Supplementary Materials: Social Networks and Choice Set Formation in Discrete Choice Models

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1. Distributions of Choice Sets

Obviously, knowledge about an alternative is a necessary condition for choice. As a result, consideration sets are an alternative channel through which advertising can affect sales in addition to its more traditional role of shaping preferences (Draganska and Klapper [1]). Not surprisingly, there is growing interest from both scholars and companies in tracking consumers' choice sets. Often, information about consideration sets are not available and the distribution of choice sets in a certain market must be estimated.

This section examines the distribution of choice sets arising from the first stage of our discrete choice models with probabilistic CSF and network effects. First we examine experiments where the data generating process (DGP) corresponds to the SNE framework. We compare the average distributions of choice sets predicted using the SNE and IAL estimates with the true average distribution of choice sets. Next, we repeat this exercise for the DNE experiments, then comparing DNE and IAL estimates with the true average distribution of choice sets generated by the DNE DGP.

In each experiment, a *representative distribution* of choice sets is obtained as follows. As we know the error draws, quality, network quality, and the parameters τ_0 and τ_1 for each replication (in each experiment), we can evaluate the cutoff property $\left((1-\tau_1)q_{nj} + \tau_1\tilde{q}_{nj} > \tau_0 + \xi_{nj}\right)$ to observe "true" availability of alternative j to decision maker n. Therefore, we know how many individuals (out of the total 2000) face each possible choice set. Next, we construct 400 distributions of choice set (one for each replication), and average each choice set proportion over the 400 replications to obtain a representative distribution for each experiment.

A similar procedure is used to obtain a predicted representative distribution for the SNE model. As opposed to using the true values θ in the cutoff condition, we use the expected value of the SNE estimates to *predict* availability, i.e., as the econometrician would, we evaluate the bottom expression of Equation (9) using SNE estimates $\hat{\mu}$, $\hat{\tau}_0$ and $\hat{\tau}_1$. We make similar predictions for the IAL. In this case, however, we use IAL estimates of τ_0 to predict availability ignoring social network effects, i.e., assuming $\tau_1 = 0$. After obtaining predicted availability of all alternatives j to all decision makers n in all replications r, we construct the two predicted distributions of choice sets in each replication, and average each choice set proportion over the 400 replications to obtain a experiment-level predicted distribution.

Table S1 shows the three representative distributions for two experiments, one with low and one with high degree of social interaction in CSF ($\tau_1 = 0.2$ and $\tau_1 = 0.8$, respectively). We also compute these distributions using data before and after the hypothetical project that increases quality of alternative 2. The table shows that the distributions predicted by the SNE models are very similar to the true distributions in both experiments, with data before and after the project. In general, the RMSEs of the SNE proportions are smaller than those obtained from the IAL model.

The IAL distribution performs well when the degree of social interaction in CSF is low ($\tau_1 = 0.2$) and predictions are based on before project data. When social interaction is high ($\tau_1 = 0.8$), the IAL model based on before project data underestimates the proportion of single-alternative choice sets (i.e., {1}, {2}, {3}) and overestimates the proportion of the reminder sets. For instance, while the true proportion of individuals facing the set with all alternatives is 0.130, the IAL prediction is 0.169. In contrast, the SNE prediction matches the true proportion of 0.130.

For both high and low τ_1, the results show that it is problematic to use IAL estimates to forecast the effects of projects on the distribution of choice sets. In several cases, the after policy IAL proportions are significantly different from their true counterparts. The IAL forecasts of the choice

set distributions are especially problematic when τ_1 is high and proportions estimates are incredibly imprecise. For instance, the proportional RMSE of the IAL estimate for the share of individuals facing choice set {1,3} is 2.964, i.e., a mean error of almost 300%.

Therefore, if the objective of research is to obtain estimates of the distribution of choice sets, the standard IAL model delivers reasonable distributions for cases with low degrees of social interaction in CSF. If information about the approximate level of τ_1 is available and researches find themselves in low τ_1 environments, researchers may consider the possibility of not collecting social network data when the goal is solely to estimate choice set distribution. While these results are academically interesting, in practice, researches would hardly find themselves in a position where they would benefit from this type of diminished data requirement.

Tables S2 and S3 show the representative choice set distributions for DNE experiments with ($\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$) and ($\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$), respectively. The tables report average predicted shares for each choice set in experiments with low and high degrees of social interaction in CSF (τ_1 equal to 0.2 and 0.8), with data before and after the hypothetical policy change discussed in Section 4.

The DNE estimates show little biases in all cases. In general, the proportional RMSEs of DNE estimates are smaller than those of the IAL model. The two set of estimates show similar performance in the experiment ($\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$, $\tau_1 = 0.2$), when using before project data. In the other settings the performance of the IAL is compromised.

Notably, the IAL estimates of choice set shares show large biases when either levels of social interactions α_1 or τ_1 are high. For instance, in experiment ($\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$, $\tau_1 = 0.8$), the DNE model forecasts the after project shares with biases smaller than 1.5% (see Table S2). In the same experiment, the IAL forecast biases are large. For example, the IAL underestimates the share of choice set {2,3} by 16% (0.214 out of 0.255) and overestimates the share of choice set {1} by more than 318% (0.046 out of 0.011). The IAL model estimates these same shares with even more bias in the experiment ($\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$, $\tau_1 = 0.8$), Table S3. Specifically, in this high social interaction setting, the IAL underestimates the share of choice set {2,3} by 18.4% (0.208 out of 0.255) and overestimates the share of choice set {1} by more 436% (0.059 out of 0.011). These biases sharply contrast with the forecasts of the DNE model that for most choice sets show no bias, and for a few others a deviation of less than 0.5%. In terms of efficiency, in general, the variance of the IAL estimates are very large and proportional RMSEs are greater than 4 for some shares in the high α_1 and τ_1 experiment (see last column of Table S3).

Table S1. SNE DGP—Representative choice set distributions of True, SNE, and IAL models, before and after the policy change.

Choice Set	$\tau_1 = 0.2$						$\tau_1 = 0.8$					
	Before			**After**			**Before**			**After**		
	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL
{1}	0.151	0.151 (0.064)	0.153 (0.066)	0.027	0.027 (0.145)	0.037 (0.391)	0.144	0.145 (0.088)	0.133 (0.176)	0.011	0.011 (0.206)	0.043 (2.809)
{2}	0.158	0.158 (0.061)	0.159 (0.063)	0.238	0.239 (0.075)	0.236 (0.070)	0.151	0.152 (0.086)	0.137 (0.175)	0.244	0.247 (0.113)	0.196 (0.231)
{3}	0.169	0.169 (0.061)	0.169 (0.060)	0.029	0.030 (0.145)	0.040 (0.381)	0.169	0.169 (0.086)	0.144 (0.188)	0.013	0.013 (0.205)	0.046 (2.621)
{1,2}	0.125	0.125 (0.034)	0.125 (0.033)	0.214	0.213 (0.010)	0.208 (0.031)	0.125	0.124 (0.043)	0.134 (0.090)	0.221	0.220 (0.007)	0.200 (0.097)
{1,3}	0.137	0.136 (0.035)	0.135 (0.036)	0.027	0.027 (0.060)	0.036 (0.325)	0.141	0.140 (0.045)	0.142 (0.060)	0.012	0.012 (0.111)	0.047 (2.964)
{2,3}	0.135	0.134 (0.035)	0.133 (0.036)	0.236	0.235 (0.012)	0.226 (0.043)	0.140	0.139 (0.046)	0.142 (0.062)	0.255	0.253 (0.010)	0.214 (0.158)
{1,2,3}	0.125	0.126 (0.127)	0.124 (0.128)	0.228	0.229 (0.098)	0.218 (0.112)	0.130	0.130 (0.169)	0.169 (0.430)	0.244	0.244 (0.123)	0.254 (0.254)

Proportional RMSEs are in parentheses.

Table S2. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, before and after the policy change (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$).

Choice Set	τ_1 = 0.2						τ_1 = 0.8					
	Before			After			Before			After		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.151	0.151 (0.063)	0.154 (0.063)	0.027	0.026 (0.142)	0.037 (0.400)	0.144	0.145 (0.078)	0.139 (0.156)	0.011	0.011 (0.192)	0.046 (3.102)
{2}	0.158	0.158 (0.060)	0.160 (0.059)	0.239	0.238 (0.074)	0.238 (0.065)	0.151	0.152 (0.075)	0.143 (0.151)	0.246	0.249 (0.099)	0.207 (0.194)
{3}	0.169	0.168 (0.060)	0.170 (0.057)	0.029	0.029 (0.141)	0.040 (0.386)	0.168	0.170 (0.075)	0.151 (0.155)	0.013	0.013 (0.189)	0.049 (2.862)
{1,2}	0.125	0.125 (0.033)	0.125 (0.032)	0.214	0.214 (0.01)	0.208 (0.032)	0.125	0.124 (0.037)	0.132 (0.079)	0.221	0.220 (0.006)	0.200 (0.096)
{1,3}	0.137	0.137 (0.034)	0.135 (0.035)	0.027	0.027 (0.059)	0.036 (0.319)	0.141	0.140 (0.040)	0.140 (0.060)	0.012	0.012 (0.106)	0.048 (2.950)
{2,3}	0.135	0.135 (0.035)	0.133 (0.035)	0.236	0.236 (0.011)	0.226 (0.044)	0.141	0.140 (0.040)	0.140 (0.061)	0.255	0.254 (0.009)	0.214 (0.161)
{1,2,3}	0.125	0.127 (0.125)	0.123 (0.120)	0.228	0.230 (0.097)	0.216 (0.107)	0.129	0.128 (0.150)	0.154 (0.353)	0.242	0.241 (0.110)	0.236 (0.239)

Proportional RMSEs are in parentheses.

Table S3. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, before and after the policy change (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$)

Choice Set	τ_1 = 0.2						τ_1 = 0.8					
	Before			After			Before			After		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.151	0.151 (0.043)	0.169 (0.126)	0.027	0.027 (0.106)	0.044 (0.668)	0.144	0.145 (0.054)	0.167 (0.174)	0.011	0.011 (0.149)	0.059 (4.334)
{2}	0.158	0.158 (0.041)	0.176 (0.118)	0.239	0.239 (0.051)	0.266 (0.122)	0.151	0.152 (0.052)	0.171 (0.149)	0.246	0.247 (0.069)	0.256 (0.092)
{3}	0.169	0.169 (0.041)	0.186 (0.109)	0.029	0.029 (0.106)	0.048 (0.647)	0.168	0.169 (0.052)	0.181 (0.100)	0.013	0.013 (0.147)	0.064 (4.009)
{1,2}	0.125	0.125 (0.023)	0.118 (0.067)	0.214	0.214 (0.008)	0.202 (0.057)	0.125	0.125 (0.025)	0.122 (0.052)	0.221	0.221 (0.004)	0.194 (0.122)
{1,3}	0.137	0.137 (0.024)	0.127 (0.076)	0.027	0.027 (0.048)	0.037 (0.370)	0.141	0.140 (0.027)	0.129 (0.089)	0.012	0.012 (0.086)	0.049 (3.034)
{2,3}	0.135	0.135 (0.024)	0.125 (0.077)	0.236	0.236 (0.009)	0.220 (0.070)	0.141	0.141 (0.027)	0.128 (0.097)	0.255	0.254 (0.006)	0.208 (0.186)
{1,2,3}	0.125	0.126 (0.085)	0.100 (0.215)	0.228	0.229 (0.067)	0.183 (0.204)	0.129	0.129 (0.105)	0.102 (0.248)	0.242	0.241 (0.078)	0.170 (0.311)

Proportional RMSEs are in parentheses.

2. Additional Tables of Experimental Results

Table S4. SNE DGP—Representative choice set distributions of True, SNE, and IAL models, BEFORE the policy change.

