

0. Too many missing in collected data (model accepts missing observations, but these are too many)

The FREQ Procedure

medida	Frequency	Percent	Cumulative Frequency	Cumulative Percent
.	131	36.90	131	36.90
0	105	29.58	236	66.48
1	31	8.73	267	75.21
2	23	6.48	290	81.69
3	9	2.54	299	84.23
4	4	1.13	303	85.35
5	8	2.25	311	87.61
6	6	1.69	317	89.30
7	3	0.85	320	90.14
8	7	1.97	327	92.11
9	3	0.85	330	92.96
10	4	1.13	334	94.08
11	3	0.85	337	94.93
12	2	0.56	339	95.49
14	1	0.28	340	95.77
15	1	0.28	341	96.06
17	2	0.56	343	96.62
18	1	0.28	344	96.90
21	2	0.56	346	97.46
23	3	0.85	349	98.31
25	1	0.28	350	98.59
26	2	0.56	352	99.15
28	1	0.28	353	99.44
30	1	0.28	354	99.72
38	1	0.28	355	100.00

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The FREQ Procedure

Municipio				
Municipio	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABASOLO	12	3.38	12	3.38
ACAMBARO	8	2.25	20	5.63
ACÁMBARO	3	0.85	23	6.48
APASEO EL ALTO	10	2.82	33	9.30
APASEO EL GRANDE	11	3.10	44	12.39
CELAYA	12	3.38	56	15.77
COMONFORT	10	2.82	66	18.59
CORONEO	1	0.28	67	18.87
CORTAZAR	10	2.82	77	21.69
CUERAMARO	8	2.25	85	23.94
CUERÁMARO	5	1.41	90	25.35
DOCTOR MORA	7	1.97	97	27.32
DOLORES HIDALGO	2	0.56	99	27.89
GUANAJUATO	1	0.28	100	28.17
HUANIMARO	8	2.25	108	30.42
IRAPUATO	15	4.23	123	34.65
JARAL DEL PROGRESO	11	3.10	134	37.75
JERECUARIO	8	2.25	142	40.00
JERÉCUARO	4	1.13	146	41.13
JUEVENTINO DE ROSAS	6	1.69	152	42.82
JUVENTINO ROSAS	7	1.97	159	44.79
LEON	2	0.56	161	45.35
LEÓN	11	3.10	172	48.45
MANUEL DOBLADO	10	2.82	182	51.27
MOROLEON	5	1.41	187	52.68
PENJAMO	10	2.82	197	55.49
PUEBLO NUEVO	11	3.10	208	58.59
PURISIMA DEL RINCON	2	0.56	210	59.15
PURÍSIMA DEL RINCÓN	9	2.54	219	61.69
PÉNJAMO	6	1.69	225	63.38
ROMITA	10	2.82	235	66.20
SALAMANCA	13	3.66	248	69.86
SALVATIERRA	11	3.10	259	72.96

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The FREQ Procedure

Municipio				
Municipio	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SAN FELIPE	1	0.28	260	73.24
SAN DIEGO DE LA UNION	1	0.28	261	73.52
SAN FELIPE	1	0.28	262	73.80
SAN FRANCISCO DEL RINCON	2	0.56	264	74.37
SAN FRANCISCO DEL RINCÓN	12	3.38	276	77.75
SAN JOSE ITURBIDE	1	0.28	277	78.03
SAN LUIS DE LA PAZ	1	0.28	278	78.31
SAN MIGUEL DE ALLENDE	1	0.28	279	78.59
SANTIAGO MARAVATIO	8	2.25	287	80.85
SILAO	9	2.54	296	83.38
TARANDACUAO	9	2.54	305	85.92
TARIMORO	11	3.10	316	89.01
TIERRA BLANCA	1	0.28	317	89.30
URIANGATO	4	1.13	321	90.42
VALLE DE SANTIAGO	12	3.38	333	93.80
VILLAGRAN	8	2.25	341	96.06
VILLAGRAN 1	1	0.28	342	96.34
VILLAGRAN 2	1	0.28	343	96.62
YURIRIA	12	3.38	355	100.00

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
	41	11.55	41	11.55
005	1	0.28	42	11.83
013	1	0.28	43	12.11
014	1	0.28	44	12.39
015	1	0.28	45	12.68
016	1	0.28	46	12.96
017	1	0.28	47	13.24
018	1	0.28	48	13.52
021	1	0.28	49	13.80
022	1	0.28	50	14.08
023	1	0.28	51	14.37
032	1	0.28	52	14.65
034	1	0.28	53	14.93
042	1	0.28	54	15.21
043	1	0.28	55	15.49
044	1	0.28	56	15.77
045	1	0.28	57	16.06
047	1	0.28	58	16.34
048	1	0.28	59	16.62
050	1	0.28	60	16.90
052	1	0.28	61	17.18
053	1	0.28	62	17.46
054	1	0.28	63	17.75
058	1	0.28	64	18.03
061	1	0.28	65	18.31
062	1	0.28	66	18.59
063	1	0.28	67	18.87
065	1	0.28	68	19.15
067	1	0.28	69	19.44
068	1	0.28	70	19.72
069	1	0.28	71	20.00
073	1	0.28	72	20.28
075	1	0.28	73	20.56
076	1	0.28	74	20.85

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
077	1	0.28	75	21.13
078	1	0.28	76	21.41
079	1	0.28	77	21.69
080	1	0.28	78	21.97
082	1	0.28	79	22.25
083	1	0.28	80	22.54
086	1	0.28	81	22.82
087	1	0.28	82	23.10
088	1	0.28	83	23.38
090	1	0.28	84	23.66
093	1	0.28	85	23.94
094	1	0.28	86	24.23
095	1	0.28	87	24.51
100	1	0.28	88	24.79
101	1	0.28	89	25.07
102	1	0.28	90	25.35
103	1	0.28	91	25.63
105	1	0.28	92	25.92
110	1	0.28	93	26.20
112	1	0.28	94	26.48
113	1	0.28	95	26.76
118	1	0.28	96	27.04
119	1	0.28	97	27.32
120	1	0.28	98	27.61
122	1	0.28	99	27.89
127	1	0.28	100	28.17
128	1	0.28	101	28.45
129	1	0.28	102	28.73
130	1	0.28	103	29.01
135	1	0.28	104	29.30
136	1	0.28	105	29.58
142	1	0.28	106	29.86
143	1	0.28	107	30.14
144	1	0.28	108	30.42

