

GVPT 722

Examples of Multinomial Logit Models in Stata

(1) Model of the 1992 presidential vote (1=Bush, 2=Clinton, 3=Perot), 1992 NES

(a) Perot as comparison category

```
. mlogit presvote3 partyid ideology commit wordgod white sex age income educ, base(3)
```

```
Iteration 0: log likelihood = -1167.5375
Iteration 1: log likelihood = -785.43762
Iteration 2: log likelihood = -738.53413
Iteration 3: log likelihood = -732.23139
Iteration 4: log likelihood = -732.03481
Iteration 5: log likelihood = -732.03457
```

```
Multinomial logistic regression      Number of obs   =      1117
LR chi2(18)                         =      871.01
Prob > chi2                          =      0.0000
Log likelihood = -732.03457          Pseudo R2      =      0.3730
```

presvote3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
bush						
partyid	.437251	.0594439	7.36	0.000	.320743	.553759
ideology	.3564197	.0883975	4.03	0.000	.1831637	.5296756
commit	1.118237	.3566156	3.14	0.002	.4192838	1.817191
wordgod	.2886454	.3253095	0.89	0.375	-.3489495	.9262402
white	-1.274872	.6575163	-1.94	0.053	-2.56358	.0138365
sex	.5220334	.1993014	2.62	0.009	.1314098	.912657
age	.0128939	.0062051	2.08	0.038	.0007321	.0250556
income	-.0119689	.0197983	-0.60	0.545	-.0507729	.0268351
educ	.1520729	.0666235	2.28	0.022	.0214933	.2826526
_cons	-4.037983	.9286208	-4.35	0.000	-5.858046	-2.21792
clinton						
partyid	-.5659878	.0593468	-9.54	0.000	-.6823054	-.4496702
ideology	-.2824546	.082094	-3.44	0.001	-.4433559	-.1215534
commit	-.4039828	.3676766	-1.10	0.272	-1.124616	.3166501
wordgod	-.287159	.2787296	-1.03	0.303	-.8334589	.259141
white	-2.880011	.617463	-4.66	0.000	-4.090217	-1.669806
sex	.5037801	.200119	2.52	0.012	.111554	.8960062
age	.0235076	.0063796	3.68	0.000	.0110037	.0360114
income	-.0308004	.0187528	-1.64	0.100	-.0675552	.0059544
educ	.1676501	.0673501	2.49	0.013	.0356464	.2996538
_cons	5.487674	.8351432	6.57	0.000	3.850824	7.124525

(Outcome presvote3==perot is the comparison group)

(b) Clinton as comparison category

```
. mlogit presvote3 partyid ideology commit wordgod white sex age income educ, base(2)
```

```
Iteration 0: log likelihood = -1167.5375
Iteration 1: log likelihood = -785.43762
Iteration 2: log likelihood = -738.53413
Iteration 3: log likelihood = -732.23139
Iteration 4: log likelihood = -732.03481
Iteration 5: log likelihood = -732.03457
```

```
Multinomial logistic regression      Number of obs   =      1117
LR chi2(18)                         =      871.01
Prob > chi2                          =      0.0000
Pseudo R2                            =      0.3730

Log likelihood = -732.03457
```

presvote3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
bush						
partyid	1.003239	.0657779	15.25	0.000	.8743166	1.132161
ideology	.6388743	.0929887	6.87	0.000	.4566197	.8211288
commit	1.52222	.394552	3.86	0.000	.7489124	2.295528
wordgod	.5758044	.3375976	1.71	0.088	-.0858748	1.237484
white	1.605139	.4004365	4.01	0.000	.8202984	2.38998
sex	.0182533	.2160687	0.08	0.933	-.4052336	.4417401
age	-.0106137	.0066241	-1.60	0.109	-.0235967	.0023693
income	.0188315	.0203642	0.92	0.355	-.0210816	.0587446
educ	-.0155772	.0721162	-0.22	0.829	-.1569223	.125768
_cons	-9.525657	.8230031	-11.57	0.000	-11.13871	-7.9126
perot						
partyid	.5659878	.0593468	9.54	0.000	.4496702	.6823054
ideology	.2824546	.082094	3.44	0.001	.1215534	.4433559
commit	.4039828	.3676766	1.10	0.272	-.3166501	1.124616
wordgod	.287159	.2787296	1.03	0.303	-.259141	.8334589
white	2.880011	.617463	4.66	0.000	1.669806	4.090217
sex	-2.5037801	.200119	-2.52	0.012	-.8960062	-.111554
age	-.0235076	.0063796	-3.68	0.000	-.0360114	-.0110037
income	.0308004	.0187528	1.64	0.100	-.0059544	.0675552
educ	-.1676501	.0673501	-2.49	0.013	-.2996538	-.0356464
_cons	-5.487674	.8351432	-6.57	0.000	-7.124525	-3.850824