Choice Set	$\tau_1 = 0.2$			$\tau_1 = 0.4$			$\tau_1 = 0.5$			$\tau_1 = 0.6$			$\tau_1 = 0.8$		
	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL
{1}	0.151	0.151 (0.064)	0.153 (0.066)	0.149	0.149 (0.077)	0.151 (0.078)	0.148	0.148 (0.077)	0.148 (0.083)	0.147	0.147 (0.077)	0.144 (0.087)	0.144	0.145 (0.088)	0.133 (0.176)
{2}	0.158	0.158 (0.061)	0.159 (0.063)	0.156	0.156 (0.074)	0.157 (0.074)	0.155	0.155 (0.074)	0.154 (0.080)	0.154	0.154 (0.074)	0.149 (0.087)	0.151	0.152 (0.086)	0.137 (0.175)
{3}	0.169	0.169 (0.061)	0.169 (0.060)	0.169	0.169 (0.075)	0.166 (0.074)	0.169	0.169 (0.075)	0.163 (0.081)	0.169	0.169 (0.075)	0.157 (0.096)	0.169	0.169 (0.086)	0.144 (0.188)
{1,2}	0.125	0.125 (0.034)	0.125 (0.033)	0.125	0.125 (0.040)	0.127 (0.043)	0.125	0.125 (0.039)	0.129 (0.048)	0.125	0.125 (0.039)	0.131 (0.057)	0.125	0.124 (0.043)	0.134 (0.090)
{1,3}	0.137	0.136 (0.035)	0.135 (0.036)	0.138	0.138 (0.041)	0.137 (0.041)	0.139	0.138 (0.041)	0.138 (0.042)	0.139	0.139 (0.040)	0.140 (0.040)	0.141	0.140 (0.045)	0.142 (0.060)
{2,3}	0.135	0.134 (0.035)	0.133 (0.036)	0.136	0.135 (0.042)	0.135 (0.042)	0.137	0.136 (0.042)	0.137 (0.043)	0.137	0.137 (0.041)	0.139 (0.042)	0.140	0.139 (0.046)	0.142 (0.062)
{1,2,3}	0.125	0.126 (0.127)	0.124 (0.128)	0.126	0.128 (0.153)	0.128 (0.151)	0.127	0.129 (0.153)	0.132 (0.164)	0.128	0.129 (0.151)	0.140 (0.187)	0.130	0.130 (0.169)	0.169 (0.430)

Proportional RMSEs are in parentheses.

Table S5. SNE DGP—Representative choice set distributions of True, SNE, and IAL models, AFTER the policy change.

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL
{1}	0.027	0.027 (0.145)	0.037 (0.391)	0.020	0.020 (0.177)	0.039 (0.939)	0.017	0.018 (0.180)	0.040 (1.294)	0.015	0.015 (0.183)	0.040 (1.665)	0.011	0.011 (0.206)	0.043 (2.809)
{2}	0.238	0.239 (0.075)	0.236 (0.070)	0.241	0.242 (0.094)	0.232 (0.092)	0.242	0.243 (0.095)	0.226 (0.103)	0.243	0.244 (0.096)	0.217 (0.128)	0.244	0.247 (0.113)	0.196 (0.231)
{3}	0.029	0.030 (0.145)	0.040 (0.381)	0.022	0.023 (0.176)	0.043 (0.908)	0.019	0.020 (0.180)	0.044 (1.244)	0.017	0.017 (0.183)	0.044 (1.588)	0.013	0.013 (0.205)	0.046 (2.621)
{1,2}	0.214	0.213 (0.010)	0.208 (0.031)	0.218	0.217 (0.009)	0.206 (0.053)	0.219	0.218 (0.008)	0.206 (0.061)	0.220	0.219 (0.007)	0.206 (0.066)	0.221	0.220 (0.007)	0.200 (0.097)
{1,3}	0.027	0.027 (0.060)	0.036 (0.325)	0.021	0.021 (0.080)	0.039 (0.846)	0.018	0.018 (0.089)	0.040 (1.208)	0.016	0.016 (0.097)	0.042 (1.650)	0.012	0.012 (0.111)	0.047 (2.964)
{2,3}	0.236	0.235 (0.012)	0.226 (0.043)	0.243	0.242 (0.011)	0.224 (0.079)	0.246	0.245 (0.010)	0.223 (0.095)	0.249	0.248 (0.009)	0.222 (0.109)	0.255	0.253 (0.010)	0.214 (0.158)
{1,2,3}	0.228	0.229 (0.098)	0.218 (0.112)	0.235	0.236 (0.114)	0.218 (0.128)	0.237	0.239 (0.112)	0.221 (0.134)	0.240	0.241 (0.110)	0.230 (0.135)	0.244	0.244 (0.123)	0.254 (0.254)

Proportional RMSEs are in parentheses.

Table S6. SNE DGP—Market shares of True, SNE, and IAL models, BEFORE and AFTER the policy change.

Before Policy Change:															
Consumer Choice	$\tau_1 = 0.2$			$\tau_1 = 0.4$			$\tau_1 = 0.5$			$\tau_1 = 0.6$			$\tau_1 = 0.8$		
	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL
{1}	0.407	0.407 (0.015)	0.407 (0.014)	0.406	0.406 (0.017)	0.407 (0.016)	0.405	0.405 (0.018)	0.406 (0.016)	0.405	0.404 (0.019)	0.405 (0.016)	0.402	0.401 (0.020)	0.403 (0.020)
{2}	0.327	0.326 (0.013)	0.327 (0.015)	0.326	0.326 (0.013)	0.326 (0.017)	0.326	0.326 (0.013)	0.326 (0.018)	0.326	0.326 (0.013)	0.325 (0.018)	0.325	0.325 (0.012)	0.324 (0.022)
{3}	0.266	0.266 (0.020)	0.266 (0.018)	0.268	0.268 (0.022)	0.267 (0.020)	0.269	0.269 (0.024)	0.268 (0.021)	0.270	0.270 (0.022)	0.269 (0.019)	0.273	0.274 (0.024)	0.273 (0.026)
After Policy Change:															
Consumer Choice	$\tau_1 = 0.2$			$\tau_1 = 0.4$			$\tau_1 = 0.5$			$\tau_1 = 0.6$			$\tau_1 = 0.8$		
	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL
{1}	0.245	0.245 (0.032)	0.251 (0.036)	0.239	0.239 (0.038)	0.251 (0.056)	0.235	0.235 (0.039)	0.250 (0.064)	0.232	0.231 (0.042)	0.249 (0.077)	0.224	0.221 (0.045)	0.248 (0.114)
{2}	0.644	0.643 (0.014)	0.630 (0.023)	0.655	0.655 (0.015)	0.627 (0.043)	0.661	0.660 (0.015)	0.626 (0.052)	0.666	0.667 (0.015)	0.624 (0.064)	0.678	0.681 (0.016)	0.615 (0.093)
{3}	0.111	0.112 (0.031)	0.119 (0.075)	0.106	0.107 (0.030)	0.122 (0.147)	0.104	0.104 (0.026)	0.124 (0.193)	0.102	0.102 (0.022)	0.127 (0.247)	0.098	0.098 (0.021)	0.136 (0.393)

Proportional RMSEs are in parentheses.

Table S7. SNE DGP—HANGES in market share of True, SNE and IAL models.

Consumer Choice	$\tau_1 = 0.2$			$\tau_1 = 0.4$			$\tau_1 = 0.5$			$\tau_1 = 0.6$			$\tau_1 = 0.8$		
	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL	True	SNE	IAL
{1}	−0.163	−0.162 (0.022)	−0.157 (0.044)	−0.168	−0.167 (0.022)	−0.156 (0.068)	−0.170	−0.170 (0.021)	−0.156 (0.081)	−0.173	−0.173 (0.018)	−0.156 (0.096)	−0.179	−0.179 (0.018)	−0.154 (0.137)
{2}	0.317	0.317 (0.017)	0.304 (0.044)	0.329	0.329 (0.020)	0.301 (0.084)	0.335	0.334 (0.020)	0.300 (0.103)	0.341	0.341 (0.021)	0.298 (0.125)	0.353	0.355 (0.024)	0.291 (0.177)
{3}	−0.155	−0.155 (0.019)	−0.147 (0.050)	−0.161	−0.161 (0.027)	−0.145 (0.101)	−0.165	−0.164 (0.03)	−0.144 (0.127)	−0.168	−0.168 (0.032)	−0.142 (0.155)	−0.175	−0.176 (0.038)	−0.137 (0.218)

Proportional RMSEs are in parentheses.

Table S8. DNE DGP—Mean parameter estimates (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$.)

DNE:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0052 (0.0440)	2.0109 (0.0445)	2.0063 (0.0433)	1.9923 (0.0430)	2.0029 (0.0392)
ASC2 {1}	1.0111 (0.0554)	1.0112 (0.0552)	1.0062 (0.0503)	1.0020 (0.0470)	1.0041 (0.0384)
Price {−3}	−2.9827 (0.0495)	−3.0090 (0.0507)	−2.9933 (0.0475)	−3.0005 (0.0449)	−2.9981 (0.0471)
Own quality {4}	4.0323 (0.0550)	3.9928 (0.0493)	4.0200 (0.0544)	3.9845 (0.0474)	3.9949 (0.0425)
Network quality {1}	1.0004 (0.0075)	1.0002 (0.0075)	1.0008 (0.0076)	1.0002 (0.0058)	1.0007 (0.0055)
τ_0 {0.5}	0.4989 (0.0373)	0.5019 (0.0375)	0.4995 (0.0390)	0.5002 (0.0371)	0.5016 (0.0325)
τ_1 {varied}	0.2001 (0.0130)	0.4011 (0.0308)	0.5005 (0.0408)	0.5974 (0.0411)	0.8018 (0.0393)
μ {10}	10.1066 (0.0387)	10.0772 (0.0400)	10.0078 (0.0413)	10.0460 (0.0409)	10.0806 (0.0419)
IAL:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	1.9856 (0.0544)	1.9637 (0.0730)	1.8922 (0.0893)	1.8033 (0.1251)	1.7339 (0.1966)
ASC2 {1}	0.9959 (0.0741)	0.9698 (0.0924)	0.9279 (0.1173)	0.8716 (0.1632)	0.8177 (0.2536)
Price {−3}	−3.0054 (0.0659)	−2.9831 (0.0842)	−2.8890 (0.1009)	−2.7934 (0.1258)	−2.7541 (0.1909)
Own Quality {4}	4.2493 (0.0903)	4.3142 (0.1117)	4.3561 (0.1244)	4.3446 (0.1307)	4.2888 (0.1635)
τ_0 {0.5}	0.5043 (0.0407)	0.5036 (0.0547)	0.4941 (0.0628)	0.4849 (0.0667)	0.4731 (0.1268)
μ {10}	9.0302 (0.0982)	7.7877 (0.2212)	7.1943 (0.2806)	6.6494 (0.3351)	5.3475 (0.4653)

Proportional RMSEs are in parentheses. True parameter values are in curly brackets.

Table S9. DNE DGP—Mean parameter estimates (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

DNE:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0083 (0.0442)	2.0088 (0.0461)	2.0031 (0.0378)	2.0047 (0.0414)	1.9995 (0.0357)
ASC2 {1}	1.0075 (0.0528)	1.0090 (0.0521)	1.0042 (0.0402)	1.0055 (0.0455)	0.9991 (0.0339)
Price {−3}	−2.9940 (0.0486)	−3.0164 (0.0503)	−2.9837 (0.0429)	−3.0126 (0.0445)	−2.9995 (0.0393)
Own quality {3}	3.0269 (0.0536)	3.0049 (0.0433)	3.0042 (0.0413)	2.9824 (0.0371)	3.0188 (0.0342)
Network quality {2}	2.0067 (0.0178)	2.0034 (0.0146)	2.0004 (0.0140)	1.9957 (0.0124)	2.0043 (0.0110)
τ_0 {0.5}	0.4995 (0.0342)	0.5022 (0.0315)	0.4996 (0.0346)	0.4999 (0.0306)	0.5013 (0.0298)
τ_1 {varied}	0.2004 (0.0130)	0.4011 (0.0297)	0.4997 (0.0350)	0.5975 (0.0422)	0.8008 (0.0374)
μ {10}	10.1204 (0.0401)	10.0708 (0.0399)	10.0337 (0.0404)	10.0539 (0.0398)	10.0395 (0.0371)
IAL:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	1.9812 (0.0592)	1.9657 (0.0763)	1.9072 (0.0964)	1.8590 (0.1412)	1.8393 (0.1859)
ASC2 {1}	0.9944 (0.0735)	0.9627 (0.0932)	0.9220 (0.1342)	0.9013 (0.1785)	0.8828 (0.2332)
Price {−3}	−3.0229 (0.0622)	−3.0121 (0.0864)	−2.9409 (0.1090)	−2.9102 (0.1335)	−2.9503 (0.1876)
Own quality {3}	3.4050 (0.1404)	3.5361 (0.1851)	3.7306 (0.2539)	3.7478 (0.2694)	3.7583 (0.2801)
τ_0 {0.5}	0.5109 (0.0433)	0.5104 (0.0583)	0.4974 (0.0706)	0.4920 (0.0746)	0.4890 (0.1201)
μ {10}	9.0455 (0.0966)	7.8712 (0.2129)	7.2300 (0.277)	6.6505 (0.335)	5.3322 (0.4668)

Proportional RMSEs are in parentheses. True parameter values are in curly brackets.