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
145	1	0.28	109	30.70
146	1	0.28	110	30.99
148	1	0.28	111	31.27
149	1	0.28	112	31.55
150	1	0.28	113	31.83
152	1	0.28	114	32.11
153	1	0.28	115	32.39
154	1	0.28	116	32.68
160	1	0.28	117	32.96
164	1	0.28	118	33.24
165	1	0.28	119	33.52
167	1	0.28	120	33.80
168	1	0.28	121	34.08
GCB 001	1	0.28	122	34.37
GCB 002	1	0.28	123	34.65
GCB 003	1	0.28	124	34.93
GCB 004	1	0.28	125	35.21
GCB 005	1	0.28	126	35.49
GCB 006	1	0.28	127	35.77
GCB 007	1	0.28	128	36.06
GCB 008	1	0.28	129	36.34
GCB 009	1	0.28	130	36.62
GCB 010	1	0.28	131	36.90
GCB 011	1	0.28	132	37.18
GCB 012	1	0.28	133	37.46
GCB 013	1	0.28	134	37.75
GCB 014	1	0.28	135	38.03
GCB 015	1	0.28	136	38.31
GCB 016	1	0.28	137	38.59
GCB 017	1	0.28	138	38.87
GCB 018	1	0.28	139	39.15
GCB 019	1	0.28	140	39.44
GCB 020	1	0.28	141	39.72
GCB 021	1	0.28	142	40.00

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GCB 022	1	0.28	143	40.28
GCB 023	1	0.28	144	40.56
GCB 024	1	0.28	145	40.85
GCB 025	1	0.28	146	41.13
GCB 026	1	0.28	147	41.41
GCB 027	1	0.28	148	41.69
GCB 028	1	0.28	149	41.97
GCB 029	1	0.28	150	42.25
GCB 030	1	0.28	151	42.54
GCB 031	1	0.28	152	42.82
GCB 032	1	0.28	153	43.10
GCB 033	1	0.28	154	43.38
GCB 034	1	0.28	155	43.66
GCB 035	1	0.28	156	43.94
GCB 036	1	0.28	157	44.23
GCB 037	1	0.28	158	44.51
GCB 038	1	0.28	159	44.79
GCB 039	1	0.28	160	45.07
GCB 040	1	0.28	161	45.35
GCB 041	1	0.28	162	45.63
GCB 042	1	0.28	163	45.92
GCB 043	1	0.28	164	46.20
GCB 044	1	0.28	165	46.48
GCB 045	1	0.28	166	46.76
GCB 046	1	0.28	167	47.04
GCB 047	1	0.28	168	47.32
GCB 048	1	0.28	169	47.61
GCB 049	1	0.28	170	47.89
GCB 050	1	0.28	171	48.17
GCB 051	1	0.28	172	48.45
GCB 052	1	0.28	173	48.73
GCB 053	1	0.28	174	49.01
GCB 054	1	0.28	175	49.30
GCB 055	1	0.28	176	49.58

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GCB 056	1	0.28	177	49.86
GCB 057	1	0.28	178	50.14
GCB 058	1	0.28	179	50.42
GCB 059	1	0.28	180	50.70
GCB 060	1	0.28	181	50.99
GCB 061	1	0.28	182	51.27
GCB 062	1	0.28	183	51.55
GCB 063	1	0.28	184	51.83
GCB 064	1	0.28	185	52.11
GCB 065	1	0.28	186	52.39
GCB 066	1	0.28	187	52.68
GCB 067	1	0.28	188	52.96
GCB 068	1	0.28	189	53.24
GCB 069	1	0.28	190	53.52
GCB 070	1	0.28	191	53.80
GCB 071	1	0.28	192	54.08
GCB 072	1	0.28	193	54.37
GCB 073	1	0.28	194	54.65
GCB 074	1	0.28	195	54.93
GCB 075	1	0.28	196	55.21
GCB 076	1	0.28	197	55.49
GCB 077	1	0.28	198	55.77
GCB 078	1	0.28	199	56.06
GCB 079	1	0.28	200	56.34
GCB 080	1	0.28	201	56.62
GCB 081	1	0.28	202	56.90
GCB 082	1	0.28	203	57.18
GCB 083	1	0.28	204	57.46
GCB 084	1	0.28	205	57.75
GCB 085	1	0.28	206	58.03
GCB 086	1	0.28	207	58.31
GCB 087	1	0.28	208	58.59
GCB 088	1	0.28	209	58.87
GCB 089	1	0.28	210	59.15



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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GCB 090	1	0.28	211	59.44
GCB 091	1	0.28	212	59.72
GCB 092	1	0.28	213	60.00
GCB 093	1	0.28	214	60.28
GCB 094	1	0.28	215	60.56
GCB 095	1	0.28	216	60.85
GCB 096	1	0.28	217	61.13
GCB 097	1	0.28	218	61.41
GCB 098	1	0.28	219	61.69
GCB 099	1	0.28	220	61.97
GCB 100	1	0.28	221	62.25
GCB 101	1	0.28	222	62.54
GCB 102	1	0.28	223	62.82
GCB 103	1	0.28	224	63.10
GCB 104	1	0.28	225	63.38
GCB 105	1	0.28	226	63.66
GCB 106	1	0.28	227	63.94
GCB 107	1	0.28	228	64.23
GCB 108	1	0.28	229	64.51
GCB 109	1	0.28	230	64.79
GCB 110	1	0.28	231	65.07
GCB 111	1	0.28	232	65.35
GCB 112	1	0.28	233	65.63
GCB 113	1	0.28	234	65.92
GCB 114	1	0.28	235	66.20
GCB 115	1	0.28	236	66.48
GCB 116	1	0.28	237	66.76
GCB 117	1	0.28	238	67.04
GCB 118	1	0.28	239	67.32
GCB 119	1	0.28	240	67.61
GCB 120	1	0.28	241	67.89
GCB 121	1	0.28	242	68.17
GCB 122	1	0.28	243	68.45
GCB 123	1	0.28	244	68.73

