



User: L. Adki ns
 Project: Econ 6243
 Wald chi 2(5) = 212. 37

name: <unnamed>
 log: H:\Documents and Settings\Lee\My Documents\Document\stata\ascl o g i t. smcl
 log type: smcl
 opened on: 14 Apr 2010, 13: 32: 50

```
. generate id = _n
. list mode price pbeach ppi er ppri vate pcharter in 1/4, clean
```

	mode	price	pbeach	ppi er	ppri vate	pcharter
1.	charter	182.93	157.93	157.93	157.93	182.93
2.	charter	34.534	15.114	15.114	10.534	34.534
3.	private	24.334	161.874	161.874	24.334	59.334
4.	pi er	15.134	15.134	15.134	55.93	84.93

```
. * Multinomial Logit -- case specific vars only in short form
. mlogit mode income, baseoutcome(1)
```

Iteration 0: log likelihood = -1497.7229
 Iteration 1: log likelihood = -1477.5265
 Iteration 2: log likelihood = -1477.1514
 Iteration 3: log likelihood = -1477.1506
 Iteration 4: log likelihood = -1477.1506

Multinomial Logistic regression Number of obs = 1182
 LR chi 2(3) = 41.14
 Prob > chi 2 = 0.0000
 Pseudo R2 = 0.0137
 Log likelihood = -1477.1506

mode	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]		
beach (base outcome)							
pi er	income	-.1434029	.0532884	-2.69	0.007	-.2478463	-.0389595
	_cons	.8141503	.228632	3.56	0.000	.3660399	1.262261
pri vate	income	.0919064	.0406637	2.26	0.024	.0122069	.1716058
	_cons	.7389208	.1967309	3.76	0.000	.3533352	1.124506
charter	income	-.0316399	.0418463	-0.76	0.450	-.1136571	.0503774
	_cons	1.341291	.1945167	6.90	0.000	.9600457	1.722537

```
. * Convert data to long form for ascl o g i t
. reshape long d p q, i(id) j(fishmode beach pier private charter) string
```

Data	wide	->	long
Number of obs.	1182	->	4728
Number of variables	17	->	9
j variable (4 values)		->	fishmode
xij variables:			
	dbeach dpi er ... dcharter	->	d
	pbeach ppi er ... pcharter	->	p
	qbeach qpi er ... qcharter	->	q

. * Predicted probabilities of choice of each mode and compare to actual freqs
 . predict pascl logit, pr

. table fishmode, contents(mean d mean pascl logit sd pascl logit) cellwidth(15)

fishmode	mean(d)	mean(pascl logit)	sd(pascl logit)
beach	.1133672	.1133672	.1285042
charter	.3824027	.3824027	.1565869
pier	.1505922	.1505922	.1613722
private	.3536379	.3536379	.1664636

. * Marginal effect at mean of change in price
 . estat mfx, varlist(p)

Pr(choice = beach|1 selected) = .05248806

variable	dp/dx	Std. Err.	z	P> z	[95% C.I.]	X
p						
beach	-.001249	.000121	-10.29	0.000	-.001487 -.001011	103.42
charter	.000609	.000061	9.97	0.000	.000489 .000729	84.379
pier	.000087	.000016	5.42	0.000	.000055 .000118	103.42
private	.000553	.000056	9.88	0.000	.000443 .000663	55.257

Pr(choice = charter|1 selected) = .46206853

variable	dp/dx	Std. Err.	z	P> z	[95% C.I.]	X
p						
beach	.000609	.000061	9.97	0.000	.000489 .000729	103.42
charter	-.006243	.000441	-14.15	0.000	-.007108 -.005378	84.379
pier	.000764	.000071	10.69	0.000	.000624 .000904	103.42
private	.00487	.000452	10.77	0.000	.003983 .005756	55.257

Pr(choice = pier|1 selected) = .06584968

variable	dp/dx	Std. Err.	z	P> z	[95% C.I.]	X
p						
beach	.000087	.000016	5.42	0.000	.000055 .000118	103.42
charter	.000764	.000071	10.69	0.000	.000624 .000904	84.379
pier	-.001545	.000138	-11.16	0.000	-.001816 -.001274	103.42
private	.000694	.000066	10.58	0.000	.000565 .000822	55.257