Table S10. DNE DGP—Mean parameter estimates (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

DNE:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0053 (0.0429)	2.0143 (0.0436)	1.9979 (0.0369)	2.002 (0.0394)	1.9977 (0.0349)
ASC2 {1}	1.0058 (0.0475)	1.0115 (0.0481)	1.0034 (0.0438)	1.006 (0.0434)	1.0011 (0.0319)
Price {−3}	−2.9979 (0.048)	−3.0108 (0.0476)	−2.9912 (0.0432)	−3.0163 (0.0421)	−3.0011 (0.0357)
Own quality {2.5}	2.5074 (0.0408)	2.5119 (0.0362)	2.4995 (0.0346)	2.49 (0.0356)	2.5068 (0.0300)
Network quality {2.5}	2.5044 (0.0261)	2.5032 (0.0184)	2.5023 (0.022)	2.4834 (0.0177)	2.5109 (0.0164)
τ_0 {0.5}	0.5001 (0.0326)	0.5014 (0.0299)	0.4993 (0.0298)	0.5001 (0.0311)	0.5008 (0.0277)
τ_1 {varied}	0.2015 (0.0178)	0.4015 (0.0327)	0.5002 (0.0376)	0.598 (0.0401)	0.8008 (0.0363)
μ {10}	10.1135 (0.0384)	10.0637 (0.0397)	10.0368 (0.0388)	10.0783 (0.0397)	10.0475 (0.0375)
IAL:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0021 (0.0720)	1.9726 (0.0753)	1.9154 (0.0974)	1.8741 (0.1314)	1.7650 (0.1712)
ASC2 {1}	1.0068 (0.0896)	0.9736 (0.1022)	0.9359 (0.1346)	0.9187 (0.1701)	0.8538 (0.2126)
Price {−3}	−3.0791 (0.0771)	−3.0421 (0.0826)	−2.9807 (0.1032)	−2.9439 (0.1287)	−2.8302 (0.1613)
Own quality {2.5}	3.0340 (0.2148)	3.1055 (0.2445)	3.3559 (0.3465)	3.4283 (0.3818)	3.4482 (0.3896)
τ_0 {0.5}	0.5154 (0.0493)	0.5149 (0.0625)	0.502 (0.0697)	0.4964 (0.0719)	0.4871 (0.1066)
μ {10}	9.0521 (0.0952)	7.8937 (0.2106)	7.2515 (0.2748)	6.6577 (0.3342)	5.3944 (0.4606)

Proportional RMSEs are in parentheses. True parameter values are in curly brackets.

Table S11. DNE DGP—Mean parameter estimates (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

DNE:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0108 (0.0411)	2.0081 (0.0427)	2.0010 (0.0401)	2.0005 (0.0406)	1.9975 (0.0365)
ASC2 {1}	1.0077 (0.0460)	1.0086 (0.0520)	1.0024 (0.0473)	1.0066 (0.0471)	1.0011 (0.0365)
Price {−3}	−3.0019 (0.0436)	−3.0039 (0.0494)	−2.9964 (0.0450)	−3.0115 (0.0454)	−3.0061 (0.0398)
Own quality {2}	2.0008 (0.0338)	2.0180 (0.0332)	1.9993 (0.0343)	1.9925 (0.0337)	1.9990 (0.0242)
Net quality {3}	3.0248 (0.0288)	3.0199 (0.0269)	2.994 (0.0275)	2.9940 (0.0206)	3.0108 (0.0214)
τ_0 {0.5}	0.5008 (0.0312)	0.5006 (0.0294)	0.499 (0.0284)	0.5010 (0.0286)	0.5010 (0.027)
τ_1 {varied}	0.2005 (0.0165)	0.3992 (0.0339)	0.5015 (0.0375)	0.5999 (0.0413)	0.8008 (0.0409)
μ {10}	10.0912 (0.0374)	10.0491 (0.0389)	10.0527 (0.0401)	10.0799 (0.041)	10.0405 (0.0407)
IAL:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0160 (0.0760)	2.0019 (0.0746)	1.9514 (0.0982)	1.9212 (0.1275)	1.8042 (0.1781)
ASC2 {1}	1.0050 (0.1028)	0.9897 (0.0991)	0.9529 (0.1307)	0.9420 (0.1603)	0.8669 (0.2268)
Price {−3}	−3.1152 (0.0858)	−3.0944 (0.0846)	−3.0419 (0.1034)	−3.0346 (0.1336)	−2.9249 (0.1728)
Own quality {2}	2.5642 (0.2852)	2.5845 (0.2926)	2.8655 (0.4359)	3.0166 (0.5138)	3.1547 (0.5796)
τ_0 {0.5}	0.5201 (0.0574)	0.5226 (0.0664)	0.5097 (0.0702)	0.5060 (0.0682)	0.4905 (0.1122)
μ {10}	9.0786 (0.0926)	7.9260 (0.2074)	7.2733 (0.2727)	6.6413 (0.3359)	5.4050 (0.4595)

Proportional RMSEs are in parentheses. True parameter values are in curly brackets.

Table S12. DNE DGP—Mean parameter estimates (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

DNE:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0149 (0.0451)	2.0055 (0.0401)	2.0002 (0.0395)	2.0002 (0.0387)	1.9971 (0.0337)
ASC2 {1}	1.0106 (0.0487)	1.0099 (0.0444)	1.0074 (0.042)	1.0026 (0.0413)	1.0033 (0.0319)
Price {−3}	−3.0064 (0.0488)	−2.9968 (0.0473)	−2.9926 (0.0416)	−3.0041 (0.0413)	−3.0035 (0.0334)
Own quality {1}	1.0045 (0.0192)	1.0074 (0.0202)	0.9949 (0.0189)	0.9982 (0.0154)	1.0000 (0.0103)
Net quality {4}	3.9935 (0.0342)	4.0323 (0.0348)	3.9858 (0.0303)	3.9876 (0.0272)	4.0017 (0.0187)
τ_0 {0.5}	0.4998 (0.0257)	0.5004 (0.0267)	0.4988 (0.0262)	0.5009 (0.0264)	0.5008 (0.0229)
τ_1 {varied}	0.1996 (0.0137)	0.4029 (0.0309)	0.4999 (0.0321)	0.5990 (0.0359)	0.8021 (0.0355)
μ {10}	10.0810 (0.0370)	10.0624 (0.0380)	10.0512 (0.0372)	10.0441 (0.0367)	10.0473 (0.0355)
IAL:	τ_1				
	0.2	0.4	0.5	0.6	0.8
ASC1 {2}	2.0813 (0.0804)	2.0111 (0.0613)	2.0027 (0.0824)	1.9856 (0.1148)	2.1621 (0.1734)
ASC2 {1}	1.0329 (0.1083)	0.9961 (0.0730)	0.9751 (0.1080)	0.9717 (0.1440)	1.0316 (0.1995)
Price {−3}	−3.2701 (0.1088)	−3.1576 (0.0815)	−3.1677 (0.1062)	−3.1762 (0.133)	−3.5588 (0.2295)
Own quality {1}	1.3030 (0.3030)	1.2917 (0.2917)	1.5384 (0.5385)	1.9042 (0.905)	2.1963 (1.2043)
τ_0 {0.5}	0.5377 (0.0796)	0.5418 (0.0879)	0.5360 (0.0871)	0.5272 (0.0844)	0.5502 (0.114)
μ {10}	9.0837 (0.0924)	7.9812 (0.2019)	7.3702 (0.2630)	6.7041 (0.3296)	5.3427 (0.4657)

Proportional RMSEs are in parentheses. True parameter values are in curly brackets.

Table S13. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, BEFORE the policy change (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.151	0.151 (0.063)	0.154 (0.063)	0.149	0.150 (0.070)	0.153 (0.084)	0.148	0.148 (0.077)	0.148 (0.091)	0.147	0.147 (0.078)	0.144 (0.092)	0.144	0.145 (0.078)	0.139 (0.156)
{2}	0.158	0.158 (0.060)	0.160 (0.059)	0.156	0.157 (0.068)	0.158 (0.079)	0.155	0.155 (0.075)	0.153 (0.088)	0.154	0.154 (0.075)	0.149 (0.090)	0.151	0.152 (0.075)	0.143 (0.151)
{3}	0.169	0.168 (0.060)	0.170 (0.057)	0.169	0.170 (0.068)	0.168 (0.074)	0.169	0.168 (0.075)	0.162 (0.090)	0.169	0.169 (0.075)	0.157 (0.098)	0.168	0.170 (0.075)	0.151 (0.155)
{1,2}	0.125	0.125 (0.033)	0.125 (0.032)	0.126	0.125 (0.036)	0.126 (0.041)	0.126	0.125 (0.039)	0.129 (0.051)	0.126	0.125 (0.038)	0.131 (0.057)	0.125	0.124 (0.037)	0.132 (0.079)
{1,3}	0.137	0.137 (0.034)	0.135 (0.035)	0.138	0.137 (0.038)	0.136 (0.044)	0.139	0.138 (0.041)	0.138 (0.045)	0.139	0.139 (0.041)	0.140 (0.043)	0.141	0.140 (0.040)	0.140 (0.060)
{2,3}	0.135	0.135 (0.035)	0.133 (0.035)	0.137	0.135 (0.038)	0.134 (0.045)	0.138	0.137 (0.042)	0.137 (0.046)	0.139	0.138 (0.041)	0.139 (0.043)	0.141	0.140 (0.040)	0.140 (0.061)
{1,2,3}	0.125	0.127 (0.125)	0.123 (0.120)	0.126	0.125 (0.139)	0.125 (0.158)	0.126	0.129 (0.153)	0.133 (0.184)	0.127	0.129 (0.153)	0.140 (0.197)	0.129	0.128 (0.150)	0.154 (0.353)

Proportional RMSEs are in parentheses.

Table S14. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, AFTER the policy change (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$)

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.027	0.026 (0.142)	0.037 (0.400)	0.020	0.021 (0.166)	0.040 (0.986)	0.017	0.018 (0.186)	0.040 (1.300)	0.015	0.015 (0.205)	0.040 (1.685)	0.011	0.011 (0.192)	0.046 (3.102)
{2}	0.239	0.238 (0.074)	0.238 (0.065)	0.241	0.244 (0.086)	0.234 (0.086)	0.243	0.243 (0.095)	0.225 (0.113)	0.244	0.245 (0.096)	0.217 (0.131)	0.246	0.249 (0.099)	0.207 (0.194)
{3}	0.029	0.029 (0.141)	0.040 (0.386)	0.022	0.023 (0.165)	0.044 (0.941)	0.019	0.020 (0.184)	0.044 (1.233)	0.017	0.017 (0.203)	0.044 (1.586)	0.013	0.013 (0.189)	0.049 (2.862)
{1,2}	0.214	0.214 (0.010)	0.208 (0.032)	0.218	0.217 (0.009)	0.206 (0.056)	0.219	0.218 (0.008)	0.206 (0.062)	0.220	0.219 (0.008)	0.206 (0.066)	0.221	0.220 (0.006)	0.200 (0.096)
{1,3}	0.027	0.027 (0.059)	0.036 (0.319)	0.021	0.021 (0.077)	0.039 (0.839)	0.018	0.018 (0.089)	0.040 (1.187)	0.016	0.016 (0.104)	0.042 (1.622)	0.012	0.012 (0.106)	0.048 (2.950)
{2,3}	0.236	0.236 (0.011)	0.226 (0.044)	0.243	0.242 (0.010)	0.223 (0.082)	0.246	0.245 (0.010)	0.223 (0.097)	0.249	0.248 (0.010)	0.222 (0.110)	0.255	0.254 (0.009)	0.214 (0.161)
{1,2,3}	0.228	0.230 (0.097)	0.216 (0.107)	0.234	0.232 (0.105)	0.214 (0.142)	0.236	0.238 (0.113)	0.223 (0.142)	0.239	0.240 (0.114)	0.230 (0.139)	0.242	0.241 (0.110)	0.236 (0.239)

Proportional RMSEs are in parentheses.

