

## MODELE A REPONSE MULTINOMIALE: GOITRES AU MALI

Profil	Village	Sexe	Jour	G1	G2	G3	G4	Total
1	1	1	0	106	12	46	11	175
2	1	1	1	60	31	46	15	152
3	1	1	2	64	23	50	14	151
4	1	2	0	77	21	71	65	234
5	1	2	1	46	28	63	65	202
6	1	2	2	44	29	67	57	197
7	2	1	0	127	27	45	12	211
8	2	1	1	145	28	19	1	193
9	2	1	2	161	16	12	2	191
10	2	2	0	69	21	65	50	205
11	2	2	1	76	40	41	13	170
12	2	2	2	89	28	33	10	160
13	3	1	0	91	8	14	6	119
14	3	1	1	94	14	10	0	118
15	3	1	2	99	7	12	0	118
16	3	2	0	42	18	45	34	139
17	3	2	1	50	29	38	13	130
18	3	2	2	67	18	32	6	123
19	4	1	0	112	47	30	13	202
20	4	1	1	155	26	10	1	192
21	4	1	2	171	12	12	2	197
22	4	2	0	86	40	47	55	228
23	4	2	1	119	26	39	18	202
24	4	2	2	132	12	41	22	207

## Le programme

```
data goitres;
input village sexe jour iode goitre freq;
cards;
1 1 0 1 1 106.000
1 1 0 1 2 12.000
1 1 0 1 3 46.000
1 1 0 1 4 11.000
.....
4 2 2 2 1 132.000
4 2 2 2 2 12.000
4 2 2 2 3 41.000
4 2 2 2 4 22.000
;
```

```
proc catmod;
weight freq;
response marginal;
model goitre= village sexe village*sexe iode(village=2) iode(village=3) iode(village=4)
sexe*iode jour(iode=1) jour(iode=2)/design predict addcell=1;
run;
```

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```
proc catmod data= goitres;
weight freq;
model goitre= village sexe village*sexe iode(village=2) iode(village=3) iode(village=4)
sexe*iode jour(iode=1) jour(iode=2)/ pred=prob;
run;
```

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```
proc catmod;
weight freq;
response clogit;
model goitre= village sexe village*sexe iode(village=2) iode(village=3) iode(village=4)
sexe*iode jour(iode=1) jour(iode=2)/ predict addcell=1;
run;
```

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```
proc catmod data= goitres;
weight freq;
response mean;
model goitre= village sexe village*sexe iode(village=2) iode(village=3) iode(village=4)
sexe*iode jour(iode=1) jour(iode=2)/ predict addcell=1;
contrast 'villages test' village 0 1 -1 , village 1 2 1;
Contrast 'iode n_jiba ' iode(village=2) 1
                        iode(village=3) -2
                        iode(village=4) 1;
contrast 'villages j0 ' village 1 -1 0 iode(village=2) -1,
                        village 1 0 -1 iode(village=3) -1,
                        village 2 1 1 iode(village=4) -1;

run;
```

## Modélisation de la fonction de réponse identité

### The CATMOD Procedure

#### Récapitulatif sur les données

Response	goitre	Response Levels	4
Weight Variable	freq	Populations	24
Data Set	GOITRES	Total Frequency	4216
Frequency Missing	0	Observations	94

#### Profils de population

Échantillon	village	sexe	iode	jour	Adjusted Sample Size