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GCB 124	1	0.28	245	69.01
GCB 125	1	0.28	246	69.30
GCB 126	1	0.28	247	69.58
GCB 127	1	0.28	248	69.86
GCB 128	1	0.28	249	70.14
GCB 129	1	0.28	250	70.42
GCB 130	1	0.28	251	70.70
GCB 131	1	0.28	252	70.99
GCB 132	1	0.28	253	71.27
GCB 133	1	0.28	254	71.55
GCB 134	1	0.28	255	71.83
GCB 135	1	0.28	256	72.11
GCB 136	1	0.28	257	72.39
GCB 137	1	0.28	258	72.68
GCB 138	1	0.28	259	72.96
GCB 139	1	0.28	260	73.24
GCB 140	1	0.28	261	73.52
GCB 141	1	0.28	262	73.80
GCB 142	1	0.28	263	74.08
GCB 143	1	0.28	264	74.37
GCB 144	1	0.28	265	74.65
GCB 145	1	0.28	266	74.93
GCB 146	1	0.28	267	75.21
GCB 147	1	0.28	268	75.49
GCB 148	1	0.28	269	75.77
GCB 149	1	0.28	270	76.06
GCB 150	1	0.28	271	76.34
GCB 151	1	0.28	272	76.62
GCB 152	1	0.28	273	76.90
GCB 153	1	0.28	274	77.18
GCB 154	1	0.28	275	77.46
GCB 155	1	0.28	276	77.75
GCB 156	1	0.28	277	78.03
GCB 157	1	0.28	278	78.31

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GCB 158	1	0.28	279	78.59
GCB 159	1	0.28	280	78.87
GCB 160	1	0.28	281	79.15
GCB 161	1	0.28	282	79.44
GCB 162	1	0.28	283	79.72
GCB 163	1	0.28	284	80.00
GCB 164	1	0.28	285	80.28
GCB 165	1	0.28	286	80.56
GCB 166	1	0.28	287	80.85
GCB 167	1	0.28	288	81.13
GCB 168	1	0.28	289	81.41
GCB 169	1	0.28	290	81.69
GCB 170	1	0.28	291	81.97
GCB 171	1	0.28	292	82.25
GCB 172	1	0.28	293	82.54
GCB 173	1	0.28	294	82.82
GCB 174	1	0.28	295	83.10
GCB 175	1	0.28	296	83.38
GCB 176	1	0.28	297	83.66
GCB 177	1	0.28	298	83.94
GCB 178	1	0.28	299	84.23
GCB 179	1	0.28	300	84.51
GCB 180	1	0.28	301	84.79
GCB 181	1	0.28	302	85.07
GCB 182	1	0.28	303	85.35
GCB 183	1	0.28	304	85.63
GCB 184	1	0.28	305	85.92
GCM-021	1	0.28	306	86.20
GCM-022	1	0.28	307	86.48
GCM-024	1	0.28	308	86.76
GCM-026	1	0.28	309	87.04
GCS-001	1	0.28	310	87.32
GCS-002	1	0.28	311	87.61
GCS-003	1	0.28	312	87.89

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GCS-004	1	0.28	313	88.17
GCS-005	1	0.28	314	88.45
GCS-006	1	0.28	315	88.73
GCS-007	1	0.28	316	89.01
GCS-008	1	0.28	317	89.30
GCS-019	1	0.28	318	89.58
GCS-020	1	0.28	319	89.86
GCS-021	1	0.28	320	90.14
GCS-029	1	0.28	321	90.42
PRE/11-001	1	0.28	322	90.70
PRE/11-002	1	0.28	323	90.99
PRE/11-004	1	0.28	324	91.27
PRE/11-005	1	0.28	325	91.55
PRE/11-007	1	0.28	326	91.83
PRE/11-008	1	0.28	327	92.11
PRE/11-009	1	0.28	328	92.39
PRE/11-011	1	0.28	329	92.68
PRE/11-012	1	0.28	330	92.96
PRE/11-014	1	0.28	331	93.24
PRE/11-016	1	0.28	332	93.52
PRE/11-017	1	0.28	333	93.80
PRE/11-018	1	0.28	334	94.08
PRE/11-019	1	0.28	335	94.37
PRE/11-020	1	0.28	336	94.65
PRE/11-021	1	0.28	337	94.93
PRE/11-023	1	0.28	338	95.21
PRE/11-024	1	0.28	339	95.49
PRE/11-025	1	0.28	340	95.77
PRE/11-026	1	0.28	341	96.06
PRE/11-027	1	0.28	342	96.34
PRE/11-028	1	0.28	343	96.62
PRE/11-030	1	0.28	344	96.90
PRE/11-031	1	0.28	345	97.18
PRE/11-035	1	0.28	346	97.46

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The FREQ Procedure

trampaC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
PRE/11-036	1	0.28	347	97.75
PRE/11-037	1	0.28	348	98.03
PRE/11-038	1	0.28	349	98.31
PRE/11-039	1	0.28	350	98.59
PRE/11-041	2	0.56	352	99.15
PRE/11-042	1	0.28	353	99.44
PRE/11-044	1	0.28	354	99.72
PRE/11-046	1	0.28	355	100.00