Table S15. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, BEFORE the policy change (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.151	0.151 (0.058)	0.157 (0.069)	0.149	0.150 (0.059)	0.156 (0.092)	0.148	0.148 (0.068)	0.149 (0.104)	0.147	0.147 (0.064)	0.146 (0.106)	0.144	0.145 (0.071)	0.145 (0.151)
{2}	0.158	0.158 (0.055)	0.163 (0.064)	0.156	0.157 (0.056)	0.162 (0.085)	0.155	0.155 (0.066)	0.155 (0.099)	0.154	0.154 (0.062)	0.152 (0.102)	0.151	0.152 (0.068)	0.150 (0.143)
{3}	0.169	0.169 (0.055)	0.173 (0.059)	0.169	0.170 (0.056)	0.171 (0.077)	0.169	0.168 (0.066)	0.164 (0.097)	0.169	0.169 (0.062)	0.160 (0.104)	0.168	0.169 (0.069)	0.158 (0.138)
{1,2}	0.125	0.125 (0.030)	0.124 (0.034)	0.126	0.125 (0.030)	0.125 (0.043)	0.126	0.125 (0.034)	0.128 (0.054)	0.126	0.125 (0.031)	0.130 (0.059)	0.125	0.125 (0.034)	0.130 (0.072)
{1,3}	0.137	0.137 (0.032)	0.134 (0.039)	0.138	0.137 (0.032)	0.134 (0.050)	0.139	0.138 (0.036)	0.137 (0.052)	0.139	0.139 (0.034)	0.139 (0.051)	0.141	0.140 (0.036)	0.138 (0.063)
{2,3}	0.135	0.135 (0.032)	0.131 (0.039)	0.137	0.136 (0.032)	0.133 (0.051)	0.138	0.137 (0.037)	0.136 (0.054)	0.139	0.138 (0.034)	0.137 (0.052)	0.141	0.140 (0.036)	0.137 (0.066)
{1,2,3}	0.125	0.126 (0.114)	0.118 (0.124)	0.126	0.125 (0.115)	0.120 (0.165)	0.126	0.128 (0.135)	0.131 (0.205)	0.127	0.128 (0.126)	0.136 (0.214)	0.129	0.129 (0.137)	0.143 (0.319)

Proportional RMSEs are in parentheses.

Table S16. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, AFTER the policy change (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.027	0.026 (0.130)	0.038 (0.447)	0.020	0.021 (0.152)	0.041 (1.047)	0.017	0.018 (0.166)	0.041 (1.338)	0.015	0.015 (0.177)	0.042 (1.785)	0.011	0.011 (0.179)	0.049 (3.379)
{2}	0.239	0.239 (0.068)	0.243 (0.067)	0.241	0.244 (0.071)	0.240 (0.085)	0.243	0.243 (0.084)	0.228 (0.117)	0.244	0.244 (0.079)	0.222 (0.131)	0.246	0.248 (0.091)	0.218 (0.170)
{3}	0.029	0.029 (0.129)	0.042 (0.431)	0.022	0.023 (0.151)	0.045 (1.000)	0.019	0.020 (0.164)	0.044 (1.269)	0.017	0.017 (0.175)	0.045 (1.681)	0.013	0.013 (0.176)	0.053 (3.121)
{1,2}	0.214	0.214 (0.009)	0.207 (0.036)	0.218	0.217 (0.008)	0.205 (0.059)	0.219	0.218 (0.007)	0.205 (0.064)	0.220	0.219 (0.006)	0.205 (0.071)	0.221	0.220 (0.005)	0.199 (0.102)
{1,3}	0.027	0.027 (0.055)	0.036 (0.331)	0.021	0.021 (0.074)	0.039 (0.840)	0.018	0.018 (0.081)	0.040 (1.182)	0.016	0.016 (0.096)	0.042 (1.628)	0.012	0.012 (0.096)	0.048 (2.974)
{2,3}	0.236	0.236 (0.011)	0.225 (0.048)	0.243	0.242 (0.010)	0.222 (0.086)	0.246	0.245 (0.009)	0.222 (0.099)	0.249	0.249 (0.009)	0.221 (0.115)	0.255	0.254 (0.008)	0.212 (0.167)
{1,2,3}	0.228	0.229 (0.089)	0.209 (0.117)	0.234	0.232 (0.089)	0.208 (0.158)	0.236	0.238 (0.101)	0.220 (0.165)	0.239	0.240 (0.094)	0.224 (0.167)	0.242	0.241 (0.101)	0.221 (0.249)

Proportional RMSEs are in parentheses.

Table S17. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, BEFORE the policy change (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.151	0.151 (0.055)	0.159 (0.079)	0.149	0.150 (0.056)	0.158 (0.099)	0.148	0.148 (0.059)	0.151 (0.104)	0.147	0.147 (0.065)	0.148 (0.103)	0.144	0.145 (0.065)	0.144 (0.136)
{2}	0.158	0.158 (0.052)	0.166 (0.073)	0.156	0.157 (0.053)	0.164 (0.091)	0.155	0.155 (0.056)	0.157 (0.099)	0.154	0.154 (0.063)	0.153 (0.099)	0.151	0.152 (0.063)	0.148 (0.129)
{3}	0.169	0.169 (0.053)	0.175 (0.067)	0.169	0.170 (0.054)	0.173 (0.082)	0.169	0.168 (0.057)	0.166 (0.094)	0.169	0.169 (0.063)	0.162 (0.098)	0.168	0.169 (0.063)	0.157 (0.130)
{1,2}	0.125	0.125 (0.029)	0.123 (0.039)	0.126	0.125 (0.028)	0.124 (0.046)	0.126	0.125 (0.029)	0.127 (0.053)	0.126	0.125 (0.032)	0.129 (0.056)	0.125	0.125 (0.031)	0.131 (0.071)
{1,3}	0.137	0.137 (0.030)	0.132 (0.045)	0.138	0.137 (0.030)	0.133 (0.054)	0.139	0.138 (0.031)	0.136 (0.053)	0.139	0.139 (0.034)	0.138 (0.051)	0.141	0.140 (0.033)	0.139 (0.058)
{2,3}	0.135	0.134 (0.030)	0.130 (0.046)	0.137	0.136 (0.030)	0.132 (0.056)	0.138	0.137 (0.031)	0.135 (0.055)	0.139	0.138 (0.035)	0.137 (0.052)	0.141	0.141 (0.033)	0.138 (0.059)
{1,2,3}	0.125	0.126 (0.109)	0.115 (0.141)	0.126	0.125 (0.110)	0.117 (0.175)	0.126	0.128 (0.116)	0.128 (0.199)	0.127	0.128 (0.128)	0.132 (0.202)	0.129	0.129 (0.127)	0.143 (0.287)

Proportional RMSEs are in parentheses.

Table S18. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, AFTER the policy change (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.027	0.027 (0.128)	0.039 (0.486)	0.020	0.020 (0.140)	0.042 (1.093)	0.017	0.017 (0.149)	0.041 (1.389)	0.015	0.015 (0.175)	0.042 (1.837)	0.011	0.011 (0.163)	0.048 (3.277)
{2}	0.239	0.239 (0.065)	0.247 (0.074)	0.241	0.243 (0.068)	0.244 (0.090)	0.243	0.242 (0.073)	0.232 (0.113)	0.244	0.244 (0.081)	0.225 (0.123)	0.246	0.247 (0.083)	0.216 (0.165)
{3}	0.029	0.029 (0.127)	0.043 (0.469)	0.022	0.023 (0.139)	0.046 (1.044)	0.019	0.020 (0.148)	0.045 (1.318)	0.017	0.017 (0.173)	0.046 (1.731)	0.013	0.013 (0.161)	0.052 (3.026)
{1,2}	0.214	0.214 (0.009)	0.206 (0.039)	0.218	0.217 (0.007)	0.204 (0.062)	0.219	0.219 (0.006)	0.205 (0.067)	0.220	0.219 (0.006)	0.204 (0.072)	0.221	0.220 (0.005)	0.200 (0.096)
{1,3}	0.027	0.027 (0.055)	0.036 (0.338)	0.021	0.021 (0.071)	0.039 (0.845)	0.018	0.018 (0.078)	0.040 (1.187)	0.016	0.016 (0.093)	0.042 (1.638)	0.012	0.012 (0.089)	0.048 (2.953)
{2,3}	0.236	0.236 (0.011)	0.224 (0.052)	0.243	0.242 (0.009)	0.222 (0.089)	0.246	0.246 (0.008)	0.221 (0.102)	0.249	0.249 (0.008)	0.220 (0.116)	0.255	0.254 (0.007)	0.214 (0.161)
{1,2,3}	0.228	0.229 (0.085)	0.205 (0.134)	0.234	0.233 (0.084)	0.204 (0.170)	0.236	0.238 (0.087)	0.215 (0.168)	0.239	0.240 (0.096)	0.219 (0.162)	0.242	0.242 (0.093)	0.223 (0.219)

Proportional RMSEs are in parentheses.

Table S19. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, BEFORE the policy change (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.151	0.152 (0.052)	0.161 (0.091)	0.149	0.149 (0.054)	0.161 (0.107)	0.148	0.147 (0.056)	0.155 (0.108)	0.147	0.147 (0.060)	0.152 (0.102)	0.144	0.145 (0.063)	0.145 (0.144)
{2}	0.158	0.159 (0.050)	0.168 (0.084)	0.156	0.157 (0.052)	0.167 (0.098)	0.155	0.155 (0.054)	0.160 (0.101)	0.154	0.155 (0.058)	0.157 (0.095)	0.151	0.152 (0.061)	0.150 (0.137)
{3}	0.169	0.169 (0.050)	0.178 (0.079)	0.169	0.169 (0.052)	0.177 (0.085)	0.169	0.168 (0.054)	0.170 (0.093)	0.169	0.169 (0.058)	0.167 (0.089)	0.168	0.169 (0.061)	0.158 (0.134)
{1,2}	0.125	0.125 (0.028)	0.121 (0.047)	0.126	0.125 (0.027)	0.122 (0.049)	0.126	0.126 (0.028)	0.125 (0.053)	0.126	0.125 (0.029)	0.127 (0.052)	0.125	0.125 (0.030)	0.130 (0.075)
{1,3}	0.137	0.136 (0.029)	0.131 (0.053)	0.138	0.137 (0.029)	0.131 (0.060)	0.139	0.139 (0.030)	0.135 (0.057)	0.139	0.139 (0.032)	0.136 (0.052)	0.141	0.140 (0.033)	0.138 (0.065)
{2,3}	0.135	0.134 (0.029)	0.129 (0.053)	0.137	0.136 (0.029)	0.130 (0.062)	0.138	0.138 (0.030)	0.133 (0.059)	0.139	0.138 (0.032)	0.135 (0.054)	0.141	0.141 (0.033)	0.137 (0.067)
{1,2,3}	0.125	0.125 (0.103)	0.112 (0.160)	0.126	0.126 (0.108)	0.111 (0.181)	0.126	0.128 (0.112)	0.122 (0.195)	0.127	0.127 (0.117)	0.126 (0.185)	0.129	0.129 (0.123)	0.141 (0.302)

Proportional RMSEs are in parentheses.