1	1	1	1	0	179
2	1	1	1	1	156
3	1	1	1	2	155
4	1	2	1	0	238
5	1	2	1	1	206
6	1	2	1	2	201
7	2	1	1	0	215
8	2	1	2	1	197
9	2	1	2	2	195
10	2	2	1	0	209
11	2	2	2	1	174
12	2	2	2	2	164
13	3	1	1	0	123
14	3	1	2	1	122
15	3	1	2	2	122
16	3	2	1	0	143
17	3	2	2	1	134
18	3	2	2	2	127
19	4	1	1	0	206
20	4	1	2	1	196
21	4	1	2	2	201
22	4	2	1	0	232
23	4	2	2	1	206
24	4	2	2	2	211

Profils de réponse

Réponse	goitre
1	1
2	2
3	3
4	4

The CATMOD Procedure

Échantillon	Response Functions		
	1	2	3
1	0.59777	0.07263	0.26257
2	0.39103	0.20513	0.30128
3	0.41935	0.15484	0.32903
4	0.32773	0.09244	0.30252
5	0.22816	0.14078	0.31068
6	0.22388	0.14925	0.33831
7	0.59535	0.13023	0.21395
8	0.74112	0.14721	0.10152
9	0.83077	0.08718	0.06667
10	0.33493	0.10526	0.31579
11	0.44253	0.23563	0.24138
12	0.54878	0.17683	0.20732
13	0.74797	0.07317	0.12195
14	0.77869	0.12295	0.09016
15	0.81967	0.06557	0.10656
16	0.30070	0.13287	0.32168
17	0.38060	0.22388	0.29104
18	0.53543	0.14961	0.25984
19	0.54854	0.23301	0.15049
20	0.79592	0.13776	0.05612
21	0.85572	0.06468	0.06468
22	0.37500	0.17672	0.20690
23	0.58252	0.13107	0.19417
24	0.63033	0.06161	0.19905

Design Matrix

Échantillon	Créer matrice															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	1	0	0	1	1	0	0	0	0	0	1	1	0	0	0
2	1	1	0	0	1	1	0	0	0	0	0	1	0	1	0	0
3	1	1	0	0	1	1	0	0	0	0	0	1	-1	-1	0	0
4	1	1	0	0	-1	-1	0	0	0	0	0	-1	1	0	0	0
5	1	1	0	0	-1	-1	0	0	0	0	0	-1	0	1	0	0
6	1	1	0	0	-1	-1	0	0	0	0	0	-1	-1	-1	0	0
7	1	0	1	0	1	0	1	0	1	0	0	1	1	0	0	0
8	1	0	1	0	1	0	1	0	-1	0	0	-1	0	0	0	1
9	1	0	1	0	1	0	1	0	-1	0	0	-1	0	0	-1	-1
10	1	0	1	0	-1	0	-1	0	1	0	0	-1	1	0	0	0
11	1	0	1	0	-1	0	-1	0	-1	0	0	1	0	0	0	1
12	1	0	1	0	-1	0	-1	0	-1	0	0	1	0	0	-1	-1
13	1	0	0	1	1	0	0	1	0	1	0	1	1	0	0	0
14	1	0	0	1	1	0	0	1	0	-1	0	-1	0	0	0	1
15	1	0	0	1	1	0	0	1	0	-1	0	-1	0	0	-1	-1
16	1	0	0	1	-1	0	0	-1	0	1	0	-1	1	0	0	0
17	1	0	0	1	-1	0	0	-1	0	-1	0	1	0	0	0	1
18	1	0	0	1	-1	0	0	-1	0	-1	0	1	0	0	-1	-1
19	1	-1	-1	-1	1	-1	-1	-1	0	0	1	1	1	0	0	0
20	1	-1	-1	-1	1	-1	-1	-1	0	0	-1	-1	0	0	0	1
21	1	-1	-1	-1	1	-1	-1	-1	0	0	-1	-1	0	0	-1	-1
22	1	-1	-1	-1	-1	1	1	1	0	0	1	-1	1	0	0	0
23	1	-1	-1	-1	-1	1	1	1	0	0	-1	1	0	0	0	1
24	1	-1	-1	-1	-1	1	1	1	0	0	-1	1	0	0	-1	-1

Analysis of Variance

Source	DF	Khi 2	Pr > Khi 2
Intercept	3	12968.97	<.0001
village	9	123.91	<.0001
sexe	3	465.13	<.0001
village*sexe	9	32.52	0.0002
iode(village=2)	3	65.97	<.0001
iode(village=3)	3	35.41	<.0001
iode(village=4)	3	90.12	<.0001
sexe*iode	3	28.66	<.0001
jour(iode=1)	6	30.27	<.0001
jour(iode=2)	3*	25.41	<.0001
Residual	27	16.45	0.9438

NOTE: Effects marked with '\*' contain one or more redundant or restricted parameters.

