log_Distance	0.79537	-0.11560
IntersectionNumber	0.03527	0.98038

Variance Explained by Each Factor	
Factor1	Factor2
1.0387822	1.0003793

Final Communality Estimates: Total = 2.039161		
CityDamageFlag_Num	Log_Distance	IntersectionNumber
0.43080775	0.64597111	0.96238260

Crash Frequency Over Years

The FACTOR Procedure
Rotation Method: Varimax

Scoring Coefficients Estimated by Regression

Squared Multiple Correlations of the Variables with Each Factor	
Factor1	Factor2
1.0000000	1.0000000

Standardized Scoring Coefficients		
	Factor1	Factor2
CityDamageFlag_Num	0.60680	0.13351
Log_Distance	0.77218	-0.15029
IntersectionNumber	-0.00852	0.98039

Multiple Regression Analysis for Minor Injuries

The REG Procedure
Model: MODEL1
Dependent Variable: MinorInjuries

Number of Observations Read	25077
Number of Observations Used	25077

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	127.43787	42.47929	65.99	<.0001
Error	25073	16140	0.64373		
Corrected Total	25076	16268			

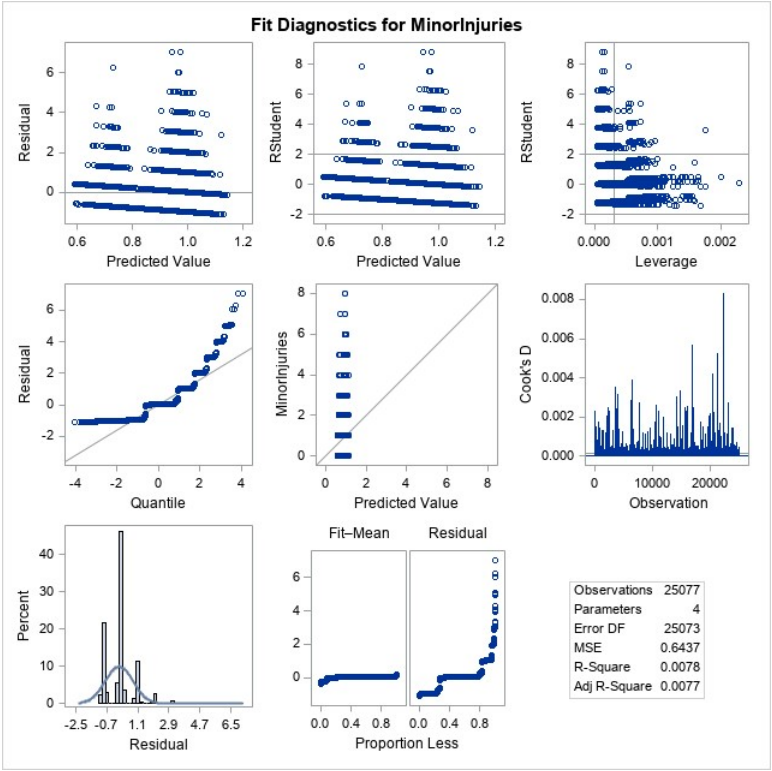
Root MSE	0.80233	R-Square	0.0078
Dependent Mean	0.95841	Adj R-Sq	0.0077
Coeff Var	83.71448		