Table S20. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, AFTER the policy change (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.027	0.027 (0.125)	0.040 (0.526)	0.020	0.020 (0.143)	0.044 (1.167)	0.017	0.017 (0.146)	0.043 (1.473)	0.015	0.015 (0.169)	0.044 (1.967)	0.011	0.011 (0.175)	0.048 (3.340)
{2}	0.239	0.240 (0.062)	0.251 (0.088)	0.241	0.242 (0.066)	0.250 (0.090)	0.243	0.242 (0.069)	0.238 (0.107)	0.244	0.245 (0.074)	0.232 (0.109)	0.246	0.248 (0.081)	0.218 (0.166)
{3}	0.029	0.030 (0.124)	0.044 (0.509)	0.022	0.023 (0.142)	0.047 (1.116)	0.019	0.019 (0.145)	0.047 (1.399)	0.017	0.017 (0.167)	0.048 (1.854)	0.013	0.013 (0.172)	0.052 (3.085)
{1,2}	0.214	0.214 (0.009)	0.205 (0.043)	0.218	0.217 (0.007)	0.203 (0.067)	0.219	0.219 (0.006)	0.204 (0.071)	0.220	0.219 (0.006)	0.203 (0.077)	0.221	0.220 (0.005)	0.199 (0.099)
{1,3}	0.027	0.027 (0.053)	0.036 (0.342)	0.021	0.021 (0.072)	0.039 (0.856)	0.018	0.018 (0.081)	0.040 (1.199)	0.016	0.016 (0.094)	0.042 (1.659)	0.012	0.012 (0.101)	0.048 (2.954)
{2,3}	0.236	0.236 (0.011)	0.223 (0.056)	0.243	0.243 (0.009)	0.220 (0.094)	0.246	0.246 (0.008)	0.220 (0.106)	0.249	0.249 (0.009)	0.219 (0.121)	0.255	0.254 (0.008)	0.213 (0.164)
{1,2,3}	0.228	0.228 (0.081)	0.200 (0.151)	0.234	0.234 (0.083)	0.196 (0.186)	0.236	0.238 (0.084)	0.208 (0.179)	0.239	0.238 (0.088)	0.210 (0.174)	0.242	0.241 (0.091)	0.221 (0.234)

Proportional RMSEs are in parentheses.

Table S21. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, BEFORE the policy change (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.151	0.151 (0.043)	0.169 (0.126)	0.149	0.149 (0.050)	0.170 (0.143)	0.148	0.147 (0.052)	0.166 (0.142)	0.147	0.147 (0.055)	0.161 (0.135)	0.144	0.145 (0.054)	0.167 (0.174)
{2}	0.158	0.158 (0.041)	0.176 (0.118)	0.156	0.156 (0.047)	0.176 (0.130)	0.155	0.154 (0.050)	0.172 (0.128)	0.154	0.155 (0.053)	0.167 (0.121)	0.151	0.152 (0.052)	0.171 (0.149)
{3}	0.169	0.169 (0.041)	0.186 (0.109)	0.169	0.169 (0.048)	0.186 (0.110)	0.169	0.168 (0.050)	0.182 (0.106)	0.169	0.169 (0.053)	0.176 (0.096)	0.168	0.169 (0.052)	0.181 (0.100)
{1,2}	0.125	0.125 (0.023)	0.118 (0.067)	0.126	0.125 (0.025)	0.118 (0.065)	0.126	0.126 (0.025)	0.120 (0.061)	0.126	0.125 (0.027)	0.123 (0.053)	0.125	0.125 (0.025)	0.122 (0.052)
{1,3}	0.137	0.137 (0.024)	0.127 (0.076)	0.138	0.138 (0.027)	0.127 (0.083)	0.139	0.139 (0.027)	0.129 (0.080)	0.139	0.139 (0.029)	0.131 (0.072)	0.141	0.140 (0.027)	0.129 (0.089)
{2,3}	0.135	0.135 (0.024)	0.125 (0.077)	0.137	0.136 (0.027)	0.125 (0.086)	0.138	0.138 (0.027)	0.127 (0.083)	0.139	0.138 (0.029)	0.130 (0.075)	0.141	0.141 (0.027)	0.128 (0.097)
{1,2,3}	0.125	0.126 (0.085)	0.100 (0.215)	0.126	0.126 (0.099)	0.099 (0.230)	0.126	0.128 (0.103)	0.104 (0.226)	0.127	0.127 (0.108)	0.111 (0.218)	0.129	0.129 (0.105)	0.102 (0.248)

Proportional RMSEs are in parentheses.

Table S22. DNE DGP—Representative choice set distributions of True, DNE, and IAL models, AFTER the policy change (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

Choice Set	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.027	0.027 (0.106)	0.044 (0.668)	0.020	0.020 (0.130)	0.048 (1.366)	0.017	0.017 (0.134)	0.048 (1.771)	0.015	0.015 (0.155)	0.048 (2.243)	0.011	0.011 (0.149)	0.059 (4.334)
{2}	0.239	0.239 (0.051)	0.266 (0.122)	0.241	0.242 (0.060)	0.266 (0.113)	0.243	0.242 (0.063)	0.259 (0.109)	0.244	0.245 (0.068)	0.249 (0.098)	0.246	0.247 (0.069)	0.256 (0.092)
{3}	0.029	0.029 (0.106)	0.048 (0.647)	0.022	0.022 (0.129)	0.052 (1.309)	0.019	0.019 (0.133)	0.052 (1.685)	0.017	0.017 (0.154)	0.053 (2.118)	0.013	0.013 (0.147)	0.064 (4.009)
{1,2}	0.214	0.214 (0.008)	0.202 (0.057)	0.218	0.217 (0.006)	0.200 (0.081)	0.219	0.219 (0.006)	0.200 (0.087)	0.220	0.220 (0.005)	0.200 (0.090)	0.221	0.221 (0.004)	0.194 (0.122)
{1,3}	0.027	0.027 (0.048)	0.037 (0.370)	0.021	0.021 (0.069)	0.039 (0.875)	0.018	0.018 (0.073)	0.041 (1.223)	0.016	0.016 (0.086)	0.043 (1.673)	0.012	0.012 (0.086)	0.049 (3.034)
{2,3}	0.236	0.236 (0.009)	0.220 (0.070)	0.243	0.243 (0.008)	0.217 (0.108)	0.246	0.246 (0.007)	0.217 (0.122)	0.249	0.249 (0.008)	0.216 (0.134)	0.255	0.254 (0.006)	0.208 (0.186)
{1,2,3}	0.228	0.229 (0.067)	0.183 (0.204)	0.234	0.234 (0.076)	0.178 (0.242)	0.236	0.239 (0.078)	0.183 (0.241)	0.239	0.238 (0.082)	0.191 (0.236)	0.242	0.241 (0.078)	0.170 (0.311)

Proportional RMSEs are in parentheses.

Table S23. DNE DGP—Market shares in True, DNE, and IAL models, BEFORE and AFTER the policy change (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$).

Before Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.410	0.410 (0.017)	0.409 (0.014)	0.408	0.408 (0.018)	0.409 (0.016)	0.408	0.407 (0.017)	0.409 (0.017)	0.407	0.406 (0.020)	0.408 (0.017)	0.405	0.404 (0.020)	0.406 (0.020)
{2}	0.326	0.327 (0.014)	0.327 (0.016)	0.326	0.327 (0.014)	0.326 (0.018)	0.326	0.326 (0.013)	0.326 (0.018)	0.326	0.326 (0.014)	0.325 (0.020)	0.325	0.326 (0.011)	0.324 (0.023)
{3}	0.264	0.264 (0.022)	0.263 (0.020)	0.266	0.266 (0.023)	0.265 (0.021)	0.267	0.266 (0.023)	0.265 (0.021)	0.268	0.268 (0.025)	0.267 (0.021)	0.270	0.271 (0.025)	0.270 (0.025)
After Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.238	0.238 (0.035)	0.259 (0.089)	0.232	0.231 (0.040)	0.259 (0.118)	0.228	0.228 (0.040)	0.258 (0.131)	0.225	0.224 (0.045)	0.257 (0.146)	0.217	0.216 (0.046)	0.258 (0.194)
{2}	0.657	0.659 (0.013)	0.620 (0.057)	0.669	0.670 (0.015)	0.618 (0.077)	0.675	0.675 (0.015)	0.616 (0.087)	0.681	0.681 (0.016)	0.614 (0.099)	0.693	0.694 (0.016)	0.604 (0.129)
{3}	0.104	0.104 (0.034)	0.120 (0.153)	0.099	0.099 (0.032)	0.123 (0.245)	0.097	0.097 (0.028)	0.126 (0.298)	0.094	0.095 (0.028)	0.129 (0.366)	0.090	0.090 (0.026)	0.138 (0.524)

Proportional RMSEs are in parentheses.

Table S24. DNE DGP—Market shares in True, DNE, and IAL models, BEFORE and AFTER the policy change (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

Before Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.412	0.412 (0.016)	0.411 (0.015)	0.411	0.410 (0.016)	0.411 (0.016)	0.410	0.410 (0.017)	0.412 (0.017)	0.409	0.409 (0.018)	0.411 (0.018)	0.407	0.406 (0.019)	0.408 (0.018)
{2}	0.326	0.326 (0.013)	0.327 (0.016)	0.326	0.326 (0.014)	0.326 (0.018)	0.325	0.326 (0.012)	0.325 (0.018)	0.325	0.326 (0.013)	0.325 (0.020)	0.325	0.325 (0.011)	0.325 (0.021)
{3}	0.262	0.262 (0.021)	0.262 (0.020)	0.264	0.264 (0.021)	0.264 (0.021)	0.265	0.264 (0.022)	0.264 (0.022)	0.266	0.265 (0.023)	0.265 (0.023)	0.268	0.268 (0.023)	0.267 (0.026)
After Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.231	0.231 (0.035)	0.271 (0.172)	0.224	0.223 (0.036)	0.270 (0.204)	0.221	0.221 (0.038)	0.268 (0.216)	0.217	0.218 (0.042)	0.267 (0.230)	0.210	0.209 (0.044)	0.267 (0.276)
{2}	0.671	0.672 (0.013)	0.605 (0.098)	0.683	0.684 (0.013)	0.603 (0.117)	0.689	0.690 (0.013)	0.603 (0.125)	0.695	0.695 (0.014)	0.602 (0.134)	0.707	0.708 (0.014)	0.594 (0.160)
{3}	0.098	0.097 (0.036)	0.124 (0.265)	0.092	0.092 (0.034)	0.127 (0.373)	0.090	0.090 (0.028)	0.128 (0.429)	0.087	0.088 (0.032)	0.131 (0.497)	0.083	0.083 (0.024)	0.138 (0.665)

Proportional RMSEs are in parentheses.

Table S25. DNE DGP—Market shares in True, DNE, and IAL models, BEFORE and AFTER the policy change (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

Before Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.413	0.412 (0.016)	0.411 (0.015)	0.412	0.411 (0.015)	0.411 (0.016)	0.411	0.411 (0.016)	0.412 (0.018)	0.410	0.410 (0.018)	0.411 (0.017)	0.409	0.408 (0.018)	0.409 (0.018)
{2}	0.326	0.326 (0.013)	0.327 (0.017)	0.325	0.326 (0.013)	0.326 (0.018)	0.325	0.326 (0.012)	0.325 (0.018)	0.325	0.326 (0.013)	0.325 (0.020)	0.325	0.325 (0.010)	0.325 (0.020)
{3}	0.262	0.262 (0.020)	0.262 (0.020)	0.263	0.263 (0.021)	0.263 (0.022)	0.264	0.263 (0.020)	0.263 (0.022)	0.265	0.264 (0.023)	0.263 (0.024)	0.267	0.267 (0.021)	0.266 (0.027)
After Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.227	0.227 (0.036)	0.276 (0.215)	0.220	0.220 (0.037)	0.276 (0.252)	0.217	0.217 (0.039)	0.273 (0.261)	0.213	0.213 (0.044)	0.272 (0.274)	0.206	0.205 (0.044)	0.271 (0.316)
{2}	0.678	0.679 (0.013)	0.598 (0.118)	0.691	0.692 (0.013)	0.596 (0.138)	0.697	0.697 (0.013)	0.597 (0.143)	0.703	0.702 (0.015)	0.597 (0.151)	0.715	0.716 (0.014)	0.590 (0.175)
{3}	0.095	0.094 (0.036)	0.126 (0.328)	0.089	0.089 (0.035)	0.129 (0.446)	0.086	0.086 (0.032)	0.130 (0.502)	0.084	0.084 (0.034)	0.132 (0.569)	0.080	0.080 (0.024)	0.139 (0.750)

Proportional RMSEs are in parentheses.