(Outcome presvote3==clinton is the comparison group)

(c) The effect of independent variables on the odds of supporting one candidate as opposed to another:

```
. listcoef, help
```

```
mlogit (N=1117): Factor Change in the Odds of presvote3
```

```
Variable: partyid (sd=2.1406531)
```

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
bush	-clinton	1.00324	15.252	0.000	2.7271	8.5642
bush	-perot	0.43725	7.356	0.000	1.5484	2.5498
clinton	-bush	-1.00324	-15.252	0.000	0.3667	0.1168
clinton	-perot	-0.56599	-9.537	0.000	0.5678	0.2977
perot	-bush	-0.43725	-7.356	0.000	0.6458	0.3922
perot	-clinton	0.56599	9.537	0.000	1.7612	3.3588

```
Variable: ideology (sd=1.4309962)
```

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
bush	-clinton	0.63887	6.870	0.000	1.8943	2.4948
bush	-perot	0.35642	4.032	0.000	1.4282	1.6653
clinton	-bush	-0.63887	-6.870	0.000	0.5279	0.4008
clinton	-perot	-0.28245	-3.441	0.001	0.7539	0.6675
perot	-bush	-0.35642	-4.032	0.000	0.7002	0.6005
perot	-clinton	0.28245	3.441	0.001	1.3264	1.4981

Variable: commit (sd=.31191135)

Odds comparing						
Group 1 vs Group 2		b	z	P> z	e^b	e^bStdX
bush -clinton		1.52222	3.858	0.000	4.5824	1.6077
bush -perot		1.11824	3.136	0.002	3.0595	1.4174
clinton -bush		-1.52222	-3.858	0.000	0.2182	0.6220
clinton -perot		-0.40398	-1.099	0.272	0.6677	0.8816
perot -bush		-1.11824	-3.136	0.002	0.3269	0.7055
perot -clinton		0.40398	1.099	0.272	1.4978	1.1343

Variable: wordgod (sd=.36865364)

Odds comparing						
Group 1 vs Group 2		b	z	P> z	e^b	e^bStdX
bush -clinton		0.57580	1.706	0.088	1.7786	1.2365
bush -perot		0.28865	0.887	0.375	1.3346	1.1123
clinton -bush		-0.57580	-1.706	0.088	0.5623	0.8087
clinton -perot		-0.28716	-1.030	0.303	0.7504	0.8995
perot -bush		-0.28865	-0.887	0.375	0.7493	0.8991
perot -clinton		0.28716	1.030	0.303	1.3326	1.1117

Variable: white (sd=.31428726)

Odds comparing						
Group 1 vs Group 2		b	z	P> z	e^b	e^bStdX
bush -clinton		1.60514	4.008	0.000	4.9786	1.6561
bush -perot		-1.27487	-1.939	0.053	0.2795	0.6699
clinton -bush		-1.60514	-4.008	0.000	0.2009	0.6038
clinton -perot		-2.88001	-4.664	0.000	0.0561	0.4045
perot -bush		1.27487	1.939	0.053	3.5782	1.4928
perot -clinton		2.88001	4.664	0.000	17.8145	2.4723

Variable: sex (sd=.50021895)

Odds comparing						
Group 1 vs Group 2		b	z	P> z	e^b	e^bStdX
bush -clinton		0.01825	0.084	0.933	1.0184	1.0092
bush -perot		0.52203	2.619	0.009	1.6855	1.2984
clinton -bush		-0.01825	-0.084	0.933	0.9819	0.9909
clinton -perot		0.50378	2.517	0.012	1.6550	1.2866
perot -bush		-0.52203	-2.619	0.009	0.5933	0.7702
perot -clinton		-0.50378	-2.517	0.012	0.6042	0.7772