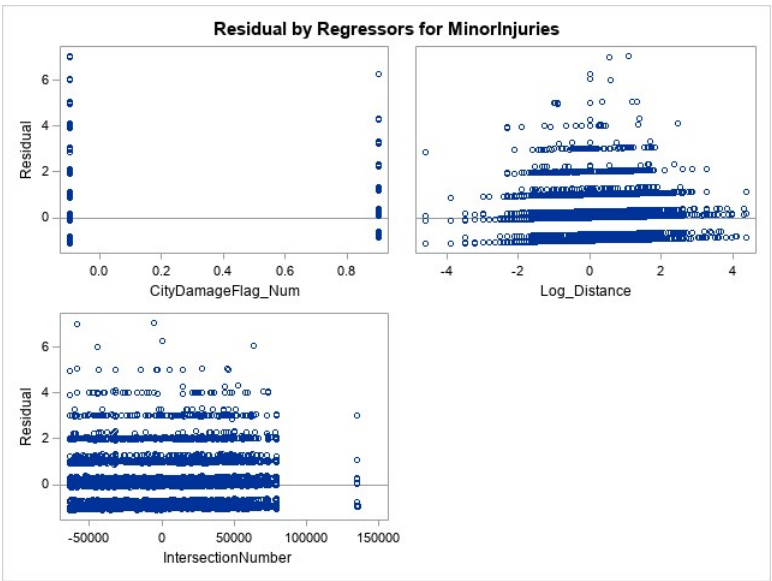
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	0.95384	0.00509	187.27	<.0001
CityDamageFlag_Num	1	-0.24964	0.01942	-12.85	<.0001
Log_Distance	1	-0.03324	0.00701	-4.74	<.0001
IntersectionNumber	1	-2.3111E-7	1.323657E-7	-1.75	0.0808

Multiple Regression Analysis for Minor Injuries

The REG Procedure
Model: MODEL1
Dependent Variable: MinorInjuries





Multiple Regression Analysis for Moderate Injuries

The REG Procedure
Model: MODEL1
Dependent Variable: ModerateInjuries

Number of Observations Read	25077
Number of Observations Used	25077

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	57.16708	19.05569	61.36	<.0001
Error	25073	7786.25558	0.31054		
Corrected Total	25076	7843.42266			

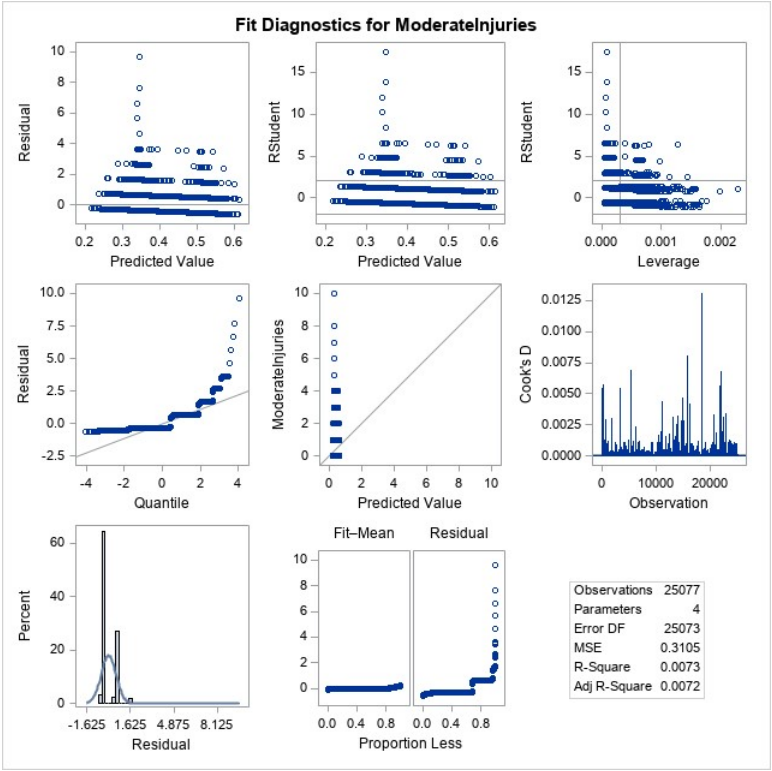
Root MSE	0.55726	R-Square	0.0073
Dependent Mean	0.35602	Adj R-Sq	0.0072
Coeff Var	156.52459		

