

DISCRETE CHOICE MODELS CITY BY CITY WITH MORE DETAILED LABELS

Auckland

```

+-----+
| Discrete choice (multinomial logit) model
| Maximum Likelihood Estimates
| Dependent variable           Choice
| Weighting variable           None
| Number of observations       2219
| Iterations completed         6
| Log likelihood function      -1789.684
| Log-L for Choice model =    -1789.68445
| R2=1-LogL/LogL*   Log-L fncn  R-sqrd  RsqAdj
| Constants only    -2088.2553  .14298  .14098
| Chi-squared[25]   =          597.14167
| Prob [ chi squared > value ] = .00000
| Response data are given as ind. choice.
| Number of obs.= 2219, skipped 0 bad obs.
+-----+

```

Acronym	Meaning	Parameter estimate (t-value)
BPK_CK_D	Shared dummy: Extra charge in carpark lot/building (\$2.5-\$10/day), and also Onstreet parking availability restricted to < 2 hrs (0.5 or 1.5 km)	-0.3566 (-4.057)
BPKM_D	Onstreet parking within 1 km of work/study metered, dummy (\$1.25-\$5.00/hour)	-0.2258 (-1.946)
BREG_D	Registration surcharge, dummy (10c/km or 30c/km)	-0.4907 (-4.154)
BTOLLCX	Cordon toll cost - \$ (2.5, 5, 10), if crossed into toll area before 10 a.m. [interaction]	-0.1261 (-7.392)
BCOVEH	Drove company vehicle	1.0975 (4.609)
BPKCOSTL	Log (parking costs in past week + 1)	-0.1858 (-3.549)
BPKSTRE	Mainly park choose on street - free and no time limit	-0.5995 (-4.017)
BPKOTHER	Mainly parked elsewhere (2.7% chose this)	1.0381 (2.611)
BUSECARD	Used car for work that day (2 consecutive trip legs with main reason = work); 1 = Yes	0.7764 (4.915)
BGKM20S2	Distance (piecewise segment) if <20.5 km; = 20.5 km above that	0.0462 (4.644)
BTRB4NCD	Trips before work, not children to school, Dummy 1= Yes	0.7894 (4.345)
BHIGHSCD	Dummy, high school children	-0.6118 (-4.237)
BSTUDENT	Full or part-time student	-0.8883 (-3.617)
BSINU18	Single adult with children under 18	1.0592 (3.592)
BFLAT	Group of adults living together	0.9102 (2.503)
BSINGLE	Single member household	-0.9389 (-3.215)
APSGR	Constant: Passenger (in a car/private or company vehicle)	-3.5243 (-11.657)
CDF_MALE	Male	-2.2173 (-7.813)
APOOL	Constant: Car pool/ride share	-3.0517 (-9.208)
DE_PTT35	Bus and HOV (= 3+ persons) time 35% better [base = 10%]	0.2871 (2.368)
DGKM20D	Dummy, 1 if distance < 20.5 km	-1.3831 (-3.518)
AWALKPT	Constant: Walk and catch PT	-2.2703 (-8.732)
EPTR400	PT service operates within 400 meters of home/work place	0.274 (2.199)
EDISCRET	Are trips discretionary (1 = yes)?	-0.8237 (-3.04)
ESINGLE	Single member household	0.9671 (3.297)
EFLAT	Group of adults living together	1.8765 (5.087)
ESELFEMP	Self-employed	-0.5884 (-2.558)
ESTUDENT	Full or part-time student	0.5121 (2.14)
ADRIVEPT	Constant: Drive, park and ride PT	-3.3942 (-11.441)

ACYCLE	Constant: Bicycle	-4.3204 (-14.416)
AOTHER	Constant: All other	-3.4901 (-12.897)