Analysis of Weighted Least Squares Estimates

Parameter		Nombre de fonctions	Estimation	Erreur std	Khi- 2	Pr > Khi 2
Intercept		1	0.4735	0.0110	1867.62	<.0001
		2	0.1679	0.00839	400.04	<.0001
		3	0.2286	0.0101	514.59	<.0001
village	1	1	-0.1069	0.0146	53.20	<.0001
	1	2	-0.0347	0.00951	13.34	0.0003
	1	3	0.0798	0.0133	35.89	<.0001
	2	1	0.0177	0.0128	1.93	0.1653
	2	2	0.0122	0.00901	1.82	0.1773
	2	3	-0.00601	0.0111	0.29	0.5893
	3	1	0.0364	0.0142	6.56	0.0104
	3	2	-0.00249	0.00997	0.06	0.8029
sexe	3	3	-0.00994	0.0124	0.64	0.4223
	1	1	0.1343	0.00705	362.79	<.0001
	1	2	-0.0126	0.00505	6.19	0.0128
	1	3	-0.0557	0.00612	82.79	<.0001

village*sexe	1	1	1	-0.0269	0.0149	3.25	0.0714
	1	1	2	-0.00131	0.0105	0.02	0.9012
	1	1	3	0.0368	0.0137	7.20	0.0073
	2	1	1	0.00394	0.0122	0.10	0.7461
	2	1	2	-0.00509	0.00885	0.33	0.5653
	2	1	3	-0.00568	0.0104	0.30	0.5834
	3	1	1	0.0548	0.0135	16.54	<.0001
	3	1	2	-0.0246	0.00969	6.42	0.0113
	3	1	3	-0.0350	0.0117	9.03	0.0027
iode(village=2)	1	1	1	-0.1128	0.0178	39.94	<.0001
	1	1	2	-0.0140	0.0127	1.20	0.2732
	1	1	3	0.0639	0.0158	16.44	<.0001
iode(village=3)	1	1	1	-0.0767	0.0199	14.92	0.0001
	1	1	2	-0.0117	0.0138	0.72	0.3976
	1	1	3	0.0233	0.0171	1.85	0.1739
iode(village=4)	1	1	1	-0.1561	0.0175	79.85	<.0001
	1	1	2	0.0601	0.0133	20.31	<.0001
	1	1	3	0.0340	0.0144	5.56	0.0184
sexe*iode	1	1	1	-0.00094	0.00860	0.01	0.9132
	1	1	2	0.0173	0.00632	7.48	0.0062
	1	1	3	0.0111	0.00715	2.41	0.1205
jour(iode=1)	0	1	1	0.0898	0.0189	22.56	<.0001
	0	1	2	-0.0492	0.0127	14.92	0.0001
	0	1	3	-0.0210	0.0183	1.31	0.2517
	1	1	1	-0.0466	0.0189	6.07	0.0137
	1	1	2	0.0312	0.0150	4.31	0.0380
	1	1	3	-0.00187	0.0192	0.01	0.9223
jour(iode=2)	0	1	1	-0.0763	0.0187	16.73	<.0001
	0	1	2	0.0681	0.0141	23.35	<.0001
	0	1	3	0.00931	0.0138	0.46	0.4998
	1	1	1	.	.	.	.
	1	1	2	.	.	.	.
	1	1	3	.	.	.	.



Predicted Values for Response Functions

village	sexe	iode	jour	Nb fcn	-----Observé(s)-----		-----Prédit(e)-----		Résidus
					Fonction	Erreur std	Fonction	Erreur std	
1	1	1	0	1	0.597765	0.03665	0.562911	0.016938	0.034854
				2	0.072626	0.019398	0.087365	0.016938	-0.01474
				3	0.26257	0.032889	0.279571	0.016938	-0.017
1	1	1	1	1	0.391026	0.03907	0.426496	0.020966	-0.03547
				2	0.205128	0.032329	0.167716	0.020966	0.037412
				3	0.301282	0.036735	0.298699	0.020966	0.002583
1	1	1	2	1	0.419355	0.039635	0.429926	0.020579	-0.01057
				2	0.154839	0.029057	0.154584	0.020579	0.000254
				3	0.329032	0.03774	0.323445	0.020579	0.005587
.....									