Variable: age (sd=16.789081)

Odds comparing						
Group 1 vs Group 2		b	z	P> z	e^b	e^bStdX
bush -clinton		-0.01061	-1.602	0.109	0.9894	0.8368
bush -perot		0.01289	2.078	0.038	1.0130	1.2417
clinton -bush		0.01061	1.602	0.109	1.0107	1.1951
clinton -perot		0.02351	3.685	0.000	1.0238	1.4839
perot -bush		-0.01289	-2.078	0.038	0.9872	0.8054
perot -clinton		-0.02351	-3.685	0.000	0.9768	0.6739

Variable: income (sd=5.6999119)

Odds comparing						
Group 1 vs Group 2		b	z	P> z	e^b	e^bStdX
bush -clinton		0.01883	0.925	0.355	1.0190	1.1133
bush -perot		-0.01197	-0.605	0.545	0.9881	0.9341
clinton -bush		-0.01883	-0.925	0.355	0.9813	0.8982
clinton -perot		-0.03080	-1.642	0.100	0.9697	0.8390
perot -bush		0.01197	0.605	0.545	1.0120	1.0706
perot -clinton		0.03080	1.642	0.100	1.0313	1.1919

Variable: educ (sd=1.657523)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
bush	-clinton	-0.01558	-0.216	0.829	0.9845	0.9745
bush	-perot	0.15207	2.283	0.022	1.1642	1.2867
clinton	-bush	0.01558	0.216	0.829	1.0157	1.0262
clinton	-perot	0.16765	2.489	0.013	1.1825	1.3203
perot	-bush	-0.15207	-2.283	0.022	0.8589	0.7772
perot	-clinton	-0.16765	-2.489	0.013	0.8456	0.7574

 b = raw coefficient
 z = z-score for test of b=0
 P>|z| = p-value for z-test
 e^b = exp(b) = factor change in odds for unit increase in X
 e^bStdX = exp(b*SD of X) = change in odds for SD increase in X

(d) Predicting probabilities "by hand"

```
. predict xbbush if e(sample), xb outcome(1)
(1369 missing values generated)

. predict xbclinton if e(sample), xb outcome(2)
(1369 missing values generated)

. gen pbush=(exp(xbbush))/(1+exp(xbbush)+exp(xbclinton))
(1369 missing values generated)

. gen pclinton=(exp(xbclinton))/(1+exp(xbbush)+exp(xbclinton))
(1369 missing values generated)

. gen pperot=1/(1+exp(xbbush)+exp(xbclinton))
(1369 missing values generated)

. summ pbush pclinton pperot
```

Variable	Obs	Mean	Std. Dev.	Min	Max
pbush	1117	.3554163	.3286639	.0006239	.9527012
pclinton	1117	.4503133	.3606993	.0032608	.9961473
pperot	1117	.1942704	.1312714	.0018111	.7055936

(e) Predicting probabilities with Stata:

```
. predict pbush2 pclinton2 pperot2 if e(sample)
(option p assumed; predicted probabilities)
(1369 missing values generated)

. summ pbush2 pclinton2 pperot2
```

Variable	Obs	Mean	Std. Dev.	Min	Max
pbush2	1117	.3554163	.3286639	.0006239	.9527012
pclinton2	1117	.4503133	.3606993	.0032608	.9961473
pperot2	1117	.1942704	.1312714	.0018111	.7055936

(f) Predicted probabilities at particular values of an independent variable, while all other variables are held constant at their means

(i) Word of God vs. not Word of God:

```
. prvalue, x(wordgod=0) rest(mean)
```

```
mlogit: Predictions for presvote3
```

```
Predicted probabilities for each category:
```

```
Pr(y=bush|x):    0.2110
Pr(y=clinton|x): 0.5344
Pr(y=perot|x):   0.2547
```

```
. prvalue, x(wordgod=1) rest(mean)
```

```
mlogit: Predictions for presvote3
```

```
Predicted probabilities for each category:
```

```
Pr(y=bush|x):    0.3004
Pr(y=clinton|x): 0.4278
Pr(y=perot|x):   0.2717
```