Wellington

```

+-----+
| Discrete choice (multinomial logit) model
| Maximum Likelihood Estimates
| Dependent variable           Choice
| Weighting variable           None
| Number of observations       2094
| Iterations completed         6
| Log likelihood function      -1768.381
| Log-L for Choice model =    -1768.38132
| R2=1-LogL/LogL*   Log-L fncn  R-sqrd  RsqAdj
| Constants only    -2134.3992  .17149  .16957
| Chi-squared[23]   =          732.03567
| Prob [ chi squared > value ] = .00000
| Response data are given as ind. choice.
| Number of obs.= 2094, skipped 0 bad obs.
+-----+

```

<i>Acronym</i>	<i>Meaning</i>	<i>Parameter estimate (t-value)</i>
	Shared parameter: Extra charge in carpark lot/building (\$2.5-\$10/day), and also Onstreet parking within 1 km of work/study metered (\$1.25-\$5.00/hour)	
BPK_C_M	Onstreet parking availability restricted to <2 hrs, dummy	-0.056 (-4.8)
BPRKK_D	(0.5 or 1.5 km)	-0.263 (-2.3)
BREGC	Registration surcharge - c/km (10 or 30)	-0.011 (-2.6)
	Cordon toll \$5, if crossed into toll area before 10 a.m.	
BTOLL5X	[interaction]	-0.963 (-6.8)
	Cordon toll \$10, if crossed into toll area before 10 a.m.	
BTOLL10X	[interaction]	-1.276 (-9)
BCOVEH	Drove company vehicle	1.499 (6.2)
BHSEVEH	Drove other family/hshold vehicle	-0.674 (-2.7)
	Used car for work that day (2 consecutive trip legs with main reason = work); 1 = Yes	
BUSECARD		0.908 (6)
BPKPDSTR	Mainly park on street - meter, coupon, pay and display	-0.59 (-2.6)
BPKSTRE	Mainly park choose on street - free and no time limit	-0.385 (-2.9)
BDISCRET	Are trips discretionary (1 = yes)?	1.335 (4.2)
BCOUPLE	Couple (de facto/married)	0.523 (3.6)
BAGE40	Age 40-49	0.551 (4.3)
	Constant: Passenger (in a car/private or company vehicle)	
APSGR		-4.3 (-18.9)
CH_DISC	Are trips discretionary (1 = yes)?	2.566 (6.7)
APOOL	Constant: Car pool/ride share	-5.169 (-16.9)
AWALKPT	Constant: Walk and catch PT	-2.231 (-10.9)
	PT frequency in peak increased by 50% or 100%, dummy	
EF_FRQ_D		0.341 (2.9)
EF_PKCOL	Log (parking costs in past week + 1)	0.38 (8.5)
EPRIMARD	Dummy, primary school kid or kids	-0.491 (-3.1)
EHINPRID	Dummy, high School kid(s) Not primary	-0.864 (-3.6)
ESELFEMP	Self-employed	-0.782 (-4.2)
EF_STUDE	Full or part-time student	0.678 (2.5)
EAGE2029	Age 20-29	0.725 (5.1)
ADRIVEPT	Constant: Drive, park and ride PT	-3.764 (-16.7)
FPTR400	PT service operates within 400 meters of home/work	-0.511 (-2.4)

	place	
FDRVCHDA	Drove child to school on day scenarios concern	1.042 (5.3)
ACYCLE	Constant: Bicycle	-6.491 (-12.3)
AOTHER	Constant: All other	-4.412 (-19)

Christchurch nested logit (preferred)

```

-----+-----
FIML: Nested Multinomial Logit Model
Maximum Likelihood Estimates
Dependent variable          CHOICE
Weighting variable          None
Number of observations      15876
Iterations completed        42
Log likelihood function     -1917.375
Restricted log likelihood   -4103.698
Chi squared                 4372.646
Degrees of freedom          37
Prob[ChiSqd > value] =     .0000000
R2=1-LogL/LogL*   Log-L fncn  R-sqrd  RsqAdj
No coefficients   -4103.6983  .53277  .53150
Constants only   -2315.0277  .17177  .16951
At start values  -1929.1160  .00609  .00338
Response data are given as ind. choice.
-----+-----