4	2	1	0	1	0.375	0.031784	0.358417	0.022377	0.016583
				2	0.176724	0.025042	0.16822	0.022377	0.008504
				3	0.206897	0.026595	0.218453	0.022377	-0.01156
4	2	2	1	1	0.582524	0.034359	0.578964	0.014226	0.00356
				2	0.131068	0.023513	0.131767	0.014226	-0.0007
				3	0.194175	0.02756	0.193663	0.014226	0.000512
4	2	2	2	1	0.630332	0.033231	0.65527	0.014288	-0.02494
				2	0.061611	0.016553	0.063625	0.014288	-0.00201
				3	0.199052	0.027488	0.184349	0.014288	0.014703

## Modélisation de la fonction de réponse Logit généralisé

### Récapitulatif sur les données

Response	goitre	Response Levels	4
Weight Variable	freq	Populations	24
Data Set	GOITRES	Total Frequency	4216
Frequency Missing	0	Observations	94

### Profils de population

Échantillon	village	sexe	iode	jour	Sample Size
1	1	1	1	0	175
2	1	1	1	1	152
3	1	1	1	2	151
4	1	2	1	0	234
5	1	2	1	1	202
6	1	2	1	2	197
7	2	1	1	0	211
8	2	1	2	1	193
9	2	1	2	2	191
10	2	2	1	0	205
11	2	2	2	1	170
12	2	2	2	2	160
13	3	1	1	0	119
14	3	1	2	1	118
15	3	1	2	2	118
16	3	2	1	0	139
17	3	2	2	1	130
18	3	2	2	2	123
19	4	1	1	0	202
20	4	1	2	1	192
21	4	1	2	2	197
22	4	2	1	0	228
23	4	2	2	1	202
24	4	2	2	2	207

Profils de réponse

Réponse	goitre
1	1
2	2
3	3
4	4

Analyse de vraisemblance max.

Maximum likelihood computations converged.

Maximum Likelihood Analysis of Variance

Source	DF	Khi 2	Pr > Khi 2
Intercept	3	371.22	<.0001
village	9	123.07	<.0001
sexe	3	291.31	<.0001
village*sexe	9	21.94	0.0091
iode(village=2)	3	67.56	<.0001
iode(village=3)	3	36.38	<.0001
iode(village=4)	3	84.76	<.0001
sexe*iode	3	8.24	0.0413
jour(iode=1)	6	30.46	<.0001
jour(iode=2)	3*	24.14	<.0001
Likelihood Ratio	27	19.62	0.8463

NOTE: Effects marked with '\*' contain one or more redundant or restricted parameters.

Analysis of Maximum Likelihood Estimates

Parameter		Nombre de fonctions	Estimation	Erreur std	Khi- 2	Pr > Khi 2
Intercept		1	1.8179	0.1171	241.11	<.0001
		2	0.8519	0.1287	43.80	<.0001
		3	1.0666	0.1215	77.03	<.0001
village	1	1	-1.0336	0.1352	58.47	<.0001
	1	2	-1.0674	0.1619	43.45	<.0001
	1	3	-0.3961	0.1419	7.80	0.0052
	2	1	0.3132	0.1448	4.68	0.0306
	2	2	0.4107	0.1610	6.50	0.0108
	2	3	0.2551	0.1536	2.76	0.0967
	3	1	0.5192	0.1885	7.59	0.0059
	3	2	0.3963	0.2095	3.58	0.0585
	3	3	0.3801	0.1996	3.63	0.0569
sexe	1	1	1.2875	0.1180	119.00	<.0001
	1	2	0.9132	0.1245	53.83	<.0001
	1	3	0.6604	0.1227	28.95	<.0001
village*sexe	1 1	1	-0.0810	0.1154	0.49	0.4826
	1 1	2	-0.0353	0.1364	0.07	0.7959
	1 1	3	0.0961	0.1223	0.62	0.4322
	2 1	1	-0.0260	0.1365	0.04	0.8490
	2 1	2	-0.0489	0.1512	0.10	0.7463
	2 1	3	-0.0230	0.1438	0.03	0.8730
	3 1	1	0.2535	0.1809	1.96	0.1611
	3 1	2	-0.0419	0.1994	0.04	0.8337
	3 1	3	0.0200	0.1911	0.01	0.9165
iode(village=2)	1 1	1	-1.2168	0.1794	45.98	<.0001
	1 1	2	-0.9866	0.2016	23.95	<.0001
	1 1	3	-0.5988	0.1871	10.24	0.0014
iode(village=3)	1 1	1	-1.1748	0.2053	32.73	<.0001
	1 1	2	-0.9924	0.2338	18.02	<.0001
	1 1	3	-0.7886	0.2133	13.67	0.0002
iode(village=4)	1 1	1	-1.1096	0.1656	44.92	<.0001
	1 1	2	-0.3054	0.1874	2.66	0.103
	1 1	3	-0.5500	0.1787	9.48	0.0021

sexe*iode	1	1	1	-0.2653	0.1204	4.86	0.0275
	1	1	2	-0.1972	0.1286	2.35	0.1252
	1	1	3	-0.1580	0.1267	1.55	0.2126
jour(iode=1)	0	1	1	0.3906	0.1210	10.42	0.0012
	0	1	2	-0.3247	0.1640	3.92	0.0477
	0	1	3	0.0403	0.1225	0.11	0.7420
	1	1	1	-0.2661	0.1258	4.47	0.0344
	1	1	2	0.1646	0.1493	1.22	0.2702
	1	1	3	-0.1163	0.1227	0.90	0.3431
jour(iode=2)	0	1	1	-0.2424	0.2262	1.15	0.2841
	0	1	2	0.4487	0.2527	3.15	0.0758
	0	1	3	-0.00237	0.2440	0.00	0.9923
	1	1	1	.	.	.	.