(ii) Probabilities for white men, white women, non-white men, and non-white women:

```
. prvalue, x(sex=0 white=1) rest(mean) nobase
```

```
mlogit: Predictions for presvote3
```

```
Predicted probabilities for each category:
```

```
Pr(y=bush|x):    0.2677
Pr(y=clinton|x): 0.3534
Pr(y=perot|x):   0.3790
```

```
. prvalue, x(sex=1 white=1) rest(mean) nobase
```

```
mlogit: Predictions for presvote3
```

```
Predicted probabilities for each category:
```

```
Pr(y=bush|x):    0.3189
Pr(y=clinton|x): 0.4133
Pr(y=perot|x):   0.2678
```

```
. prvalue, x(sex=0 white=0) rest(mean) nobase
```

```
mlogit: Predictions for presvote3
```

```
Predicted probabilities for each category:
```

```
Pr(y=bush|x):    0.1255
Pr(y=clinton|x): 0.8248
Pr(y=perot|x):   0.0497
```

```
. prvalue, x(sex=1 white=0) rest(mean) nobase
```

```
mlogit: Predictions for presvote3
```

```
Predicted probabilities for each category:
```

```
Pr(y=bush|x):    0.1301
Pr(y=clinton|x): 0.8394
Pr(y=perot|x):   0.0305
```

(g) The impact of each independent variable on the probabilities of voting for each of the three presidential candidates, when all other variables are held constant at their means:

. prchange

mlogit: Changes in Predicted Probabilities for presvote3

partyid	Avg Chg	bush	clinton	perot
Min->Max	.54310066	.73102858	-.81465101	.0836224
-+1/2	.12847248	.15919937	-.19270873	.03350934
-+sd/2	.26290605	.32891485	-.39435905	.06544426
MargEfct	.13016773	.16084519	-.1952516	.0344064
ideology	Avg Chg	bush	clinton	perot
Min->Max	.39367703	.55750027	-.59051555	.03301528
-+1/2	.07627814	.10801949	-.1144172	.00639772
-+sd/2	.10861005	.15397494	-.16291508	.00894013
MargEfct	.07664491	.1084228	-.11496736	.00654456
commit	Avg Chg	bush	clinton	perot
Min->Max	.179585	.2693775	-.23462418	-.03475334
-+1/2	.18238065	.27357097	-.23594591	-.03762506
-+sd/2	.05790862	.08686292	-.07518214	-.01168081
MargEfct	.18601108	.27901663	-.24159725	-.03741937
wordgod	Avg Chg	bush	clinton	perot
0->1	.07101304	.08946136	-.10651958	.01705819
white	Avg Chg	bush	clinton	perot
0->1	.29886931	.16621169	-.44830397	.28209226
sex	Avg Chg	bush	clinton	perot
0->1	.06695202	.04234019	.05808783	-.10042804
age	Avg Chg	bush	clinton	perot
Min->Max	.19492273	-.03701313	.29238409	-.25537097
-+1/2	.00278082	-.00035471	.00417122	-.00381655
-+sd/2	.0466055	-.00591362	.06990826	-.06399462
MargEfct	.00278084	-.00035471	.00417126	-.00381655
income	Avg Chg	bush	clinton	perot
Min->Max	.09298549	.03626114	-.13947821	.10321711
-+1/2	.00405987	.00146794	-.00608981	.00462186
-+sd/2	.0231317	.00836131	-.03469756	.02633622
MargEfct	.00405993	.00146798	-.00608989	.00462191
educ	Avg Chg	bush	clinton	perot
Min->Max	.13011419	.06072636	.13444492	-.1951713
-+1/2	.02122273	.00971478	.02211931	-.0318341
-+sd/2	.03516477	.01609856	.0366486	-.05274715
MargEfct	.02122703	.00971614	.0221244	-.03184054

(h) Generating predicted probabilities at various values of party ID with "prgen"

```
. prgen partyid, generate(pid) n(7)
```

mlogit: Predicted values as partyid varies from 1 to 7.

```
      partyid  ideology      commit      wordgod      white      sex      age
income      educ
x= 3.8961504 4.2130707 .5295663 .83795882 .88898836 .49776186 46.076097
15.726947 3.4198747
```

```
. summ pidx-pids3
```