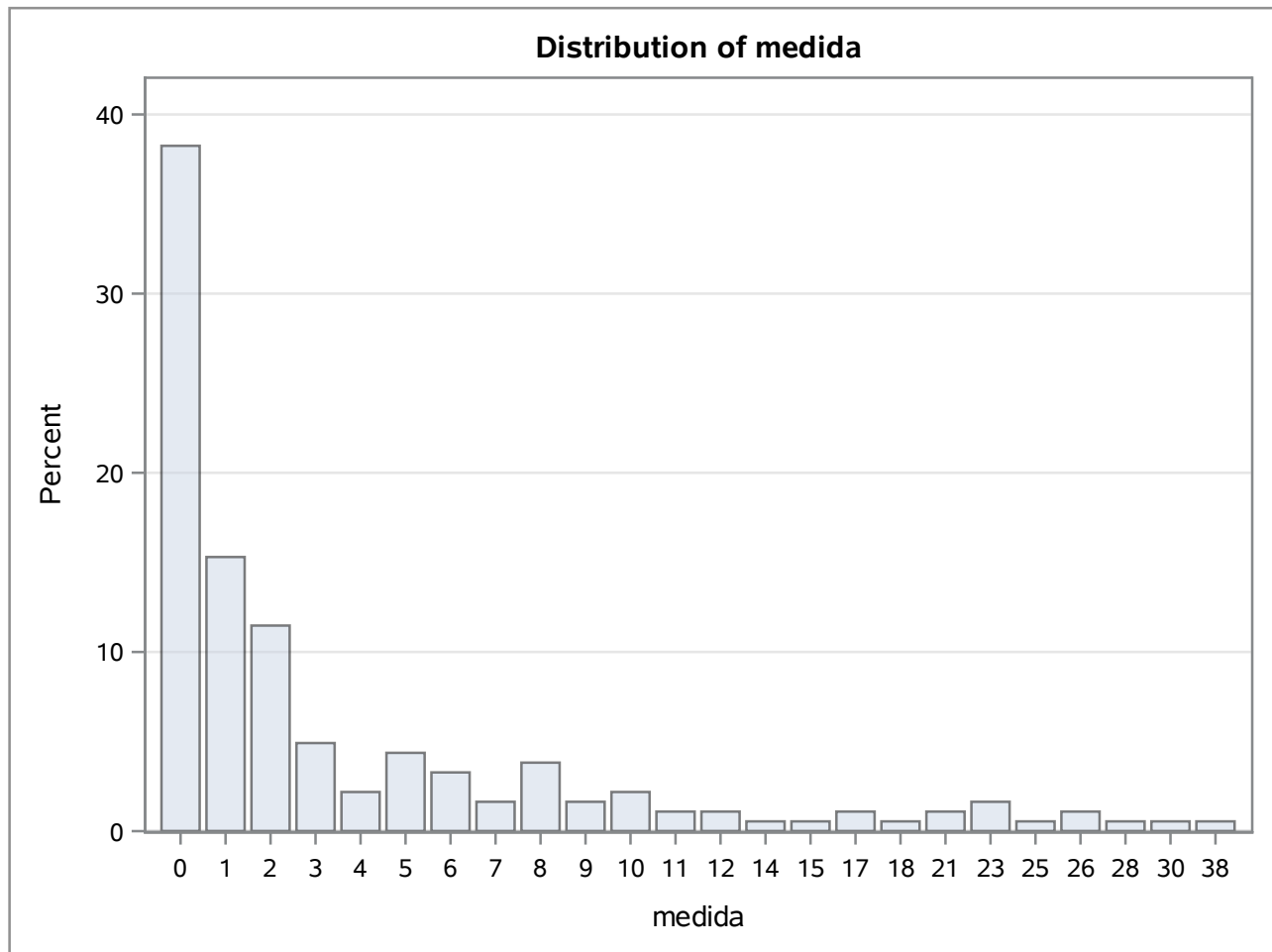
1. See if medida from collected data is Poisson (it is, using temporary data)

The FREQ Procedure

medida	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	70	38.25	70	38.25
1	28	15.30	98	53.55
2	21	11.48	119	65.03
3	9	4.92	128	69.95
4	4	2.19	132	72.13
5	8	4.37	140	76.50
6	6	3.28	146	79.78
7	3	1.64	149	81.42
8	7	3.83	156	85.25
9	3	1.64	159	86.89
10	4	2.19	163	89.07
11	2	1.09	165	90.16
12	2	1.09	167	91.26
14	1	0.55	168	91.80
15	1	0.55	169	92.35
17	2	1.09	171	93.44
18	1	0.55	172	93.99
21	2	1.09	174	95.08
23	3	1.64	177	96.72
25	1	0.55	178	97.27
26	2	1.09	180	98.36
28	1	0.55	181	98.91
30	1	0.55	182	99.45
38	1	0.55	183	100.00

1. See if medida from collected data is Poisson (it is, using temporary data)

The FREQ Procedure



## 2. Estimate the lambda parameter for collected data

### The GENMOD Procedure

Model Information	
Data Set	WORK.ALL_LONG
Distribution	Poisson
Link Function	Log
Dependent Variable	medida

Number of Observations Read	183
Number of Observations Used	183

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	182	1482.1392	8.1436
Scaled Deviance	182	1482.1392	8.1436
Pearson Chi-Square	182	2044.7818	11.2351
Scaled Pearson X2	182	2044.7818	11.2351
Log Likelihood		299.5008	
Full Log Likelihood		-923.3982	
AIC (smaller is better)		1848.7964	
AICC (smaller is better)		1848.8185	
BIC (smaller is better)		1852.0059	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	1.4026	0.0367	1.3307	1.4744	1463.57	<.0001
Scale	0	1.0000	0.0000	1.0000	1.0000		

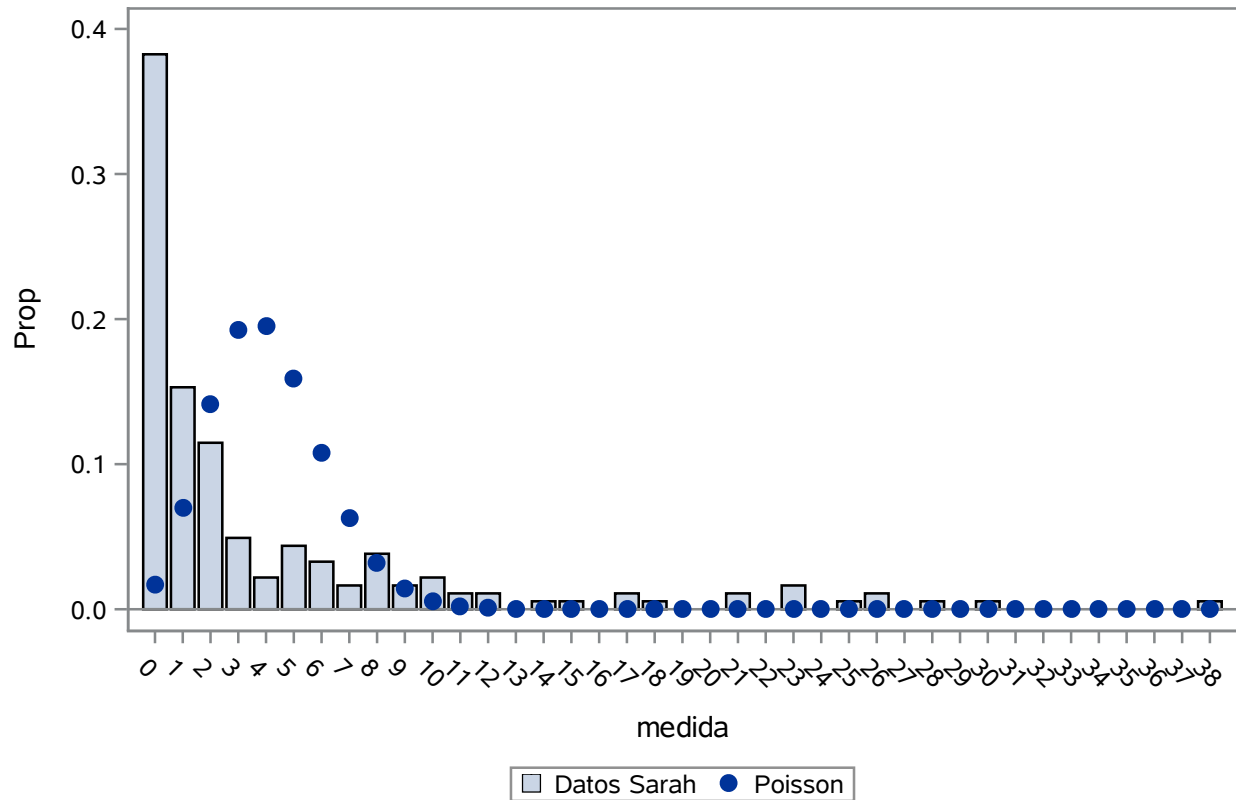
**Note:** The scale parameter was held fixed.