Table S26. DNE DGP—Market shares in True, DNE, and IAL models, BEFORE and AFTER the policy change (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

Before Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.414	0.413 (0.015)	0.412 (0.016)	0.413	0.412 (0.015)	0.412 (0.017)	0.412	0.412 (0.016)	0.413 (0.020)	0.411	0.411 (0.017)	0.412 (0.018)	0.410	0.409 (0.018)	0.411 (0.019)
{2}	0.325	0.326 (0.012)	0.326 (0.017)	0.325	0.326 (0.014)	0.326 (0.018)	0.325	0.325 (0.013)	0.325 (0.020)	0.325	0.326 (0.013)	0.326 (0.021)	0.325	0.325 (0.012)	0.324 (0.021)
{3}	0.261	0.261 (0.020)	0.262 (0.023)	0.262	0.262 (0.022)	0.262 (0.022)	0.263	0.263 (0.020)	0.262 (0.025)	0.264	0.264 (0.022)	0.262 (0.024)	0.265	0.266 (0.022)	0.265 (0.023)
After Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.223	0.223 (0.036)	0.284 (0.269)	0.216	0.215 (0.039)	0.284 (0.311)	0.213	0.213 (0.040)	0.281 (0.323)	0.209	0.209 (0.043)	0.279 (0.332)	0.202	0.201 (0.046)	0.277 (0.372)
{2}	0.685	0.686 (0.013)	0.588 (0.142)	0.698	0.699 (0.014)	0.585 (0.162)	0.704	0.704 (0.014)	0.587 (0.167)	0.710	0.710 (0.014)	0.588 (0.172)	0.722	0.722 (0.015)	0.582 (0.194)
{3}	0.092	0.091 (0.038)	0.129 (0.403)	0.086	0.086 (0.039)	0.131 (0.530)	0.083	0.083 (0.036)	0.132 (0.588)	0.081	0.081 (0.035)	0.133 (0.655)	0.076	0.077 (0.034)	0.141 (0.845)

Proportional RMSEs are in parentheses.

Table S27. DNE DGP—Market shares in True, DNE, and IAL models, BEFORE and AFTER the policy change (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

Before Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.415	0.415 (0.014)	0.411 (0.017)	0.414	0.414 (0.015)	0.410 (0.018)	0.414	0.414 (0.016)	0.411 (0.020)	0.413	0.413 (0.015)	0.412 (0.019)	0.412	0.411 (0.017)	0.411 (0.019)
{2}	0.325	0.326 (0.013)	0.326 (0.017)	0.325	0.326 (0.013)	0.326 (0.016)	0.325	0.325 (0.012)	0.325 (0.019)	0.325	0.325 (0.013)	0.326 (0.020)	0.324	0.325 (0.011)	0.325 (0.020)
{3}	0.260	0.259 (0.018)	0.263 (0.024)	0.261	0.261 (0.020)	0.264 (0.023)	0.261	0.261 (0.019)	0.263 (0.025)	0.262	0.262 (0.020)	0.262 (0.025)	0.264	0.264 (0.020)	0.264 (0.028)
After Policy Change:															
Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	0.215	0.216 (0.041)	0.300 (0.395)	0.208	0.207 (0.040)	0.300 (0.440)	0.204	0.205 (0.042)	0.299 (0.461)	0.201	0.201 (0.044)	0.295 (0.468)	0.194	0.193 (0.044)	0.296 (0.527)
{2}	0.699	0.698 (0.015)	0.562 (0.195)	0.712	0.714 (0.013)	0.560 (0.214)	0.718	0.718 (0.013)	0.560 (0.221)	0.725	0.724 (0.014)	0.564 (0.221)	0.736	0.737 (0.013)	0.558 (0.242)
{3}	0.086	0.086 (0.042)	0.137 (0.597)	0.080	0.079 (0.041)	0.141 (0.765)	0.077	0.077 (0.036)	0.141 (0.833)	0.075	0.075 (0.037)	0.141 (0.887)	0.070	0.070 (0.030)	0.146 (1.080)

Proportional RMSEs are in parentheses.

Table S28. DNE DGP—HANGES of market share in True, DNE, and IAL models (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$).

Consumer Choice	**τ_1 = 0.2**			**τ_1 = 0.4**			**τ_1 = 0.5**			**τ_1 = 0.6**			**τ_1 = 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	−0.171	−0.172 (0.021)	−0.150 (0.125)	−0.177	−0.177 (0.018)	−0.150 (0.151)	−0.179	−0.179 (0.019)	−0.151 (0.159)	−0.182	−0.182 (0.018)	−0.151 (0.172)	−0.188	−0.188 (0.017)	−0.147 (0.216)
{2}	0.331	0.332 (0.016)	0.293 (0.115)	0.343	0.343 (0.018)	0.291 (0.151)	0.349	0.349 (0.019)	0.291 (0.168)	0.355	0.355 (0.021)	0.289 (0.188)	0.368	0.368 (0.022)	0.280 (0.239)
{3}	−0.160	−0.160 (0.019)	−0.143 (0.104)	−0.166	−0.167 (0.025)	−0.141 (0.151)	−0.170	−0.170 (0.028)	−0.140 (0.177)	−0.173	−0.173 (0.031)	−0.138 (0.204)	−0.180	−0.180 (0.035)	−0.133 (0.263)

Proportional RMSEs are in parentheses.

Table S29. DNE DGP—HANGES of market share in True, DNE, and IAL models (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

Consumer Choice	$\tau_1 = 0.2$			$\tau_1 = 0.4$			$\tau_1 = 0.5$			$\tau_1 = 0.6$			$\tau_1 = 0.8$		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	−0.181	−0.181 (0.023)	−0.140 (0.225)	−0.186	−0.186 (0.017)	−0.141 (0.245)	−0.189	−0.189 (0.017)	−0.143 (0.243)	−0.192	−0.192 (0.018)	−0.143 (0.253)	−0.198	−0.198 (0.013)	−0.141 (0.289)
{2}	0.345	0.346 (0.015)	0.278 (0.193)	0.358	0.358 (0.015)	0.278 (0.224)	0.364	0.364 (0.016)	0.279 (0.235)	0.370	0.369 (0.018)	0.277 (0.251)	0.382	0.383 (0.020)	0.270 (0.295)
{3}	−0.165	−0.165 (0.017)	−0.138 (0.159)	−0.172	−0.172 (0.021)	−0.137 (0.202)	−0.175	−0.175 (0.026)	−0.135 (0.226)	−0.178	−0.178 (0.027)	−0.134 (0.250)	−0.185	−0.185 (0.032)	−0.129 (0.302)

Proportional RMSEs are in parentheses.

Table S30. DNE DGP—HANGES of market share in True, DNE, and IAL models (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

Consumer Choice	$\tau_1 = 0.2$			$\tau_1 = 0.4$			$\tau_1 = 0.5$			$\tau_1 = 0.6$			$\tau_1 = 0.8$		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	−0.185	−0.186 (0.023)	−0.135 (0.273)	−0.191	−0.191 (0.018)	−0.135 (0.293)	−0.194	−0.194 (0.019)	−0.139 (0.287)	−0.197	−0.196 (0.019)	−0.139 (0.292)	−0.203	−0.203 (0.014)	−0.138 (0.320)
{2}	0.352	0.353 (0.016)	0.271 (0.231)	0.365	0.366 (0.014)	0.270 (0.262)	0.371	0.371 (0.016)	0.272 (0.269)	0.378	0.377 (0.018)	0.271 (0.282)	0.390	0.390 (0.019)	0.265 (0.321)
{3}	−0.167	−0.167 (0.018)	−0.136 (0.184)	−0.174	−0.174 (0.020)	−0.134 (0.228)	−0.177	−0.177 (0.024)	−0.133 (0.249)	−0.181	−0.180 (0.027)	−0.132 (0.271)	−0.187	−0.187 (0.029)	−0.127 (0.322)

Proportional RMSEs are in parentheses.

Table S31. DNE DGP—HANGES of market share in True, DNE, and IAL models (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

Consumer Choice	$\tau_1 = 0.2$			$\tau_1 = 0.4$			$\tau_1 = 0.5$			$\tau_1 = 0.6$			$\tau_1 = 0.8$		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	−0.190	−0.190 (0.023)	−0.128 (0.326)	−0.196	−0.197 (0.021)	−0.128 (0.348)	−0.199	−0.199 (0.020)	−0.131 (0.340)	−0.202	−0.202 (0.020)	−0.133 (0.340)	−0.208	−0.208 (0.016)	−0.133 (0.358)
{2}	0.359	0.360 (0.015)	0.261 (0.273)	0.373	0.373 (0.015)	0.259 (0.305)	0.379	0.378 (0.017)	0.261 (0.310)	0.385	0.385 (0.018)	0.262 (0.319)	0.397	0.397 (0.020)	0.258 (0.351)
{3}	−0.169	−0.170 (0.017)	−0.133 (0.213)	−0.176	−0.177 (0.019)	−0.131 (0.257)	−0.180	−0.179 (0.022)	−0.130 (0.277)	−0.183	−0.183 (0.025)	−0.129 (0.295)	−0.189	−0.190 (0.030)	−0.124 (0.343)

Proportional RMSEs are in parentheses.

Table S32. DNE DGP—HANGES of market share in True, DNE, and IAL models (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

Consumer Choice	τ_1 **= 0.2**			τ_1 **= 0.4**			τ_1 **= 0.5**			τ_1 **= 0.6**			τ_1 **= 0.8**		
	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL	True	DNE	IAL
{1}	−0.200	−0.200 (0.026)	−0.111 (0.447)	−0.206	−0.207 (0.022)	−0.110 (0.466)	−0.209	−0.209 (0.021)	−0.113 (0.462)	−0.212	−0.212 (0.021)	−0.117 (0.449)	−0.218	−0.218 (0.014)	−0.115 (0.472)
{2}	0.373	0.373 (0.017)	0.236 (0.368)	0.387	0.388 (0.016)	0.233 (0.398)	0.394	0.393 (0.017)	0.235 (0.404)	0.400	0.399 (0.018)	0.239 (0.403)	0.412	0.412 (0.016)	0.233 (0.433)
{3}	−0.174	−0.173 (0.016)	−0.125 (0.279)	−0.181	−0.181 (0.020)	−0.123 (0.320)	−0.184	−0.184 (0.022)	−0.122 (0.337)	−0.187	−0.187 (0.023)	−0.122 (0.350)	−0.193	−0.194 (0.026)	−0.118 (0.390)

Proportional RMSEs are in parentheses.

Table S33. DNE DGP—Mean welfare of True, DNE and IAL models (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$)

Models	τ_1				
	0.2	0.4	0.5	0.6	0.8
True	0.3882	0.3991	0.4015	0.4112	0.4269
DNE	0.3904 (0.0772)	0.3928 (0.0730)	0.4003 (0.0792)	0.4018 (0.0709)	0.4156 (0.0764)
IAL	0.3197 (0.1943)	0.3264 (0.1948)	0.3404 (0.1873)	0.3517 (0.1854)	0.3600 (0.2394)

Proportional RMSEs are in parentheses.

Table S34. DNE DGP—Mean welfare of True, DNE and IAL models (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

Models	τ_1				
	0.2	0.4	0.5	0.6	0.8
True	0.3984	0.4094	0.4153	0.4213	0.4361
DNE	0.4008 (0.0693)	0.4045 (0.0604)	0.4120 (0.0645)	0.4112 (0.0635)	0.4273 (0.0622)
IAL	0.2636 (0.3414)	0.2715 (0.3393)	0.2914 (0.3041)	0.2986 (0.3025)	0.3052 (0.3490)

Proportional RMSEs are in parentheses.