Variable	Obs	Mean	Std. Dev.	Min	Max
pidx	7	4	2.160247	1	7
pidp1	7	.3487049	.2843713	.0303671	.7613956
pids1	7	.3487049	.2843713	.0303671	.7613956
pidp2	7	.4421326	.3189677	.0528793	.8675303
pids2	7	.7908374	.0641103	.7216769	.8978974
pidp3	7	.2091626	.0641102	.1021026	.2783231
pids3	7	1	0	1	1

```
. tab pidx
```

Changing value of partyid	Freq.	Percent	Cum.
1	1	14.29	14.29
2	1	14.29	28.57
3	1	14.29	42.86
4	1	14.29	57.14
5	1	14.29	71.43
6	1	14.29	85.71
7	1	14.29	100.00
Total	7	100.00	

(2) Model of the 1996 Presidential Vote (1=Clinton, 2=Dole, 3=Perot), 1996 NES

```
. mlogit presvote3 partyid ideology commit wordgod white sex age income educ, base(3)
```

```
Iteration 0: log likelihood = -745.2995
Iteration 1: log likelihood = -440.20782
Iteration 2: log likelihood = -402.3676
Iteration 3: log likelihood = -395.90197
Iteration 4: log likelihood = -395.54578
Iteration 5: log likelihood = -395.54423
Iteration 6: log likelihood = -395.54423
```

```
Multinomial logistic regression      Number of obs   =      826
LR chi2(18)                        =      699.51
Prob > chi2                         =      0.0000
Pseudo R2                           =      0.4693

Log likelihood = -395.54423
```

presvote3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	

clinton						
partyid	-.3716504	.0864759	-4.30	0.000	-.5411402	-.2021607
ideology	-.2330695	.1386987	-1.68	0.093	-.5049139	.0387749
commit	.0365587	.57722	0.06	0.949	-1.094772	1.167889
wordgod	-.355161	.4958224	-0.72	0.474	-1.326955	.616633
white	-1.596636	.7566008	-2.11	0.035	-3.079546	-.1137256
sex	.3561474	.3022718	1.18	0.239	-.2362945	.9485893
age	.0263111	.0097497	2.70	0.007	.0072021	.0454201
income	.0004749	.0265578	0.02	0.986	-.0515776	.0525273
educ	.1864459	.1066672	1.75	0.080	-.0226181	.3955098
_cons	3.484935	1.265147	2.75	0.006	1.005293	5.964577

dole						
partyid	.615589	.0941317	6.54	0.000	.4310942	.8000838
ideology	.4225496	.1538604	2.75	0.006	.1209888	.7241104
commit	1.282983	.5995619	2.14	0.032	.1078633	2.458103
wordgod	-.1539905	.586162	-0.26	0.793	-1.302847	.994866
white	-.6396085	.8474496	-0.75	0.450	-2.300579	1.021362
sex	.3837883	.3277067	1.17	0.242	-.2585049	1.026082
age	.0384052	.0103922	3.70	0.000	.0180369	.0587735
income	.0640405	.0307581	2.08	0.037	.0037558	.1243252
educ	.2643763	.1143079	2.31	0.021	.040337	.4884156
_cons	-7.564819	1.50353	-5.03	0.000	-10.51168	-4.617955

(Outcome presvote3==perot is the comparison group)

```
. mlogit presvote3 partyid ideology commit wordgod white sex age income educ, base(1)
```

```
Iteration 0: log likelihood = -745.2995
Iteration 1: log likelihood = -440.20782
Iteration 2: log likelihood = -402.3676
Iteration 3: log likelihood = -395.90197
Iteration 4: log likelihood = -395.54578
Iteration 5: log likelihood = -395.54423
Iteration 6: log likelihood = -395.54423
```

```
Multinomial logistic regression      Number of obs   =      826
LR chi2(18)                        =      699.51
Prob > chi2                         =      0.0000
Pseudo R2                           =      0.4693

Log likelihood = -395.54423
```