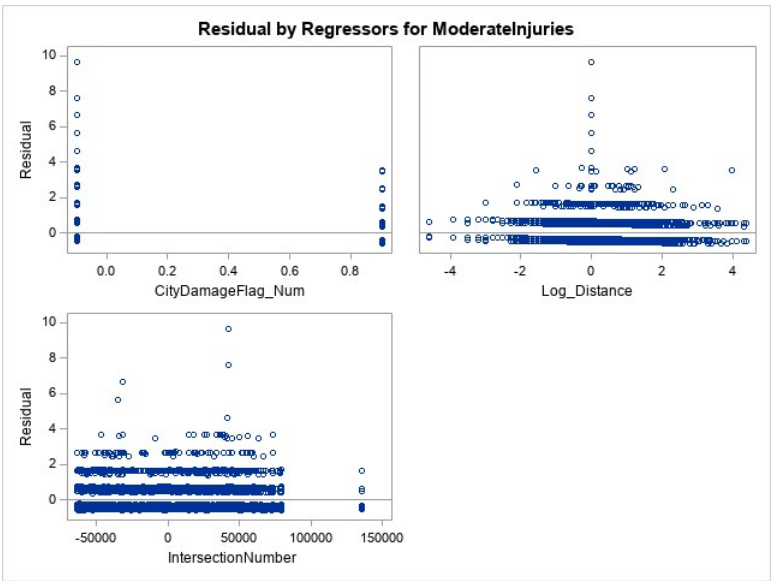
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	0.35888	0.00354	101.45	<.0001
CityDamageFlag_Num	1	0.16417	0.01349	12.17	<.0001
Log_Distance	1	0.02592	0.00487	5.32	<.0001
IntersectionNumber	1	9.261032E-8	9.193601E-8	1.01	0.3138

Multiple Regression Analysis for Moderate Injuries

The REG Procedure
Model: MODEL1
Dependent Variable: ModerateInjuries





Multiple Regression Analysis for Fatal Injuries

The REG Procedure
Model: MODEL1
Dependent Variable: FatalInjuries

Number of Observations Read	25077
Number of Observations Used	25077

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	2.36311	0.78770	35.86	<.0001
Error	25073	550.77100	0.02197		
Corrected Total	25076	553.13411			

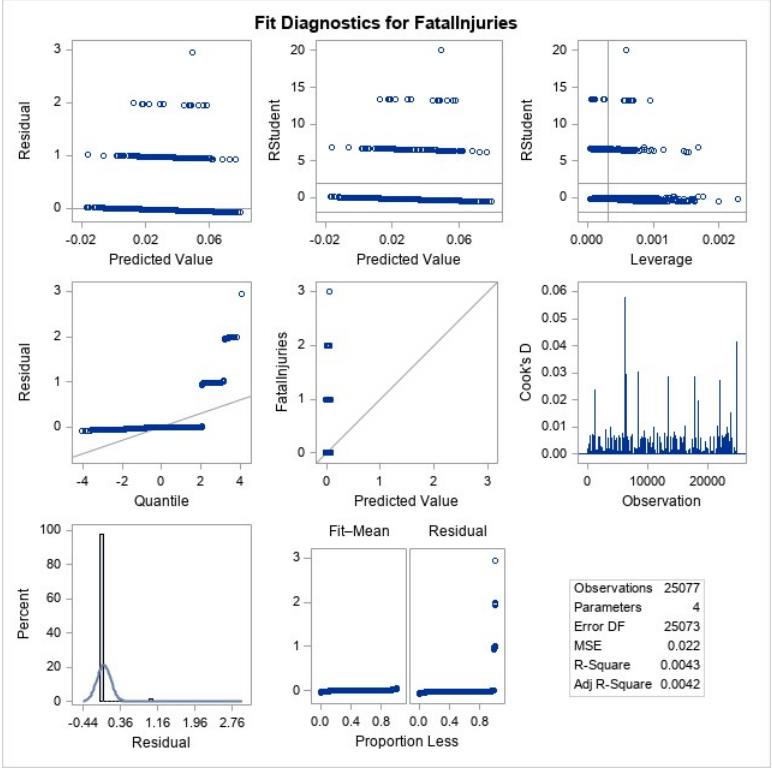
Root MSE	0.14821	R-Square	0.0043
Dependent Mean	0.02082	Adj R-Sq	0.0042
Coeff Var	712.01224		

