Online supplement to

"A Multiple Discrete Extreme Value Choice Model with Grouped Consumption Data and Unobserved Budgets"

This supplement provides the estimation results for all the models estimated for the time-use case, namely the MDCEV model, MDGEV-M1 model (at 15-minute clustering, the one reported in the paper), MDGEV-M2 model (at 30-minute clustering), MDGEV-M3 model (at 60-minute clustering) and the MDCEV-M4 model (the 60-minute cluster "midpoint" model).

Table 1. MDCEV result for time-use

Variables	Coefficient estimates (t-stats)			
	In-home Social (IHS)	Out-of-home Social (OHS)	In-home Recreational (IHR)	Out-of-home Recreational (OHR)
Household sociodemographic				
Number of kids aged 0-4 years	-	0.310 (2.99)	-	-
Number of kids aged 5-15 years	-	-0.162 (-2.04)	-	-
Number of adults	-	-	0.305 (4.05)	-
Number of household vehicles	-	-	-0.188 (-3.14)	-
Number of bicycles in the household	-	-	-	0.092 (3.52)
Household income (Base: >$60,000/yr)				
Household income less than $35,000/yr	-	-	0.665 (4.63)	-
Household income $35,000/yr-$60,000/yr	-	-	0.260 (2.34)	-
Household location attribute				
Land-use mix	-	-	0.673 (2.54)	-0.579 (-2.09)
Individual characteristics				
Female	-	-	-0.327 (-3.61)	-
Age of individual (Base: Less than 50 years)				
Age 50-65	-	-	-	-0.245 (-2.11)
Age greater than 65	-	-	0.648 (3.52)	-0.373 (-2.03)
Employed	-0.511 (-2.37)	-	-	-
Hispanic	-	0.606 (2.77)	-	-
Day and seasonal effects				
Weekend day is Sunday (Base: Saturday)	-	-	0.373 (4.13)	-
Winter (Base: Summer and Spring)	-	0.349 (1.93)	-	-0.388 (-2.05)
Fall (Base: Summer and Spring)	-	-	-	-0.279 (-2.51)
Baseline preference constant	-2.423 (-14.79)	-1.222 (-14.23)	-1.291 (-6.29)	-0.559 (-3.79)
Satiation effects				
Household size	-	-0.151 (-1.68)	-	-
Weekend day is Sunday (Base: Saturday)	-	-0.314 (-1.27)	-	-
Satiation constant	4.937 (18.85)	5.104 (17.63)	5.015 (39.72)	4.669 (37.83)

Table 2. MDGEV-M1 result for time-use (same as the one reported in the paper)

Variables	In-home Social (IHS)	Out-of-home Social (OHS)	In-home Recreational (IHR)	Out-of-home Recreational (OHR)
			Coefficient estimates (t-stats)	
Household sociodemographic				
Number of kids aged 0-4 years		0.309 (2.98)		-
Number of kids aged 5-15 years	-	-0.161 (-2.03)		-
Number of adults	-		0.312 (4.21)	-
Number of household vehicles		-	-0.191 (-3.20)	-
Number of bicycles in the household		-	-	0.092 (3.54)
Household income (Base: >$60,000/yr)				
Household income less than $35,000/yr	-	-	0.676 (4.74)	
Household income $35,000/yr-$60,000/yr	-	-	0.263 (2.37)	-
Household location attribute				
Land-use mix	-	-	0.685 (2.59)	-0.576 (-2.08)
Individual characteristics				
Female	-	-	-0.330 (-3.65)	-
Age of individual (Base: Less than 50 years)				
Age 50-65	-	-	-	-0.247 (-2.12)
Age greater than 65			0.663 (3.62)	-0.373 (-2.02)
Employed	-0.512 (-2.38)	-	-	-
Hispanic	-	0.609 (2.79)		-
Day and seasonal effects				
Weekend day is Sunday (Base: Saturday)	-		0.369 (4.09)	-
Winter (Base: Summer and Spring)		0.348 (1.97)	-	-0.388 (-2.05)
Fall (Base: Summer and Spring)		-	-	-0.278 (-2.51)
Baseline preference constant	-2.422 (-14.81)	-1.223 (-14.23)	-1.304 (-6.39)	-0.560 (-3.81)
Satiation effects				
Household size	-	-0.156 (-1.78)	-	-
Weekend day is Sunday (Base: Saturday)	-	-0.339 (-1.66)	-	-
Satiation constant	4.963 (20.13)	5.138 (18.53)	5.056 (43.48)	4.690 (39.91)