Pr(choice = private|1 selected) = .41959373

variable	dp/dx	Std. Err.	z	P> z	[95% C.I.]	X
p						
beach	.000553	.000056	9.88	0.000	.000443 .000663	103.42
charter	.00487	.000452	10.77	0.000	.003983 .005756	84.379
pier	.000694	.000066	10.58	0.000	.000565 .000822	103.42
private	-.006117	.000444	-13.77	0.000	-.006987 -.005246	55.257

```
. * MNL is CL with no alternative specific regressors
. asclogit d, case(id) alternatives(fishmode) casevars(income) baseal ternative(beach)
```

```
Iteration 0: log likelihood = -1492.5126
Iteration 1: log likelihood = -1477.3262
Iteration 2: log likelihood = -1477.1506
Iteration 3: log likelihood = -1477.1506
```

```
Alternative-specific conditional logit      Number of obs      =      4728
Case variable: id                          Number of cases     =      1182
```

```
Alternative variable: fishmode             Alternative per case: min =      4
                                                    avg =      4.0
                                                    max =      4
```

```
Log likelihood = -1477.1506                Wald chi2(3)       =      37.70
                                                    Prob > chi2       =      0.0000
```

	d	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
beach		(base alternative)					
charter							
	income	-.03164	.0418463	-0.76	0.450	-.1136572	.0503773
	_cons	1.341292	.1945167	6.90	0.000	.9600459	1.722537
pier							
	income	-.1434028	.0532884	-2.69	0.007	-.2478462	-.0389595
	_cons	.81415	.2286319	3.56	0.000	.3660396	1.26226
private							
	income	.0919063	.0406637	2.26	0.024	.0122068	.1716057
	_cons	.738921	.1967309	3.76	0.000	.3533355	1.124507

```
. * Nested Logit
. * define the tree
. nlogitgen type = fishmode(shore: pier | beach, boat: private | charter)
new variable type is generated with 2 groups
label list lb_type
lb_type:
    1 shore
    2 boat
```

```
. * check the tree
. nlogittree fishmode type, choice(d)
```

tree structure specified for the nested logit model

type	N	fishmode	N	k
shore	2364	└─ beach	1182	134
		└─ pier	1182	178
boat	2364	└─ charter	1182	452
		└─ private	1182	418
total			4728	1182

k = number of times alternative is chosen
 N = number of observations at each level

```
. * estimate the model
. nlogit d p q || type:, base(shore) || fishmode: income, case(id) notree nolog
```

```
RUM-consistent nested logit regression      Number of obs      =      4728
Case variable: id                            Number of cases     =      1182

Alternative variable: fishmode                Alts per case: min =      4
                                                avg =      4.0
                                                max =      4

Log likelihood = -1192.4236                    Wald chi2(5)       =      212.37
                                                Prob > chi2        =      0.0000
```

	d	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
fishmode	p	-.0267625	.0018937	-14.13	0.000	-.0304741	-.023051
	q	1.340078	.3080391	4.35	0.000	.7363329	1.943824

fishmode equations

fishmode	income	(base)					
beach	_cons	(base)					
charter	income	-8.402969	78.34197	-0.11	0.915	-161.9504	145.1445
	_cons	69.96747	558.6645	0.13	0.900	-1024.995	1164.93
pier	income	-9.458769	80.28494	-0.12	0.906	-166.8144	147.8968
	_cons	58.94565	500.589	0.12	0.906	-922.1908	1040.082
private	income	-1.634704	8.583156	-0.19	0.849	-18.45738	15.18797
	_cons	37.51814	230.7252	0.16	0.871	-414.695	489.7313

dis similarity parameters

type	/shore_tau				
	/boat_tau	83.46671	718.2333	-1324.245	1491.178
		52.56573	542.7797	-1011.263	1116.394

LR test for IIA (tau = 1): chi2(2) = 45.43 Prob > chi2 = 0.0000

```
. predict plevel1 plevel2, pr
. tabulate fishmode, summarize(plevel2)
```

fishmode	Summary of Pr(fishmode alternatives)		Freq.
	Mean	Std. Dev.	
beach	.1132351	.13335995	1182
charter	.38070838	.15724242	1182
pier	.15072736	.16982071	1182
private	.35532917	.16444521	1182
Total	.25	.19690069	4728

```
. log close  
   name: <unnamed>  
   log:  H:\Documents and Settings\Lee\My Documents\Document\stata\ascl o g i t. smcl  
   log type: smcl  
   closed on: 14 Apr 2010, 13:33:22
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