Table S35. DNE DGP—Mean welfare of True, DNE and IAL models (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

Models	τ_1				
	0.2	0.4	0.5	0.6	0.8
True	0.4040	0.4151	0.4209	0.4268	0.4411
DNE	0.4056 (0.0663)	0.4124 (0.0609)	0.4177 (0.0634)	0.4167 (0.0614)	0.4336 (0.0599)
IAL	0.2372 (0.4162)	0.2424 (0.4165)	0.2633 (0.3753)	0.2740 (0.3583)	0.2923 (0.3835)

Proportional RMSEs are in parentheses.

Table S36. DNE DGP—Mean welfare of True, DNE and IAL models (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

Models	τ_1				
	0.2	0.4	0.5	0.6	0.8
True	0.4098	0.4210	0.4269	0.4326	0.4465
DNE	0.4121 (0.0583)	0.4220 (0.0623)	0.4227 (0.0616)	0.4260 (0.0638)	0.4387 (0.0624)
IAL	0.2064 (0.4966)	0.2067 (0.5093)	0.2270 (0.4687)	0.2398 (0.4457)	0.2581 (0.4278)

Proportional RMSEs are in parentheses.

Table S37. DNE DGP—Mean welfare of True, DNE and IAL models (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

Models	τ_1				
	0.2	0.4	0.5	0.6	0.8
True	0.4224	0.4339	0.4397	0.4452	0.4582
DNE	0.4245 (0.0637)	0.4382 (0.0609)	0.4373 (0.0576)	0.4411 (0.0606)	0.4515 (0.0496)
IAL	0.1294 (0.6938)	0.1297 (0.7012)	0.1413 (0.6787)	0.1640 (0.6349)	0.1569 (0.6576)

Proportional RMSEs are in parentheses.

Table S38. SNE vs DNE: Mean parameter estimates.

DGP is SNE:		τ_1 **= 0.5**	
	SNE	IAL	DNE
ASC1 {2}	2.0057 (0.0438)	1.9051 (0.0817)	2.0052 (0.0436)
ASC2 {1}	1.0029 (0.0495)	0.9310 (0.1118)	1.0028 (0.0439)
Price {−3}	−2.9991 (0.0523)	−2.8956 (0.0974)	−2.9998 (0.0521)
Own quality {5}	4.9913 (0.0579)	4.9689 (0.0857)	4.9908 (0.0575)
Network quality {0}			0.0000 (0.0072 *)
τ_0 {0.5}	0.5000 (0.0390)	0.4953 (0.0569)	0.4999 (0.0389)
τ_1 {0.5}	0.4992 (0.0413)		0.4992 (0.0415)
μ {10}	10.0199 (0.0426)	7.2074 (0.2793)	10.0224 (0.0427)
DGP is DNE:		τ_1 **= 0.5**	
	DNE	IAL	SNE
ASC1 {2}	1.9979 (0.0369)	1.9154 (0.0974)	2.0362 (0.0696)
ASC2 {1}	1.0034 (0.0438)	0.9359 (0.1346)	1.0113 (0.0855)
Price {−3}	−2.9912 (0.0432)	−2.9807 (0.1032)	−3.1023 (0.0802))
Own quality {2.5}	2.4995 (0.0346)	3.3559 (0.3465)	2.9874 (0.1992)
Network quality {2.5}	2.5023 (0.0220)		
τ_0 {0.5}	0.4993 (0.0298)	0.5020 (0.0697)	0.5120 (0.0421)
τ_1 {0.5}	0.5002 (0.0376)		0.5243 (0.0846)
μ {10}	10.0368 (0.0388)	7.2515 (0.2748)	10.4362 (0.0585)

Proportional RMSEs are in parentheses. True parameter values are in curly brackets. * The calculation of the proportional RMSE is not possible as the true parameter value is "0". We therefore report the RMSE in parentheses

3. Kernel Density Plots

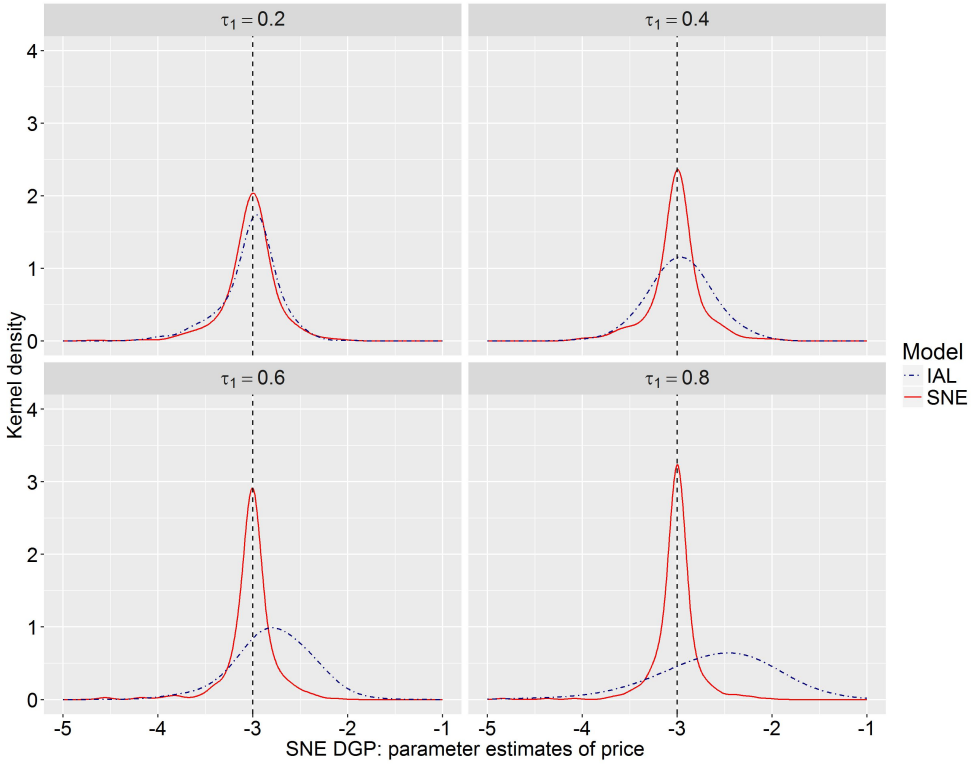

Figure S1. SNE DGP—Kernel density plot of parameter estimates for price (true value = −3).

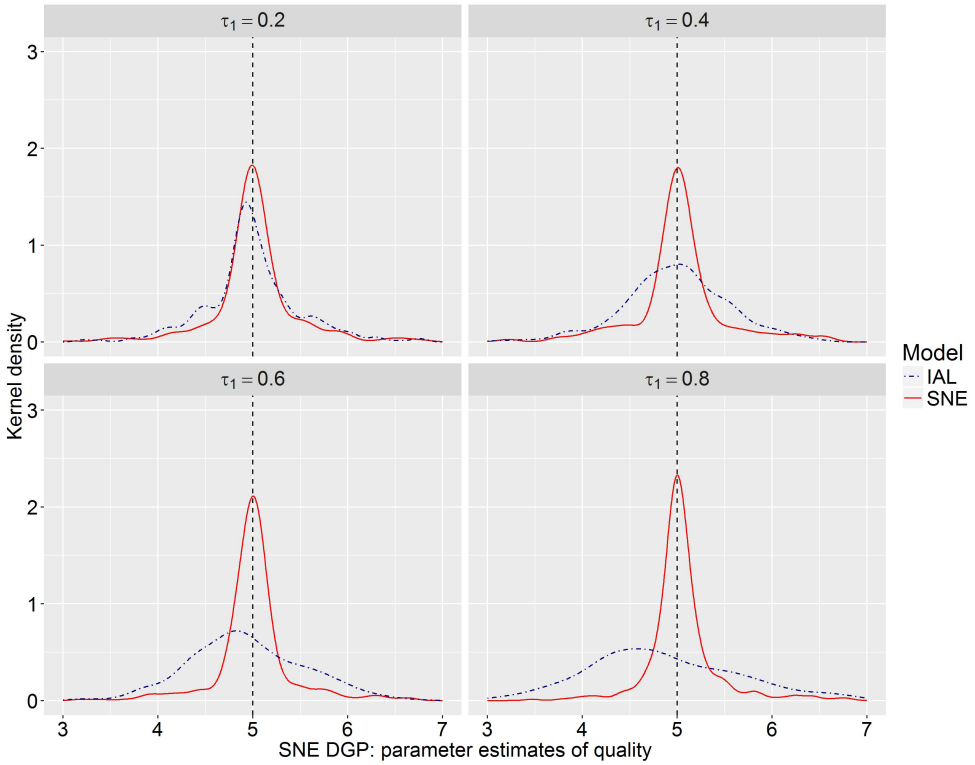

Figure S2. SNE DGP—Kernel density plot of parameter estimates for quality (true value = 5).

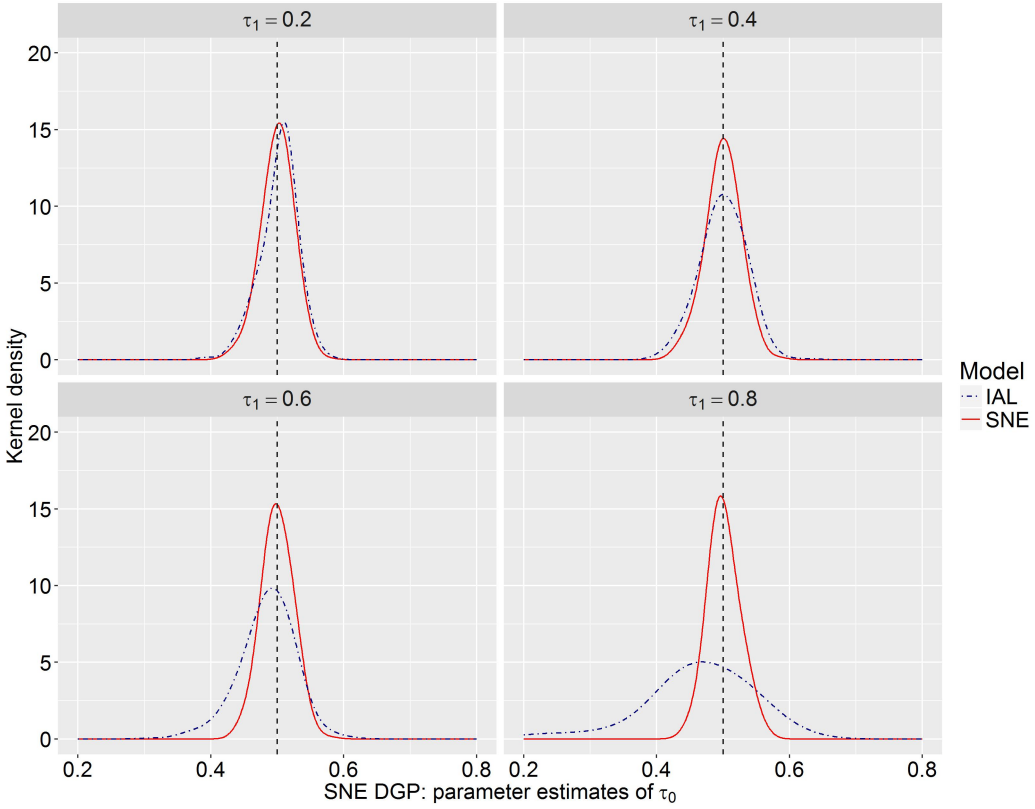

Figure S3. SNE DGP—Kernel density plot of parameter estimates for τ_0 (true value = 0.5).