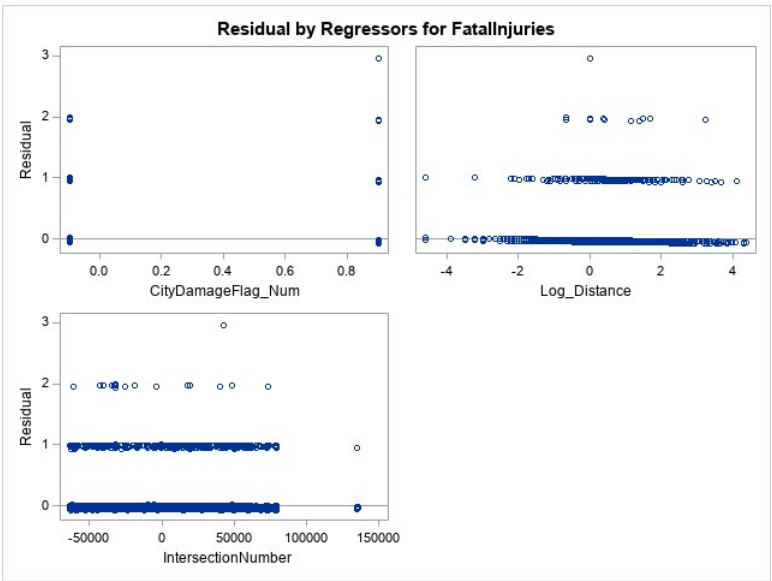
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	0.02124	0.00094090	22.57	<.0001
CityDamageFlag_Num	1	0.02982	0.00359	8.31	<.0001
Log_Distance	1	0.00746	0.00130	5.76	<.0001
IntersectionNumber	1	1.942253E-8	2.445158E-8	0.79	0.4270

Multiple Regression Analysis for Fatal Injuries

The REG Procedure
Model: MODEL1
Dependent Variable: FatalInjuries





Multiple Regression Analysis for Fatal Injuries

The FASTCLUS Procedure
Replace=FULL Radius=0 Maxclusters=3 Maxiter=1

Initial Seeds

Cluster	Log_Distance	CityDamageFlag_Num	MinorInjuries	ModerateInjuries	FatalInjuries
1	0.00000000	-0.09676840	0.00000000	10.00000000	0.00000000
2	-4.59831071	-0.09676840	4.00000000	0.00000000	0.00000000
3	4.38261650	-0.09676840	0.00000000	1.00000000	0.00000000

Criterion Based on Final Seeds =	0.5045

Cluster Summary

Cluster	Frequency	RMS Std Deviation	Maximum Distance from Seed to Observation	Radius Exceeded	Nearest Cluster	Distance Between Cluster Centroids
1	26	0.8954	5.0301		3	4.2048
2	5881	0.5773	6.7201		3	1.3916
3	19170	0.4614	4.7484		2	1.3916

Statistics for Variables

Variable	Total STD	Within STD	R-Square	RSQ/(1-RSQ)
Log_Distance	0.72349	0.63570	0.228010	0.295354
CityDamageFlag_Num	0.26121	0.26109	0.001015	0.001016
MinorInjuries	0.80544	0.65911	0.330392	0.493411
ModerateInjuries	0.55927	0.52911	0.105019	0.117343
FatalInjuries	0.14852	0.14825	0.003741	0.003755
OVER-ALL	0.56129	0.49166	0.232780	0.303407

Pseudo F Statistic =	3803.81

Approximate Expected Over-All R-Squared =	0.49757

Cubic Clustering Criterion =	-154.537

WARNING: The two values above are invalid for correlated variables.