	1	1	2	.	.	.	.
	1	1	3	.	.	.	.

Valeurs prévues pour les fonctions de réponse									
village	sexe	iode	jour	Nb fcn	-----Observé(s)-----		-----Prédit(e)-----		Résidus
					Fonction	Erreur std	Fonction	Erreur std	
1	1	1	0	1	2.265544	0.31677	2.11603	0.209717	0.149514
				2	0.087011	0.417424	0.140503	0.272268	-0.05349
				3	1.430746	0.335631	1.309344	0.219043	0.121402
1	1	1	1	1	1.386294	0.288675	1.459346	0.21176	-0.07305
				2	0.725937	0.314523	0.629817	0.241748	0.09612
				3	1.120591	0.297331	1.15269	0.214902	-0.0321
1	1	1	2	1	1.519826	0.295048	1.600984	0.216145	-0.08116
				2	0.496437	0.338979	0.625343	0.249994	-0.12891
				3	1.272966	0.302372	1.344982	0.218012	-0.07202
...									
4	2	1	0	1	0.447014	0.172655	0.424424	0.168039	0.02259
				2	-0.31845	0.207802	-0.35981	0.201207	0.041357
				3	-0.15719	0.198641	-0.09138	0.188542	-0.06581
4	2	2	1	1	1.888752	0.252901	1.722309	0.200524	0.166442
				2	0.367725	0.306622	0.181334	0.243573	0.186391
				3	0.77319	0.28495	0.652321	0.223823	0.120868
4	2	2	2	1	1.791759	0.230283	1.96467	0.203909	-0.17291
				2	-0.60614	0.35887	-0.26739	0.257359	-0.33874
				3	0.62253	0.264282	0.654692	0.229226	-0.03216

Maximum Likelihood Predicted Values for Probabilities

village	sexe	iode	jour	goitre	-----Observé(s)-----		-----Prédit(e)-----		Résidus
					Probabilité	Erreur std	Probabilité	Erreur std	
1	1	1	0	1	0.6057	0.0369	0.5863	0.0306	0.0194
				2	0.0686	0.0191	0.0813	0.0157	-0.013
				3	0.2629	0.0333	0.2617	0.0264	0.0012
				4	0.0629	0.0183	0.0707	0.0131	-0.008
1	1	1	1	1	0.3947	0.0396	0.4159	0.0328	-0.021
				2	0.2039	0.0327	0.1814	0.0258	0.0225
				3	0.3026	0.0373	0.306	0.0297	-0.003
				4	0.0987	0.0242	0.0966	0.0171	0.002
1	1	1	2	1	0.4238	0.0402	0.425	0.033	-0.001
				2	0.1523	0.0292	0.1602	0.0242	-0.008
				3	0.3311	0.0383	0.329	0.0305	0.0021
				4	0.0927	0.0236	0.0857	0.0157	0.007
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4	2	1	0	1	0.3772	0.0321	0.3693	0.0295	0.0079
				2	0.1754	0.0252	0.1686	0.0229	0.0069
				3	0.2061	0.0268	0.2205	0.0256	-0.014
				4	0.2412	0.0283	0.2416	0.028	-37E-5
4	2	2	1	1	0.5891	0.0346	0.5761	0.0271	0.013
				2	0.1287	0.0236	0.1234	0.0179	0.0053
				3	0.1931	0.0278	0.1976	0.0217	-0.005
				4	0.0891	0.02	0.1029	0.0181	-0.014
4	2	2	2	1	0.6377	0.0334	0.6591	0.0253	-0.021
				2	0.058	0.0162	0.0707	0.0117	-0.013
				3	0.1981	0.0277	0.1778	0.0203	0.0202
				4	0.1063	0.0214	0.0924	0.0168	0.0139

## Modélisation de la fonction de réponse logit cumulé

### Analysis of Variance

Source	DF	Khi 2	Pr > Khi 2
Intercept	3	855.53	<.0001
village	9	123.97	<.0001
sexe	3	366.07	<.0001
village*sexe	9	22.20	0.0083
iode(village=2)	3	66.19	<.0001
iode(village=3)	3	29.81	<.0001
iode(village=4)	3	78.52	<.0001
sexe*iode	3	2.19	0.5338
jour(iode=1)	6	31.46	<.0001
jour(iode=2)	3*	25.05	<.0001
Residual	27	13.94	0.9818

NOTE: Effects marked with '\*' contain one or more redundant or restricted parameters.