Table 3. MDGEV-M2 result for time-use

Variables	Coefficient estimates (t-stats)			
	In-home Social (IHS)	**Out-of-home Social (OHS)**	**In-home Recreational (IHR)**	**Out-of-home Recreational (OHR)**
Household sociodemographic				
Number of kids aged 0-4 years	-	0.311 (3.01)	-	-
Number of kids aged 5-15 years	-	-0.161 (-2.02)	-	-
Number of adults	-	-	0.313 (4.23)	-
Number of household vehicles	-	-	-0.191 (-3.20)	-
Number of bicycles in the household	-	-	-	0.092 (3.54)
Household income (Base: >$60,000/yr)				
Household income less than $35,000/yr	-	-	0.677 (4.74)	-
Household income $35,000/yr-$60,000/yr	-	-	0.265 (2.39)	-
Household location attribute				
Land-use mix	-	-	0.685 (2.59)	-0.581 (-2.10)
Individual characteristics				
Female	-	-	-0.331 (-3.66)	-
Age of individual (Base: Less than 50 years)				
Age 50-65	-	-	-	-0.248 (-2.13)
Age greater than 65	-	-	0.662 (3.61)	-0.378 (-2.05)
Employed	-0.512 (-2.38)	-	-	-
Hispanic	-	0.606 (2.78)	-	-
Day and seasonal effects				
Weekend day is Sunday (Base: Saturday)	-	-	0.372 (4.12)	-
Winter (Base: Summer and Spring)	-	0.349 (1.93)	-	-0.390 (-2.06)
Fall (Base: Summer and Spring)	-	-	-	-0.280 (-2.52)
Baseline preference constant	-2.422 (-14.81)	-1.223 (-14.24)	-1.306 (-6.42)	-0.557 (-3.79)
Satiation effects				
Household size	-	-0.157 (-1.81)	-	-
Weekend day is Sunday (Base: Saturday)	-	-0.361 (-1.53)	-	-
Satiation constant	4.932 (20.39)	5.120 (18.76)	5.032 (43.53)	4.663 (40.49)

Table 4. MDGEV-M3 result for time-use

Variables	Coefficient estimates (t-stats)			
	In-home Social (IHS)	Out-of-home Social (OHS)	In-home Recreational (IHR)	Out-of-home Recreational (OHR)
Household sociodemographic				
Number of kids aged 0-4 years	-	0.326 (3.13)	-	-
Number of kids aged 5-15 years	-	-0.174 (-2.17)	-	-
Number of adults	-	-	0.259 (3.14)	-
Number of household vehicles	-	-	-0.192 (-3.09)	-
Number of bicycles in the household	-	-	-	0.080 (2.98)
Household income (Base: >$60,000/yr)				
Household income less than $35,000/yr	-	-	0.554 (3.62)	-
Household income $35,000/yr-$60,000/yr	-	-	0.236 (2.00)	-
Household location attribute				
Land-use mix	-	-	0.583 (2.13)	-0.591 (-2.08)
Individual characteristics				
Female	-	-	-0.274 (-2.91)	-
Age of individual (Base: Less than 50 years)				
Age 50-65	-	-	-	-0.219 (-1.86)
Age greater than 65	-	-	0.546 (2.78)	-0.295 (-1.59)
Employed	-0.513 (-2.32)	-	-	-
Hispanic	-	0.643 (2.92)	-	-
Day and seasonal effects				
Weekend day is Sunday (Base: Saturday)	-	-	0.373 (3.96)	-
Winter (Base: Summer and Spring)	-	0.373 (2.03)	-	-0.389 (-2.04)
Fall (Base: Summer and Spring)	-	-	-	-0.247 (-2.18)
Baseline preference constant	-2.412 (-14.36)	-1.216 (-13.95)	-1.208 (-5.54)	-0.532 (-3.54)
Satiation effects				
Household size	-	-0.117 (-1.14)	-	-
Weekend day is Sunday (Base: Saturday)	-	-0.244 (-0.84)	-	-
Satiation constant	5.188 (16.59)	5.236 (14.90)	5.152 (31.80)	4.908 (32.84)

Table 5. MDCEV-M4 result for time-use

Variables	In-home Social (IHS)	Out-of-home Social (OHS)	In-home Recreational (IHR)	Out-of-home Recreational (OHR)
		Coefficient estimates (t-stats)		
Household sociodemographic				
Number of kids aged 0-4 years	-	0.310 (2.99)	-	-
Number of kids aged 5-15 years	-	-0.160 (-2.01)	-	-
Number of adults	-	-	0.302 (4.00)	-
Number of household vehicles	-	-	-0.185 (-3.10)	-
Number of bicycles in the household	-	-	-	0.092 (3.52)
Household income (Base: >$60,000/yr)				
Household income less than $35,000/yr	-	-	0.665 (4.63)	-
Household income $35,000/yr-$60,000/yr	-	-	0.260 (2.33)	-
Household location attribute				
Land-use mix	-	-	0.665 (2.51)	-0.571 (-2.06)
Individual characteristics				
Female	-	-	-0.325 (-3.58)	-
Age of individual (Base: Less than 50 years)				
Age 50-65	-	-	-	-0.244 (-2.09)
Age greater than 65	-	-	0.647 (3.50)	-0.366 (-1.99)
Employed	-0.514 (-2.39)	-	-	-
Hispanic	-	0.590 (2.68)	-	-
Day and seasonal effects				
Weekend day is Sunday (Base: Saturday)	-	-	0.375 (4.15)	-
Winter (Base: Summer and Spring)	-	0.341 (1.88)	-	-0.389 (-2.06)
Fall (Base: Summer and Spring)	-	-	-	-0.275 (-2.48)
Baseline preference constant	-2.421 (-14.81)	-1.221 (-14.20)	-1.290 (-6.26)	-0.564 (-3.82)
Satiation effects				
Household size	-	-0.123 (-1.37)	-	-
Weekend day is Sunday (Base: Saturday)	-	-0.316 (-1.22)	-	-
Satiation constant	4.994 (18.25)	5.109 (16.83)	5.053 (38.90)	4.710 (36.95)