Cluster Means

Cluster	Log_Distance	CityDamageFlag_Num	MinorInjuries	ModerateInjuries	FatalInjuries
1	0.295701261	0.134000834	0.538461538	4.615384615	0.038461538
2	-0.588374546	-0.035214239	1.794762795	0.137731678	0.004421017
3	0.226867656	-0.019616597	0.702399583	0.417214397	0.025821596

Cluster Standard Deviations

Cluster	Log_Distance	CityDamageFlag_Num	MinorInjuries	ModerateInjuries	FatalInjuries
1	0.980485678	0.429668924	0.760566590	1.498717400	0.196116135
2	0.771066116	0.240364447	0.933255466	0.371711737	0.068864766
3	0.587351712	0.266839116	0.548031521	0.566470561	0.165054101

Cluster Analysis Results (First 20 Observations)

Obs	CrashFactId	Name	MinorInjuries	ModerateInjuries	SevereInjuries	FatalInjuries	TcrNumber	CityDamageFlag	ShortFormFlag	CrashDateTime	Pedes
1	591082	CR-0000060410	0	1	0	0	16-041-0882	FALSE	FALSE	10FEB16:20:33:00	No Pe Involv
2	591083	CR-0000060514	2	0	0	0	16-063-0761	FALSE	FALSE	03MAR16:19:04:00	Cross Cross
3	591085	CR-0000067624	1	0	0	0	17-145-0807	FALSE	FALSE	25MAY17:18:43:00	No Pe Involv
4	591088	CR-0000043155	1	0	0	0	13-054-0777	FALSE	FALSE	23FEB13:18:59:00	No Pe Involv
5	591094	CR-0000055203	0	1	0	0	15-056-0026	FALSE	FALSE	25FEB15:01:28:00	No Pe Involv
6	591095	CR-0000055437	0	1	0	0	15-053-0206	TRUE	FALSE	22FEB15:05:05:00	No Pe Involv
7	591096	CR-0000062033	1	0	0	0	16-182-0513	FALSE	FALSE	30JUN16:15:04:00	No Pe Involv
8	591097	CR-0000054976	0	1	0	0	15-126-0728	FALSE	FALSE	06MAY15:17:02:00	No Pe Involv
9	591099	CR-0000054600	0	1	0	0	15-059-0687	TRUE	FALSE	28FEB15:18:49:00	No Pe Involv
10	591101	CR-0000054932	1	0	0	0	15-102-0344	FALSE	FALSE	12APR15:11:15:00	No Pe Involv
11	591104	CR-0000043275	1	0	0	0	13-062-0041	FALSE	FALSE	03MAR13:00:34:00	No Pe Involv
12	591106	CR-0000043265	1	0	0	0	13-061-0687	FALSE	FALSE	02MAR13:18:50:00	No Pe Involv
13	591109	CR-0000056795	1	0	0	0	15-176-0279	FALSE	FALSE	25JUN15:09:27:00	No Pe Involv
14	591110	CR-0000043311	1	1	0	0	13-064-0281	FALSE	FALSE	05MAR13:10:10:00	In Roa Shoul
15	591117	CR-0000052466	1	0	0	0	14-301-0151	FALSE	FALSE	28OCT14:07:59:00	Cross Cross
16	591118	CR-0000057693	1	2	2	0	15-168-0870	FALSE	FALSE	17JUN15:20:37:00	No Pe Involv
17	591121	CR-0000070578	1	0	0	0	17-345-0181	FALSE	FALSE	11DEC17:07:27:00	Cross Cross
18	591122	CR-0000070569	0	1	0	0	17-348-0725	FALSE	FALSE	14DEC17:17:49:00	No Pe Involv
19	591129	CR-0000057701	1	0	0	0	15-169-0224	FALSE	FALSE	18JUN15:08:43:00	No Pe Involv
20	591131	CR-0000063634	1	0	0	0	16-275-0180	FALSE	FALSE	01OCT16:04:39:00	No Pe Involv