presvote3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	

dole						
partyid	.9872394	.0761872	12.96	0.000	.8379152	1.136564
ideology	.6556191	.1230103	5.33	0.000	.4145233	.896715
commit	1.246424	.4851781	2.57	0.010	.2954927	2.197356
wordgod	.2011706	.4604218	0.44	0.662	-.7012395	1.103581
white	.9570274	.5020359	1.91	0.057	-.0269448	1.941
sex	.0276409	.2579003	0.11	0.915	-.4778343	.5331161
age	.0120941	.0078142	1.55	0.122	-.0032214	.0274096
income	.0635657	.0257058	2.47	0.013	.0131832	.1139481
educ	.0779304	.0867626	0.90	0.369	-.0921211	.247982
_cons	-11.04975	1.175906	-9.40	0.000	-13.35449	-8.74502

```

perot |
partyid | .3716504 .0864759 4.30 0.000 .2021607 .5411402
ideology | .2330695 .1386987 1.68 0.093 -.0387749 .5049139
commit | -.0365587 .57722 -0.06 0.949 -1.167889 1.094772
wordgod | .355161 .4958224 0.72 0.474 -.616633 1.326955
white | 1.596636 .7566008 2.11 0.035 .1137256 3.079546
sex | -.3561474 .3022718 -1.18 0.239 -.9485893 .2362945
age | -.0263111 .0097497 -2.70 0.007 -.0454201 -.0072021
income | -.0004749 .0265578 -0.02 0.986 -.0525273 .0515776
educ | -.1864459 .1066672 -1.75 0.080 -.3955098 .0226181
_cons | -3.484935 1.265147 -2.75 0.006 -5.964577 -1.005293

```

(Outcome presvote3==clinton is the comparison group)

. listcoef

mlogit (N=826): Factor Change in the Odds of presvote3

Variable: partyid (sd=2.2699797)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	0.61559	6.540	0.000	1.8507	4.0446
dole	-clinton	0.98724	12.958	0.000	2.6838	9.4029
perot	-dole	-0.61559	-6.540	0.000	0.5403	0.2472
perot	-clinton	0.37165	4.298	0.000	1.4501	2.3248
clinton	-dole	-0.98724	-12.958	0.000	0.3726	0.1064
clinton	-perot	-0.37165	-4.298	0.000	0.6896	0.4301

Variable: ideology (sd=1.4115069)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	0.42255	2.746	0.006	1.5258	1.8156
dole	-clinton	0.65562	5.330	0.000	1.9263	2.5229
perot	-dole	-0.42255	-2.746	0.006	0.6554	0.5508
perot	-clinton	0.23307	1.680	0.093	1.2625	1.3895
clinton	-dole	-0.65562	-5.330	0.000	0.5191	0.3964
clinton	-perot	-0.23307	-1.680	0.093	0.7921	0.7197

Variable: commit (sd=.3053866)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	1.28298	2.140	0.032	3.6074	1.4797
dole	-clinton	1.24642	2.569	0.010	3.4779	1.4632
perot	-dole	-1.28298	-2.140	0.032	0.2772	0.6758
perot	-clinton	-0.03656	-0.063	0.949	0.9641	0.9889
clinton	-dole	-1.24642	-2.569	0.010	0.2875	0.6834
clinton	-perot	0.03656	0.063	0.949	1.0372	1.0112

Variable: wordgod (sd=.35381012)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	-0.15399	-0.263	0.793	0.8573	0.9470
dole	-clinton	0.20117	0.437	0.662	1.2228	1.0738
perot	-dole	0.15399	0.263	0.793	1.1665	1.0560
perot	-clinton	0.35516	0.716	0.474	1.4264	1.1339
clinton	-dole	-0.20117	-0.437	0.662	0.8178	0.9313
clinton	-perot	-0.35516	-0.716	0.474	0.7011	0.8819

Variable: white (sd=.29091712)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	-0.63961	-0.755	0.450	0.5275	0.8302
dole	-clinton	0.95703	1.906	0.057	2.6039	1.3210
perot	-dole	0.63961	0.755	0.450	1.8957	1.2045
perot	-clinton	1.59664	2.110	0.035	4.9364	1.5912
clinton	-dole	-0.95703	-1.906	0.057	0.3840	0.7570
clinton	-perot	-1.59664	-2.110	0.035	0.2026	0.6285

Variable: sex (sd=.50018413)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	0.38379	1.171	0.242	1.4678	1.2116
dole	-clinton	0.02764	0.107	0.915	1.0280	1.0139
perot	-dole	-0.38379	-1.171	0.242	0.6813	0.8253
perot	-clinton	-0.35615	-1.178	0.239	0.7004	0.8368
clinton	-dole	-0.02764	-0.107	0.915	0.9727	0.9863
clinton	-perot	0.35615	1.178	0.239	1.4278	1.1950