```

Acronym	Meaning	Parameter estimate (t-value)
BPK_CM_D	Shared dummy: Extra charge in carpark lot/building (\$2.5-\$5/day), and also Onstreet parking parking within 1 km of work/study metered (\$1.25-\$2.50/hour)	-0.7495 (-4.712)
BPRKK_D	On street parking availability restricted to <2 hrs, dummy (0.5 or 1.5 km)	-0.5597 (-2.797)
BREG10K	Registration surcharge 10c/km	-0.639 (-2.81)
BREG30K	Registration surcharge 30c/km	-1.1664 (-4.819)
BTOL525X	Cordon toll \$2.50 or \$5, if crossed into toll area before 10 a.m. [interaction]	-1.3924 (-6.27)
BCOVEH	Drove company vehicle	1.2971 (2.495)
BPKONSBL	Mainly parked vehicle on site (employer-provided car park, other business car park, residential property) or Paid public car park (building/lot)	1.2445 (5.686)
BUSECARD	Used car for work that day (2 consecutive trip legs with main reason = work); 1 = Yes	1.3809 (4.733)
BGKM10S	Distance (piecewise segment) if <10.5 km; = 10.5 km above that	0.2599 (4.874)
BGKM10HI	Distance - 10.5 if distance > 10.5 km	0.0032 (0.265)
BSINGLE	Single member household	1.1372 (3.27)
BSINU18	Single adult with children under 18	-1.0228 (-2.903)
BEXTU18	Extended family with children under 18	-1.9845 (-3.716)
BAGE3040	Age 30-49	1.3573 (6.053)
APSGR	Constant: Passenger (in a car/private or company vehicle)	-1.336 (-1.858)
CF_MALE	Male	-2.656 (-2.91)
APOOL	Constant: Car pool/ride share	-3.2542 (-2.696)
AWALKPT	Constant: Walk and catch PT	-3.9645 (-4.399)
EPTT35	Bus and HOV (= 3+ persons) time 35% better [base = 10%]	0.5748 (2.598)
ETRB4NCD	Trips before work, not children to school, Dummy 1= Yes	0.6114 (1.731)

EDISCRET	Are trips discretionary (1 = yes)?	0.9544 (2.186)
ECOVEH	Drove company vehicle	-6.9338 (-2.953)
EDRVCHDA	Drove child to school on day scenarios concern	-1.4399 (-3.812)
EINCTOTL	Income total for household, logarithm	0.541 (3.263)
EAGE1539	Age 15-39	1.9549 (5.23)
EAGE40	Age 40-49	3.2257 (7.049)
EG_SELF	Self-employed	-2.5688 (-4.303)
EPTEMPL	Part-time employed	-0.9542 (-2.886)
ADRIVEPT	Constant: Drive, park and ride PT	-1.96 (-2.117)
ACYCLE	Constant: Bicycle	-5.642 (-4.445)
GGKM10S	Distance (piecewise segment) if <10.5 km; = 10.5 km above that	-0.0847 (-0.822)
GGKM10HI	Distance - 10.5 if distance > 10.5 km	-0.2498 (-3.078)
GCYCOWN	Owens cycle in good working order (1 = Yes)	4.8592 (6.212)
GMALE	Male	1.6367 (3.509)
AOTHER	Constant: All other	-1.4396 (-2.18)

	IV parameters, RU2 form = $\mu(j i), \gamma(i)$			
WPTCYCDR	.5111537937	.62407916E-01	8.191	.0000
OTHER	.8953444402	.33537104	2.670	.0076
	Underlying standard deviation = $\pi / (\text{IVparm} * \text{sqr}(6))$			
WPTCYCDR	2.509127029	.30634496	8.191	.0000
OTHER	1.432465253	.53656150	2.670	.0076