3(cont'd). Max of medidas

max_medida
38

Trampero por municipio y year  
Datos Sarah  
5. Plot experimental data and theoretical Poisson



## 6a. GEE

### The GENMOD Procedure

Model Information	
Data Set	WORK.ALL_LONG
Distribution	Normal
Link Function	Identity
Dependent Variable	medida

Number of Observations Read	183
Number of Observations Used	183

Class Level Information		
Class	Levels	Values
trampaC	183	GCB 001 GCB 002 GCB 003 GCB 004 GCB 005 GCB 006 GCB 007 GCB 008 GCB 009 GCB 010 GCB 011 GCB 012 GCB 013 GCB 014 GCB 015 GCB 016 GCB 017 GCB 018 GCB 019 GCB 020 GCB 021 GCB 022 GCB 023 GCB 024 GCB 025 GCB 026 GCB 027 GCB 028 GCB 029 GCB 030 GCB 031 ...
Municipio	30	ABASOLO ACAMBARO APASEO EL ALTO APASEO EL GRANDE CELAYA COMONFORT CORTAZAR CUERAMARO CUERÁMARO HUANIMARO IRAPUATO JARAL DEL PROGRESO JERECUARO JUEVENTINO DE ROSAS JUVENTINO ROSAS LEÓN MANUEL DOBLADO PENJAMO PUEBLO NUEVO PURÍSIMA DEL RINCÓN ROMITA ...

Parameter Information	
Parameter	Effect
Prm1	Intercept
Prm2	year

Algorithm converged.

GEE Model Information	
Correlation Structure	Exchangeable
Subject Effect	Municipio (30 levels)
Number of Clusters	30
Correlation Matrix Dimension	9
Maximum Cluster Size	9
Minimum Cluster Size	1

Algorithm converged.

6a. GEE

The GENMOD Procedure

Working Correlation Matrix									
	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8	Col9
Row1	1.0000	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202
Row2	0.0202	1.0000	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202
Row3	0.0202	0.0202	1.0000	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202
Row4	0.0202	0.0202	0.0202	1.0000	0.0202	0.0202	0.0202	0.0202	0.0202
Row5	0.0202	0.0202	0.0202	0.0202	1.0000	0.0202	0.0202	0.0202	0.0202
Row6	0.0202	0.0202	0.0202	0.0202	0.0202	1.0000	0.0202	0.0202	0.0202
Row7	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	1.0000	0.0202	0.0202
Row8	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	1.0000	0.0202
Row9	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	0.0202	1.0000

Exchangeable Working Correlation	
Correlation	0.0201663992

GEE Fit Criteria	
QIC	186.5859
QICu	185.0000

Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-2755.84	1779.030	-6242.67	730.9966	-1.55	0.1214
year	1.3702	0.8832	-0.3607	3.1012	1.55	0.1208

## 6b. LMM

### The Mixed Procedure

Model Information	
Data Set	WORK.ALL_LONG
Dependent Variable	medida
Covariance Structure	Variance Components
Subject Effect	Municipio
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

Class Level Information		
Class	Levels	Values
trampaC	183	GCB 001 GCB 002 GCB 003 GCB 004 GCB 005 GCB 006 GCB 007 GCB 008 GCB 009 GCB 010 GCB 011 GCB 012 GCB 013 GCB 014 GCB 015 GCB 016 GCB 017 GCB 018 GCB 019 GCB 020 GCB 021 GCB 022 GCB 023 GCB 024 GCB 025 GCB 026 GCB 027 GCB 028 GCB 029 GCB 030 GCB 031 GCB 032 GCB 033 GCB 034 GCB 035 GCB 036 GCB 037 GCB 038 GCB 039 GCB 040 GCB 041 GCB 042 GCB 043 GCB 044 GCB 045 GCB 046 GCB 047 GCB 048 GCB 049 GCB 050 GCB 051 GCB 052 GCB 053 GCB 054 GCB 055 GCB 056 GCB 057 GCB 058 GCB 059 GCB 060 GCB 061 GCB 062 GCB 063 GCB 064 GCB 065 GCB 066 GCB 067 GCB 068 GCB 069 GCB 070 GCB 071 GCB 072 GCB 073 GCB 074 GCB 075 GCB 076 GCB 077 GCB 078 GCB 079 GCB 080 GCB 081 GCB 082 GCB 083 GCB 084 GCB 085 GCB 086 GCB 087 GCB 088 GCB 089 GCB 090 GCB 091 GCB 092 GCB 093 GCB 094 GCB 095 GCB 096 GCB 097 GCB 098 GCB 099 GCB 100 GCB 101 GCB 102 GCB 103 GCB 104 GCB 105 GCB 106 GCB 107 GCB 108 GCB 109 GCB 110 GCB 111 GCB 112 GCB 113 GCB 114 GCB 115 GCB 116 GCB 117 GCB 118 GCB 119 GCB 120 GCB 121 GCB 122 GCB 123 GCB 124 GCB 125 GCB 126 GCB 127 GCB 128 GCB 129 GCB 130 GCB 131 GCB 132 GCB 133 GCB 134 GCB 135 GCB 136 GCB 137 GCB 138 GCB 139 GCB 140 GCB 141 GCB 142 GCB 143 GCB 144 GCB 145 GCB 146 GCB 147 GCB 148 GCB 149 GCB 150 GCM-021 GCM-022 GCS-001 GCS-002 GCS-003 GCS-004 GCS-005 GCS-006 GCS-007 GCS-008 PRE/11-001 PRE/11-002 PRE/11-004 PRE/11-005 PRE/11-007 PRE/11-008 PRE/11-009 PRE/11-011 PRE/11-012 PRE/11-016 PRE/11-017 PRE/11-018 PRE/11-019 PRE/11-023 PRE/11-024 PRE/11-027 PRE/11-028 PRE/11-035 PRE/11-038 PRE/11-039 PRE/11-042 PRE/11-044 PRE/11-046
Municipio	30	ABASOLO ACAMBARO APASEO EL ALTO APASEO EL GRANDE CELAYA COMONFORT CORTAZAR CUERAMARO CUERÁMARO HUANIMARO IRAPUATO JARAL DEL PROGRESO JEREQUARO JUEVENTINO DE ROSAS JUVENTINO ROSAS LEÓN MANUEL DOBLADO PENJAMO PUEBLO NUEVO PURÍSIMA DEL RINCÓN ROMITA SALAMANCA SALVATIERRA SAN FRANCISCO DEL RINCÓN SILAO TARANDACUAO TARIMORO VALLE DE SANTIAGO VILLAGRAN YURIRIA