Variable: age (sd=16.589946)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	0.03841	3.696	0.000	1.0392	1.8911
dole	-clinton	0.01209	1.548	0.122	1.0122	1.2222
perot	-dole	-0.03841	-3.696	0.000	0.9623	0.5288
perot	-clinton	-0.02631	-2.699	0.007	0.9740	0.6463
clinton	-dole	-0.01209	-1.548	0.122	0.9880	0.8182
clinton	-perot	0.02631	2.699	0.007	1.0267	1.5473

Variable: income (sd=5.731258)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	0.06404	2.082	0.037	1.0661	1.4434
dole	-clinton	0.06357	2.473	0.013	1.0656	1.4395
perot	-dole	-0.06404	-2.082	0.037	0.9380	0.6928
perot	-clinton	-0.00047	-0.018	0.986	0.9995	0.9973
clinton	-dole	-0.06357	-2.473	0.013	0.9384	0.6947
clinton	-perot	0.00047	0.018	0.986	1.0005	1.0027

Variable: educ (sd=1.6022894)

Odds comparing		b	z	P> z	e^b	e^bStdX
Group 1 vs Group 2						
dole	-perot	0.26438	2.313	0.021	1.3026	1.5275
dole	-clinton	0.07793	0.898	0.369	1.0810	1.1330
perot	-dole	-0.26438	-2.313	0.021	0.7677	0.6547
perot	-clinton	-0.18645	-1.748	0.080	0.8299	0.7418
clinton	-dole	-0.07793	-0.898	0.369	0.9250	0.8826
clinton	-perot	0.18645	1.748	0.080	1.2050	1.3482

. prchange

mlogit: Changes in Predicted Probabilities for presvote3

partyid	Avg Chg	dole	perot	clinton
Min->Max	.56852854	.85279282	-.0165085	-.83628429
+1/2	.13479568	.20209157	.00010195	-.2021935
++sd/2	.29059486	.43589231	-.00155769	-.43433458
MargEfct	.13666965	.20466666	.00033782	-.20500448

ideology				
	Avg Chg	dole	perot	clinton
Min->Max	.43278275	.64824392	.00093022	-.64917411
-+1/2	.09044791	.13567185	-.00121099	-.1344609
-+sd/2	.12696514	.19044772	-.00178634	-.18866137
MargEfct	.09095451	.13643177	-.00115354	-.13527823
commit				
	Avg Chg	dole	perot	clinton
Min->Max	.17660531	.26490797	-.04829172	-.21661624
-+1/2	.18096724	.27145085	-.04923196	-.2222189
-+sd/2	.05634664	.08451995	-.01532743	-.06919253
MargEfct	.18487892	.27731838	-.05029054	-.22702784
wordgod				
	Avg Chg	dole	perot	clinton
0->1	.03882492	.03193781	.02629957	-.05823737
white				
	Avg Chg	dole	perot	clinton
0->1	.16036686	.15231402	.08823627	-.24055028
sex				
	Avg Chg	dole	perot	clinton
0->1	.02462727	.0195004	-.03694092	.0174405
age				
	Avg Chg	dole	perot	clinton
Min->Max	.17696875	.26545313	-.21294611	-.05250701
-+1/2	.00244119	.00366178	-.00309078	-.00057101
-+sd/2	.04045904	.06068856	-.05145174	-.00923681
MargEfct	.00244118	.00366178	-.00309074	-.00057104
income				
	Avg Chg	dole	perot	clinton
Min->Max	.19096471	.28644706	-.04955752	-.23688954
-+1/2	.00939336	.01409006	-.00242526	-.01166475
-+sd/2	.05374086	.08061129	-.01387531	-.06673598
MargEfct	.00939388	.01409082	-.0024254	-.01166542
educ				
	Avg Chg	dole	perot	clinton
Min->Max	.09667748	.14501621	-.14474687	-.00026935
-+1/2	.01614951	.02422425	-.02162474	-.00259954
-+sd/2	.02587043	.03880566	-.03468362	-.00412202
MargEfct	.01615177	.02422766	-.02161095	-.0026167