### Analysis of Weighted Least Squares Estimates

Parameter	Nombre de fonctions	Estimation	Erreur std	Khi- 2	Pr > Khi 2
Intercept	1	0.1282	0.0524	5.97	0.0145
	2	-0.6948	0.0546	162.06	<.0001
	3	-2.3165	0.0940	607.46	<.0001
village	1	0.4655	0.0657	50.15	<.0001
	1	0.6960	0.0683	103.80	<.0001
	1	0.7165	0.1144	39.23	<.0001
	2	-0.0584	0.0588	0.99	0.3202
	2	-0.1409	0.0652	4.67	0.0306
	2	-0.2819	0.1243	5.14	0.0234
	3	-0.1776	0.0709	6.27	0.0122
	3	-0.1712	0.0780	4.82	0.0281
	3	-0.2795	0.1525	3.36	0.0668



sexe	1	1	-0.6081	0.0345	310.85	<.0001
	1	2	-0.6612	0.0396	278.92	<.0001
	1	3	-0.8762	0.0875	100.34	<.0001
village*sexe	1 1	1	0.0812	0.0675	1.45	0.2291
	1 1	2	0.1461	0.0683	4.57	0.0325
	1 1	3	0.0419	0.1034	0.16	0.6853
	2 1	1	0.00274	0.0579	0.00	0.9623
	2 1	2	0.00492	0.0643	0.01	0.9391
	2 1	3	0.00571	0.1191	0.00	0.9618
	3 1	1	-0.2265	0.0690	10.77	0.0010
	3 1	2	-0.1352	0.0774	3.05	0.0808
	3 1	3	-0.0206	0.1460	0.02	0.8876
iode(village=2)	1 1	1	0.5089	0.0815	38.94	<.0001
	1 1	2	0.6616	0.0871	57.75	<.0001
	1 1	3	0.8245	0.1492	30.52	<.0001
iode(village=3)	1 1	1	0.3733	0.0977	14.60	0.0001
	1 1	2	0.4581	0.1023	20.05	<.0001
	1 1	3	0.7748	0.1695	20.89	<.0001
iode(village=4)	1 1	1	0.6816	0.0807	71.39	<.0001
	1 1	2	0.5043	0.0883	32.61	<.0001
	1 1	3	0.7133	0.1453	24.09	<.0001
sexe*iode	1 1	1	0.0482	0.0403	1.43	0.2317
	1 1	2	0.0556	0.0460	1.46	0.2265
	1 1	3	0.1039	0.0927	1.26	0.2623
jour(iode=1)	0 1	1	-0.4248	0.0874	23.61	<.0001
	0 1	2	-0.1845	0.0845	4.77	0.0290
	0 1	3	-0.1380	0.1054	1.71	0.1904
	1 1	1	0.2400	0.0934	6.61	0.0101
	1 1	2	0.0836	0.0871	0.92	0.3370
	1 1	3	0.1325	0.1052	1.58	0.2081
jour(iode=2)	0 1	1	0.4146	0.0990	17.55	<.0001
	0 1	2	0.1175	0.1131	1.08	0.2988
	0 1	3	0.0878	0.2081	0.18	0.6732
	1 1	1	.	.	.	.
	1 1	2	.	.	.	.
	1 1	3	.	.	.	.