Dimensions	
Covariance Parameters	2
Columns in X	2
Columns in Z per Subject	1
Subjects	30
Max Obs per Subject	9

Number of Observations	
Number of Observations Read	183
Number of Observations Used	183
Number of Observations Not Used	0

## 6b. LMM

### The Mixed Procedure

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	1212.16640172	
1	2	1211.79402600	0.00000001

Convergence criteria met.

Covariance Parameter Estimates		
Cov Parm	Subject	Estimate
Intercept	Municipio	1.3110
Residual		43.6760

Fit Statistics	
-2 Res Log Likelihood	1211.8
AIC (Smaller is Better)	1215.8
AICC (Smaller is Better)	1215.9
BIC (Smaller is Better)	1218.6

Solution for Fixed Effects					
Effect	Estimate	Standard Error	DF	t Value	Pr >  t
Intercept	-2750.38	1379.91	29	-1.99	0.0557
year	1.3675	0.6851	152	2.00	0.0477

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
year	1	152	3.98	0.0477

## 7a. GEE (too many trampas)

### The GENMOD Procedure

Model Information	
Data Set	WORK.ALL_LONG
Distribution	Normal
Link Function	Identity
Dependent Variable	medida

Number of Observations Read	183
Number of Observations Used	183

Class Level Information		
Class	Levels	Values
trampaC	183	GCB 001 GCB 002 GCB 003 GCB 004 GCB 005 GCB 006 GCB 007 GCB 008 GCB 009 GCB 010 GCB 011 GCB 012 GCB 013 GCB 014 GCB 015 GCB 016 GCB 017 GCB 018 GCB 019 GCB 020 GCB 021 GCB 022 GCB 023 GCB 024 GCB 025 GCB 026 GCB 027 GCB 028 GCB 029 GCB 030 GCB 031 ...
Municipio	30	ABASOLO ACAMBARO APASEO EL ALTO APASEO EL GRANDE CELAYA COMONFORT CORTAZAR CUERAMARO CUERÁMARO HUANIMARO IRAPUATO JARAL DEL PROGRESO JERECUARIO JUEVENTINO DE ROSAS JUVENTINO ROSAS LEÓN MANUEL DOBLADO PENJAMO PUEBLO NUEVO PURÍSIMA DEL RINCÓN ROMITA ...

Parameter Information		
Parameter	Effect	Municipio
Prm1	Intercept	
Prm2	year	
Prm3	Municipio	ABASOLO
Prm4	Municipio	ACAMBARO
Prm5	Municipio	APASEO EL ALTO
Prm6	Municipio	APASEO EL GRANDE
Prm7	Municipio	CELAYA
Prm8	Municipio	COMONFORT
Prm9	Municipio	CORTAZAR
Prm10	Municipio	CUERAMARO
Prm11	Municipio	CUERÁMARO
Prm12	Municipio	HUANIMARO
Prm13	Municipio	IRAPUATO
Prm14	Municipio	JARAL DEL PROGRESO
Prm15	Municipio	JERECUARIO
Prm16	Municipio	JUEVENTINO DE ROSAS
Prm17	Municipio	JUVENTINO ROSAS

7a. GEE (too many trampas)

The GENMOD Procedure

Parameter Information		
Parameter	Effect	Municipio
Prm18	Municipio	LEÓN
Prm19	Municipio	MANUEL DOBLADO
Prm20	Municipio	PENJAMO
Prm21	Municipio	PUEBLO NUEVO
Prm22	Municipio	PURÍSIMA DEL RINCÓN
Prm23	Municipio	ROMITA
Prm24	Municipio	SALAMANCA
Prm25	Municipio	SALVATIERRA
Prm26	Municipio	SAN FRANCISCO DEL RINCÓN
Prm27	Municipio	SILAO
Prm28	Municipio	TARANDACUAO
Prm29	Municipio	TARIMORO
Prm30	Municipio	VALLE DE SANTIAGO
Prm31	Municipio	VILLAGRAN
Prm32	Municipio	YURIRIA

Algorithm converged.

GEE Model Information	
Correlation Structure	Exchangeable
Subject Effect	trampaC (183 levels)
Number of Clusters	183
Correlation Matrix Dimension	1
Maximum Cluster Size	1
Minimum Cluster Size	1

Algorithm converged.

Working Correlation Matrix	
	Col1
Row1	1.0000



7a. GEE (too many trampas)

