Econ 613 A2 Pdf Output

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Exercise 1:

Average of product characteristics:

PPk_Stk	PBB_Stk	PFl_Stk	PHse_Stk	PGen_Stk	PImp_Stk	PSS_Tub	PPk_Tub	PFl_Tub	PHse_Tub
0.5184362	0.5432103	1.0150201	0.4371477	0.3452819	0.7807785	0.8250895	1.0774094	1.1893758	0.5686734

Standard deviation of product characteristics:

PPk_Stk	PBB_Stk	PFl_Stk	PHse_Stk	PGen_Stk	PImp_Stk	PSS_Tub	PPk_Tub	PFl_Tub	PHse_Tub
0.15051740	0.12033186	0.04289519	0.11883123	0.03516605	0.11464607	0.06121159	0.02972613	0.01405451	0.07245500

Market Share (in percents):

1	2	3	4	5	6	7	8	9	10
39.507830	15.637584	5.436242	13.266219	7.046980	1.655481	7.136465	4.541387	5.033557	0.738255

Note that 1 indicates product 1 (PPk_Stk), 2 indicates product 2 (PBB_Stk), etc.

Market Share of products whose price is below mean (in percents):

1	2	4	5	6	7	10
50.2418208	19.8862020	16.8705548	8.9615932	1.1095306	1.9914651	0.9388336

Market Share of products whose price is above mean (in percents):

3	6	7	8	9
25.445026	3.664921	26.073298	21.256545	23.560209

Mapping between observed attributes and choices:

Low-income households (in percents):

1	2	3	4	5	6	7	8	9	10
39.9152542	16.3983051	4.8728814	14.6186441	8.1355932	0.7627119	7.5423729	2.9661017	4.1949153	0.5932203

Medium-income households (in percents):

1	2	3	4	5	6	7	8	9	10
41.448468	14.874652	6.128134	11.086351	6.016713	2.674095	6.740947	4.902507	5.125348	1.002786

High-income households (in percents):

1	2	3	4	5	6	7	8	9	10
25.3968254	14.2857143	5.7142857	15.5555556	4.7619048	2.5396825	6.3492063	14.2857143	10.7936508	0.3174603

College graduates:

1	2	3	4	5	6	7	8	9	10
39.674682	15.487977	7.779349	12.305516	6.082037	2.263083	7.284300	3.677511	4.384724	1.060820

Did not graduate from college:

1	2	3	4	5	6	7	8	9	10
39.4306283	15.7068063	4.3520942	13.7107330	7.4934555	1.3743455	7.0680628	4.9410995	5.3337696	0.5890052

Retired:

```
        1         2         3         4         5         6         7         8         9        10
36.4389234 17.3913043 13.3540373  9.4202899  4.7619048  2.8985507  4.8654244  2.0703934  8.3850932  0.4140787
```

Family size less than 3:

```
        1         2         3         4         5         6         7         8         9        10
37.0238095 15.5357143  9.5833333 10.5357143  3.8690476  1.9642857  8.4523810  4.1666667  8.6904762  0.1785714
```

Family size of 3 or 4:

```
        1         2         3         4         5         6         7         8         9        10
41.2625801 16.4684355  2.8362306 13.6322049  8.5544373  0.8234218  7.1820677  5.5809698  3.1107045  0.5489478
```

Family size of 5 or more:

```
        1         2         3         4         5         6         7         8         9        10
40.066225 12.913907  3.311258 19.536424 10.430464  3.807947  3.311258  1.821192  1.821192  2.980132
```

Exercise 2:

Estimated parameters:

```
 [1] -0.9543068  1.2969677 -1.7173323 -2.9040047 -1.5153115  0.2517680  1.4648677  2.3575041 -3.8965933
[10] -6.6565784
```

Coefficient estimate for price:

```
[1] -6.656578
```

For optimization and interpretation, see code.

Exercise 3:

Beta estimates for family income:

```
[1] -0.001750137  0.024167789  0.001781635 -0.008171016  0.033891281 -0.004458538  0.028911962  0.030483107
[9] -3.611081569
```

For optimization and interpretation, see code.

Exercise 4:

Conditional logit marginal effects:

```
 [1] -1.28526721  0.29536989  0.12071093  0.29508347  0.15622709  0.03732050  0.15359654  0.09929462  0.11082077
[10]  0.01684340
```

Multinomial marginal effects:

Income:

```
[1] -1.403947e-03 -8.503491e-04  9.755901e-04 -1.838371e-04 -7.745915e-04  4.649255e-04 -5.766467e-04
[8]  1.114613e-03  1.235336e-03 -1.092789e-06
```

Whitecollar:

```
[1] -3.196782e-02 -1.685811e-02  2.744240e-02 -7.111310e-03  4.507271e-02 -4.527605e-04 -1.165787e-02
[8] -1.972419e-02  1.525673e-02  2.205414e-07
```

College:

```
[1]  2.025524e-02  1.221154e-02  3.271138e-02 -1.864835e-02 -2.583939e-02  5.133028e-03  8.851954e-03
[8] -2.003059e-02 -1.464495e-02  1.404424e-07
```

Retired:

```
[1] -2.942281e-02  1.926110e-02  8.294617e-02 -2.048099e-02  1.499868e-02  2.064612e-02 -5.758186e-02
[8] -5.300869e-02  2.264251e-02 -2.287607e-07
```

Family Size:

```
[1]  1.402879e-02  4.487689e-03 -1.613545e-02  2.509298e-02  2.299616e-02  1.444748e-03 -1.503662e-02
[8] -8.373697e-03 -2.850480e-02  2.081221e-07
```

Exercise 5:

See code for model optimization and interpretation.

Parameter estimates for the full mixed model:

```
 [1]  2.351742559  3.875686258  0.964885310 -0.964603181  0.253210918  4.464590197  5.412184114  6.427303809
 [9] -4.594323454 -6.291185264 -0.410988906 -0.025286944  0.791291490  0.089770608  0.716164762  0.348726783
[17] -0.129806387 -0.185316495  0.593749125  2.139308019  0.390169856  1.146361814  0.152861648 -0.083395518
[25]  0.955036942  0.413495211  0.111590480  0.261394648  0.367009917  0.104167680  1.690489054 -0.194154456
[33]  0.256391940  1.359523179 -0.871582607 -1.111878943  0.558701525 -0.009918552 -0.293283691  0.182257988
[41]  0.306744290  0.181400181 -0.270041390 -0.150356568 -0.532236883  0.602112682  0.935299803
```

Parameter estimates for the restricted mixed model:

```
 [1]   2.362942676   3.636271194   0.920596550  -0.794959903  -0.077962071   4.498825776   2.890946301
 [8]   6.000773270  -6.262270094  -0.107173161  -0.002204389   0.767733692   0.038090141   0.677052636
[15]   0.227684475  -0.061068198 -37.813191279   0.345035940  -0.001345994   0.026074262   0.001053802
[22]  -0.009694297   0.032912681  -0.004697926   0.061377983   0.027176140   0.116238230   1.701996166
[29]  -0.174308741   0.269165047   1.380180849  -0.857897949  -0.481091120   0.588020245  -0.003421088
[36]  -0.368192415   0.177655227   0.303874717   0.047257855  -0.250979603   0.062047481  -0.631737076
```

Mtt value I found:

```
[1] -91150.76
```