## Modélisation de la fonction de réponse Moyenne

### Analysis of Variance

Source	DF	Khi 2	Pr > Khi 2
Intercept	1	6603.20	<.0001
village	3	88.43	<.0001
sexe	1	455.33	<.0001
village*sexe	3	7.77	0.0509
iode(village=2)	1	63.58	<.0001
iode(village=3)	1	26.65	<.0001
iode(village=4)	1	69.60	<.0001
sexe*iode	1	5.34	0.0208
jour(iode=1)	2	12.58	0.0019
jour(iode=2)	1*	6.10	0.0135
Residual	9	8.44	0.4910

NOTE: Effects marked with '\*' contain one or more  
redundant or restricted parameters.

Analysis of Weighted Least Squares Estimates

Parameter		Estimation	Erreur std	Khi- 2	Pr > Khi 2
Intercept		2.0203	0.0249	6603.20	<.0001
village	1	0.3055	0.0333	84.01	<.0001
	2	-0.0661	0.0280	5.55	0.0184
	3	-0.0970	0.0315	9.50	0.0021
sexe	1	-0.3226	0.0151	455.33	<.0001
village*sexe	1 1	0.0433	0.0345	1.58	0.2093
	2 1	0.00200	0.0254	0.01	0.9374
	3 1	-0.0760	0.0284	7.14	0.0075
iode(village=2)	1 1	0.3117	0.0391	63.58	<.0001
iode(village=3)	1 1	0.2266	0.0439	26.65	<.0001
iode(village=4)	1 1	0.3185	0.0382	69.60	<.0001
sexe*iode	1 1	-0.0431	0.0186	5.34	0.0208
jour(iode=1)	0 1	-0.1618	0.0458	12.49	0.0004
	1 1	0.0926	0.0467	3.93	0.0474
jour(iode=2)	0 1	0.0853	0.0345	6.10	0.0135
	1 1	.	.	.	.

Analysis of Contrasts

Contraste	DF	Khi 2	Pr > Khi 2
villages test	2	3.17	0.2045
iode n_jiba	1	4.47	0.0344
villages j0	3	5.42	0.1433

## The CATMOD Procedure

## Predicted Values for Response Functions

village	sexe	iode	jour	Nb fcn	-----Observé(s)-----		-----Prédit(e)-----		Résidus
					Fonction	Erreur std	Fonction	Erreur std	
1	1	1	0	1	1.798883	0.077964	1.841489	0.064202	-0.04261
1	1	1	1	1	2.115385	0.083561	2.095914	0.067112	0.019471
1	1	1	2	1	2.103226	0.085188	2.072596	0.067781	0.03063
1	2	1	0	1	2.529412	0.078302	2.486436	0.064347	0.042976
1	2	1	1	1	2.723301	0.079355	2.740861	0.065432	-0.01756
1	2	1	2	1	2.691542	0.078487	2.717543	0.065127	-0.026
2	1	1	0	1	1.739535	0.067628	1.740296	0.060877	-0.00076
2	1	2	1	1	1.380711	0.050366	1.364979	0.038139	0.015732
2	1	2	2	1	1.266667	0.046476	1.279703	0.036946	-0.01304
2	2	1	0	1	2.4689	0.082047	2.467779	0.069658	0.00112
2	2	2	1	1	1.95977	0.075966	1.920096	0.053614	0.039674
2	2	2	2	1	1.792683	0.077358	1.83482	0.053675	-0.04214
3	1	1	0	1	1.487805	0.082404	1.546307	0.072282	-0.0585
3	1	2	1	1	1.327869	0.060725	1.34114	0.045345	-0.01327
3	1	2	2	1	1.303279	0.062305	1.255864	0.045599	0.047415
3	2	1	0	1	2.51049	0.096831	2.429709	0.079944	0.08078
3	2	2	1	1	2.119403	0.08958	2.052175	0.060992	0.067228
3	2	2	2	1	1.834646	0.08822	1.966899	0.060971	-0.13225
4	1	1	0	1	1.737864	0.066177	1.699405	0.059677	0.038459
4	1	2	1	1	1.280612	0.043761	1.310488	0.034967	-0.02988
4	1	2	2	1	1.238806	0.044648	1.225212	0.035291	0.013594
4	2	1	0	1	2.314655	0.079013	2.369482	0.06768	-0.05483
4	2	2	1	1	1.796117	0.073209	1.808199	0.052207	-0.01208
4	2	2	2	1	1.78673	0.076037	1.722923	0.052668	0.063807