The GENMOD Procedure

GEE Fit Criteria	
QIC	195.6477
QICu	214.0000

Analysis Of GEE Parameter Estimates							
Empirical Standard Error Estimates							
Parameter		Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept		-2284.66	1711.828	-5639.78	1070.460	-1.33	0.1820
year		1.1371	0.8498	-0.5284	2.8027	1.34	0.1809
Municipio	ABASOLO	-3.5714	2.3106	-8.1002	0.9573	-1.55	0.1222
Municipio	ACAMBARO	-1.7143	3.1891	-7.9648	4.5363	-0.54	0.5909
Municipio	APASEO EL ALTO	2.1935	2.5466	-2.7978	7.1848	0.86	0.3891
Municipio	APASEO EL GRANDE	-1.2857	2.4355	-6.0592	3.4877	-0.53	0.5976
Municipio	CELAYA	-2.5714	2.6939	-7.8515	2.7086	-0.95	0.3398
Municipio	COMONFORT	-4.1429	2.3643	-8.7769	0.4911	-1.75	0.0797
Municipio	CORTAZAR	-2.5714	2.4914	-7.4546	2.3117	-1.03	0.3020
Municipio	CUERAMARO	1.7520	4.2727	-6.6223	10.1263	0.41	0.6818
Municipio	CUERÁMARO	-5.8065	2.5466	-10.7978	-0.8152	-2.28	0.0226
Municipio	HUANIMARO	-3.5714	2.7172	-8.8970	1.7541	-1.31	0.1887
Municipio	IRAPUATO	-1.2857	2.5998	-6.3813	3.8098	-0.49	0.6209
Municipio	JARAL DEL PROGRESO	-5.0000	2.2082	-9.3280	-0.6720	-2.26	0.0236
Municipio	JERECUARO	-7.8065	2.5466	-12.7978	-2.8152	-3.07	0.0022
Municipio	JUEVENTINO DE ROSAS	-0.8656	2.3849	-5.5400	3.8088	-0.36	0.7167
Municipio	JUVENTINO ROSAS	18.1935	2.5466	13.2022	23.1848	7.14	<.0001
Municipio	LEÓN	-2.1989	2.7119	-7.5142	3.1164	-0.81	0.4175
Municipio	MANUEL DOBLADO	-1.4211	3.0995	-7.4961	4.6538	-0.46	0.6466
Municipio	PENJAMO	-0.5322	3.4792	-7.3513	6.2868	-0.15	0.8784
Municipio	PUEBLO NUEVO	-5.2857	2.1516	-9.5028	-1.0687	-2.46	0.0140
Municipio	PURÍSIMA DEL RINCÓN	-3.8730	2.2904	-8.3621	0.6162	-1.69	0.0908
Municipio	ROMITA	-4.5322	2.2450	-8.9323	-0.1322	-2.02	0.0435
Municipio	SALAMANCA	6.0000	5.9157	-5.5945	17.5945	1.01	0.3105
Municipio	SALVATIERRA	-4.1429	2.2203	-8.4946	0.2089	-1.87	0.0621
Municipio	SAN FRANCISCO DEL RINCÓN	-3.1230	2.3290	-7.6877	1.4417	-1.34	0.1799
Municipio	SILAO	-4.6989	2.2128	-9.0358	-0.3620	-2.12	0.0337
Municipio	TARANDACUAO	-5.8065	2.5466	-10.7978	-0.8152	-2.28	0.0226

7a. GEE (too many trampas)

The GENMOD Procedure

Analysis Of GEE Parameter Estimates							
Empirical Standard Error Estimates							
Parameter		Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Municipio	TARIMORO	2.7143	4.8849	-6.8598	12.2884	0.56	0.5784
Municipio	VALLE DE SANTIAGO	0.1429	3.4013	-6.5236	6.8093	0.04	0.9665
Municipio	VILLAGRAN	1.0000	3.5146	-5.8886	7.8886	0.28	0.7760
Municipio	YURIRIA	0.0000	0.0000	0.0000	0.0000	.	.

7b. LMM (too many trampas)

The Mixed Procedure

Model Information	
Data Set	WORK.ALL_LONG
Dependent Variable	medida
Covariance Structure	Variance Components
Subject Effect	trampaC
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

Class Level Information		
Class	Levels	Values
trampaC	183	GCB 001 GCB 002 GCB 003 GCB 004 GCB 005 GCB 006 GCB 007 GCB 008 GCB 009 GCB 010 GCB 011 GCB 012 GCB 013 GCB 014 GCB 015 GCB 016 GCB 017 GCB 018 GCB 019 GCB 020 GCB 021 GCB 022 GCB 023 GCB 024 GCB 025 GCB 026 GCB 027 GCB 028 GCB 029 GCB 030 GCB 031 GCB 032 GCB 033 GCB 034 GCB 035 GCB 036 GCB 037 GCB 038 GCB 039 GCB 040 GCB 041 GCB 042 GCB 043 GCB 044 GCB 045 GCB 046 GCB 047 GCB 048 GCB 049 GCB 050 GCB 051 GCB 052 GCB 053 GCB 054 GCB 055 GCB 056 GCB 057 GCB 058 GCB 059 GCB 060 GCB 061 GCB 062 GCB 063 GCB 064 GCB 065 GCB 066 GCB 067 GCB 068 GCB 069 GCB 070 GCB 071 GCB 072 GCB 073 GCB 074 GCB 075 GCB 076 GCB 077 GCB 078 GCB 079 GCB 080 GCB 081 GCB 082 GCB 083 GCB 084 GCB 085 GCB 086 GCB 087 GCB 088 GCB 089 GCB 090 GCB 091 GCB 092 GCB 093 GCB 094 GCB 095 GCB 096 GCB 097 GCB 098 GCB 099 GCB 100 GCB 101 GCB 102 GCB 103 GCB 104 GCB 105 GCB 106 GCB 107 GCB 108 GCB 109 GCB 110 GCB 111 GCB 112 GCB 113 GCB 114 GCB 115 GCB 116 GCB 117 GCB 118 GCB 119 GCB 120 GCB 121 GCB 122 GCB 123 GCB 124 GCB 125 GCB 126 GCB 127 GCB 128 GCB 129 GCB 130 GCB 131 GCB 132 GCB 133 GCB 134 GCB 135 GCB 136 GCB 137 GCB 138 GCB 139 GCB 140 GCB 141 GCB 142 GCB 143 GCB 144 GCB 145 GCB 146 GCB 147 GCB 148 GCB 149 GCB 150 GCM-021 GCM-022 GCS-001 GCS-002 GCS-003 GCS-004 GCS-005 GCS-006 GCS-007 GCS-008 PRE/11-001 PRE/11-002 PRE/11-004 PRE/11-005 PRE/11-007 PRE/11-008 PRE/11-009 PRE/11-011 PRE/11-012 PRE/11-016 PRE/11-017 PRE/11-018 PRE/11-019 PRE/11-023 PRE/11-024 PRE/11-027 PRE/11-028 PRE/11-035 PRE/11-038 PRE/11-039 PRE/11-042 PRE/11-044 PRE/11-046
Municipio	30	ABASOLO ACAMBARO APASEO EL ALTO APASEO EL GRANDE CELAYA COMONFORT CORTAZAR CUERAMARO CUERÁMARO HUANIMAR IRAPUATO JARAL DEL PROGRESO JEREQUARO JUEVENTINO DE ROSAS JUVENTINO ROSAS LEÓN MANUEL DOBLADO PENJAMO PUEBLO NUEVO PURÍSIMA DEL RINCÓN ROMITA SALAMANCA SALVATIERRA SAN FRANCISCO DEL RINCÓN SILAO TARANDACUAO TARIMORO VALLE DE SANTIAGO VILLAGRAN YURIRIA

Dimensions	
Covariance Parameters	2
Columns in X	32
Columns in Z per Subject	1
Subjects	183
Max Obs per Subject	1

Number of Observations	
Number of Observations Read	183
Number of Observations Used	183
Number of Observations Not Used	0

## 7b. LMM (too many trampas)

### The Mixed Procedure

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	1053.74296918	
1	1	1053.74296916	0.00000000

Convergence criteria met but final hessian is not positive definite.

Covariance Parameter Estimates		
Cov Parm	Subject	Estimate
Intercept	trampaC	41.3164
Residual		0.9769

Fit Statistics	
-2 Res Log Likelihood	1053.7
AIC (Smaller is Better)	1057.7
AICC (Smaller is Better)	1057.8
BIC (Smaller is Better)	1064.2

Solution for Fixed Effects						
Effect	Municipio	Estimate	Standard Error	DF	t Value	Pr >  t
Intercept		-2284.66	1550.74	153	-1.47	0.1427
year		1.1371	0.7699	0	1.48	.
Municipio	ABASOLO	-3.5714	3.4762	0	-1.03	.
Municipio	ACAMBARO	-1.7143	3.4762	0	-0.49	.
Municipio	APASEO EL ALTO	2.1935	7.0765	0	0.31	.
Municipio	APASEO EL GRANDE	-1.2857	3.4762	0	-0.37	.
Municipio	CELAYA	-2.5714	3.4762	0	-0.74	.
Municipio	COMONFORT	-4.1429	3.4762	0	-1.19	.
Municipio	CORTAZAR	-2.5714	3.4762	0	-0.74	.
Municipio	CUERAMARO	1.7520	3.3910	0	0.52	.
Municipio	CUERÁMARO	-5.8065	7.0765	0	-0.82	.
Municipio	HUANIMARO	-3.5714	3.4762	0	-1.03	.
Municipio	IRAPUATO	-1.2857	3.4762	0	-0.37	.
Municipio	JARAL DEL PROGRESO	-5.0000	3.4762	0	-1.44	.

7b. LMM (too many trampas)

The Mixed Procedure

Solution for Fixed Effects						
Effect	Municipio	Estimate	Standard Error	DF	t Value	Pr >  t
Municipio	JERECUARO	-7.8065	7.0765	0	-1.10	.
Municipio	JUEVENTINO DE ROSAS	-0.8656	3.6248	0	-0.24	.
Municipio	JUVENTINO ROSAS	18.1935	7.0765	0	2.57	.
Municipio	LEÓN	-2.1989	3.6248	0	-0.61	.
Municipio	MANUEL DOBLADO	-1.4211	3.2847	0	-0.43	.
Municipio	PENJAMO	-0.5322	3.2847	0	-0.16	.
Municipio	PUEBLO NUEVO	-5.2857	3.4762	0	-1.52	.
Municipio	PURÍSIMA DEL RINCÓN	-3.8730	3.3910	0	-1.14	.
Municipio	ROMITA	-4.5322	3.6248	0	-1.25	.
Municipio	SALAMANCA	6.0000	3.4762	0	1.73	.
Municipio	SALVATIERRA	-4.1429	3.4762	0	-1.19	.
Municipio	SAN FRANCISCO DEL RINCÓN	-3.1230	3.3910	0	-0.92	.
Municipio	SILAO	-4.6989	3.6248	0	-1.30	.
Municipio	TARANDACUAO	-5.8065	7.0765	0	-0.82	.
Municipio	TARIMORO	2.7143	3.4762	0	0.78	.
Municipio	VALLE DE SANTIAGO	0.1429	3.4762	0	0.04	.
Municipio	VILLAGRAN	1.0000	3.4762	0	0.29	.
Municipio	YURIRIA	0	.	.	.	.

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
year	1	0	2.18	.
Municipio	29	0	1.39	.

7c. GEE for Poisson (This is a good model):

The GENMOD Procedure

Model Information	
Data Set	WORK.ALL_LONG
Distribution	Poisson
Link Function	Log
Dependent Variable	medida

Number of Observations Read	183
Number of Observations Used	183

Class Level Information		
Class	Levels	Values
trampaC	183	GCB 001 GCB 002 GCB 003 GCB 004 GCB 005 GCB 006 GCB 007 GCB 008 GCB 009 GCB 010 GCB 011 GCB 012 GCB 013 GCB 014 GCB 015 GCB 016 GCB 017 GCB 018 GCB 019 GCB 020 GCB 021 GCB 022 GCB 023 GCB 024 GCB 025 GCB 026 GCB 027 GCB 028 GCB 029 GCB 030 GCB 031 ...
Municipio	30	ABASOLO ACAMBARO APASEO EL ALTO APASEO EL GRANDE CELAYA COMONFORT CORTAZAR CUERAMARO CUERÁMARO HUANIMARO IRAPUATO JARAL DEL PROGRESO JERECUARO JUEVENTINO DE ROSAS JUVENTINO ROSAS LEÓN MANUEL DOBLADO PENJAMO PUEBLO NUEVO PURÍSIMA DEL RINCÓN ROMITA ...

Parameter Information	
Parameter	Effect
Prm1	Intercept
Prm2	year

Algorithm converged.

GEE Model Information	
Correlation Structure	Exchangeable
Subject Effect	Municipio (30 levels)
Number of Clusters	30
Correlation Matrix Dimension	9
Maximum Cluster Size	9
Minimum Cluster Size	1

Algorithm converged.

7c. GEE for Poisson (This is a good model):

The GENMOD Procedure

Working Correlation Matrix									
	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8	Col9
Row1	1.0000	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264
Row2	0.0264	1.0000	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264
Row3	0.0264	0.0264	1.0000	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264
Row4	0.0264	0.0264	0.0264	1.0000	0.0264	0.0264	0.0264	0.0264	0.0264
Row5	0.0264	0.0264	0.0264	0.0264	1.0000	0.0264	0.0264	0.0264	0.0264
Row6	0.0264	0.0264	0.0264	0.0264	0.0264	1.0000	0.0264	0.0264	0.0264
Row7	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	1.0000	0.0264	0.0264
Row8	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	1.0000	0.0264
Row9	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	0.0264	1.0000

Exchangeable Working Correlation	
Correlation	0.0263887151

GEE Fit Criteria	
QIC	-48.5757
QICu	-49.1179

Analysis Of GEE Parameter Estimates						
Empirical Standard Error Estimates						
Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-570.837	336.2790	-1229.93	88.2581	-1.70	0.0896
year	0.2841	0.1669	-0.0430	0.6112	1.70	0.0887