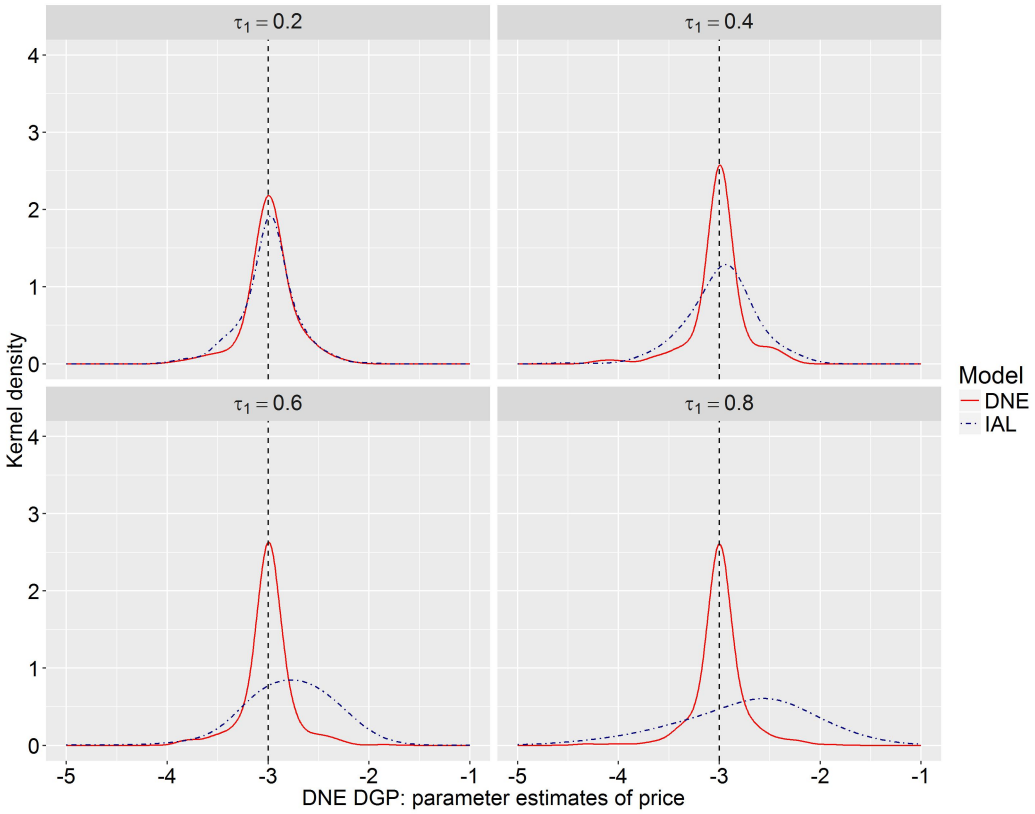

Figure S4. DNE DGP—Kernel density plot of parameter estimates for price (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$).

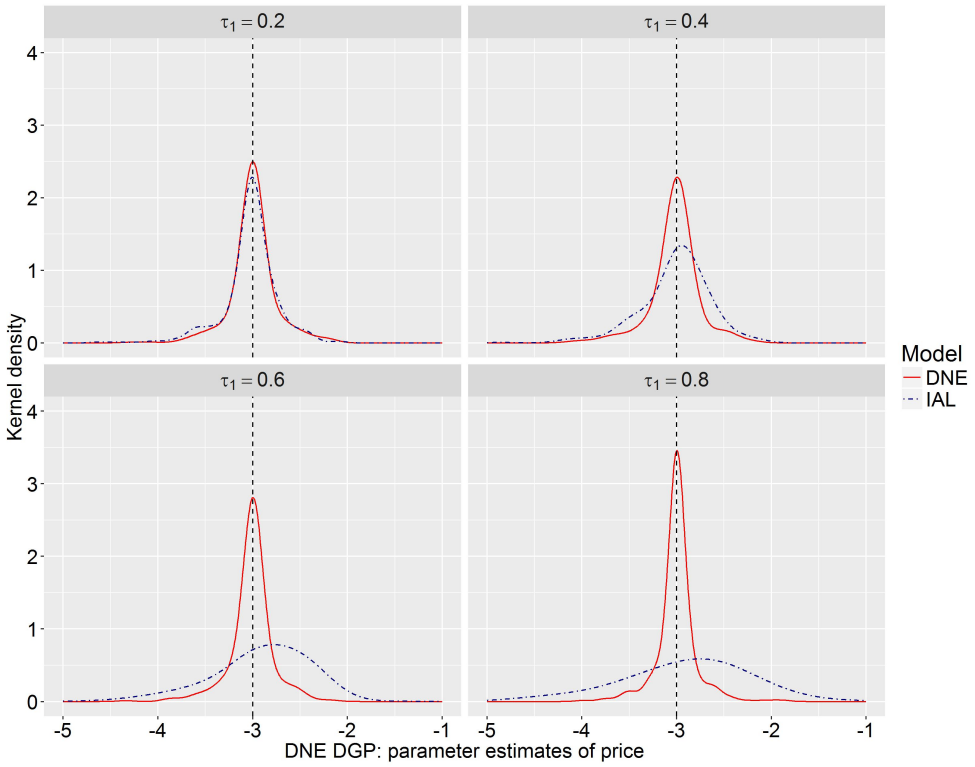

Figure S5. DNE DGP—Kernel density plot of parameter estimates for price (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

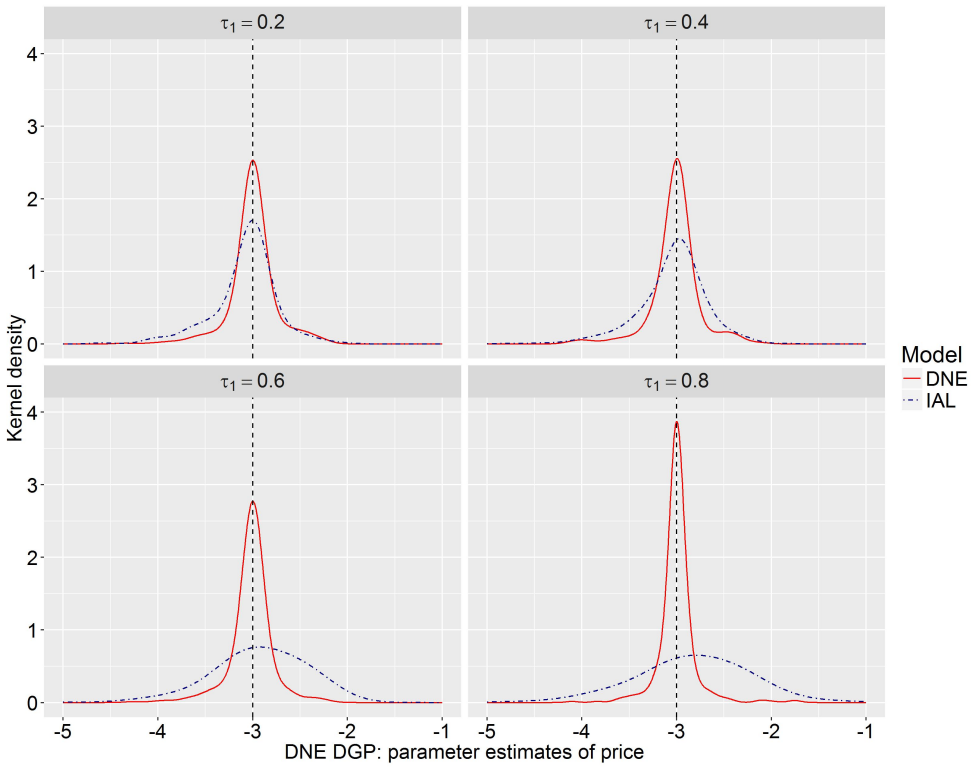

Figure S6. DNE DGP—Kernel density plot of parameter estimates for price (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

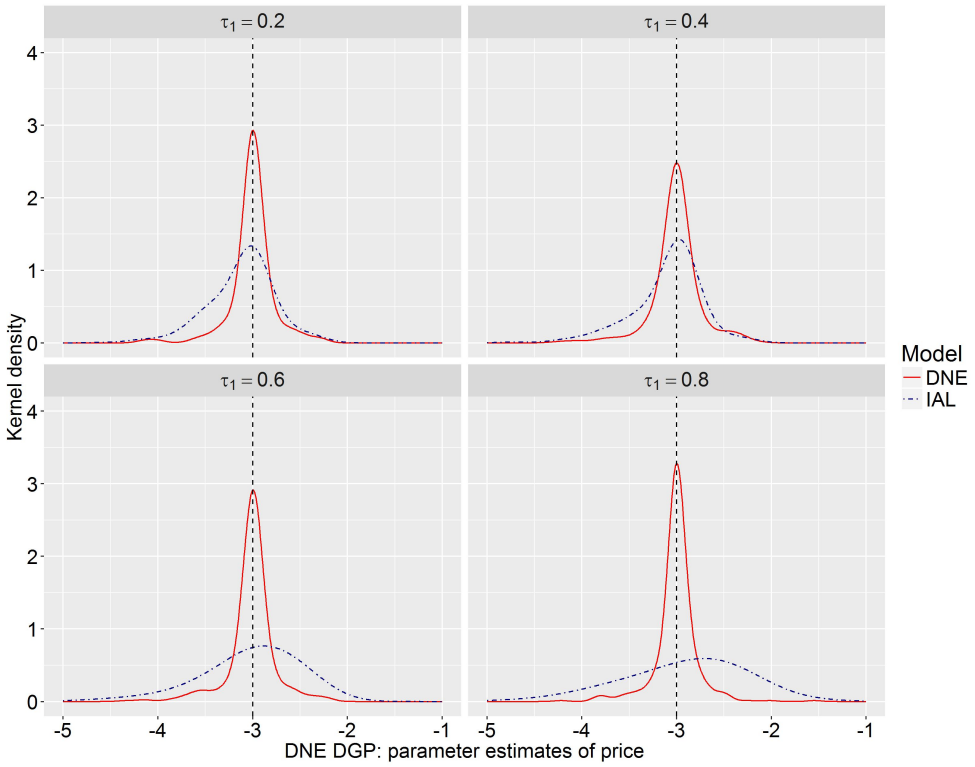

Figure S7. DNE DGP—Kernel density plot of parameter estimates for price (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

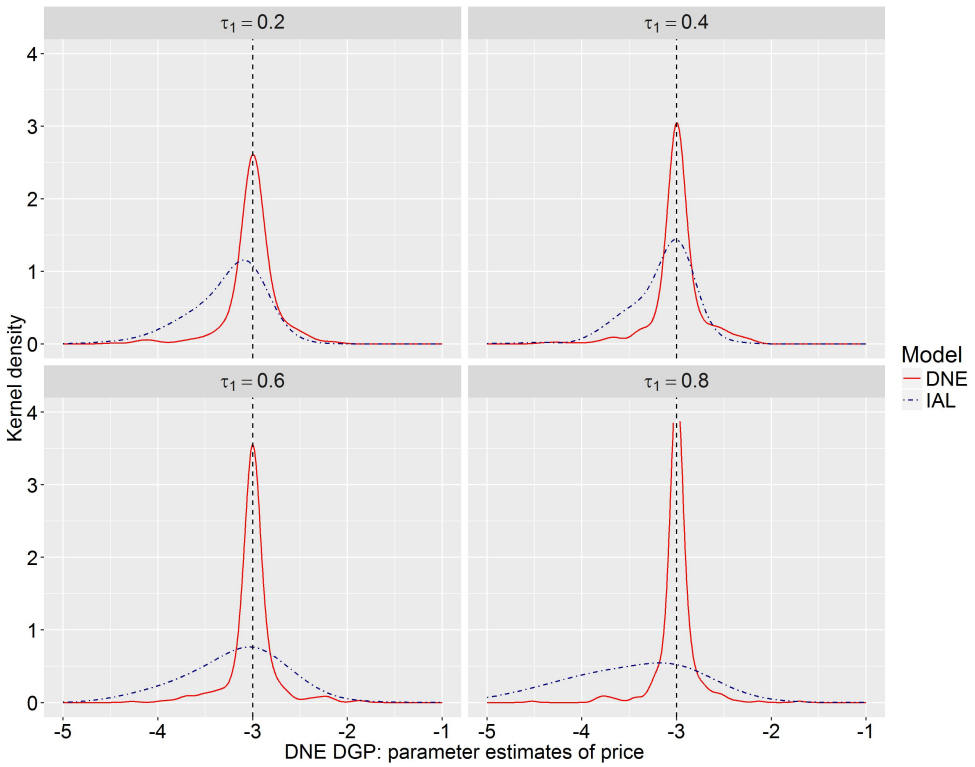

Figure S8. DNE DGP—Kernel density plot of parameter estimates for price (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

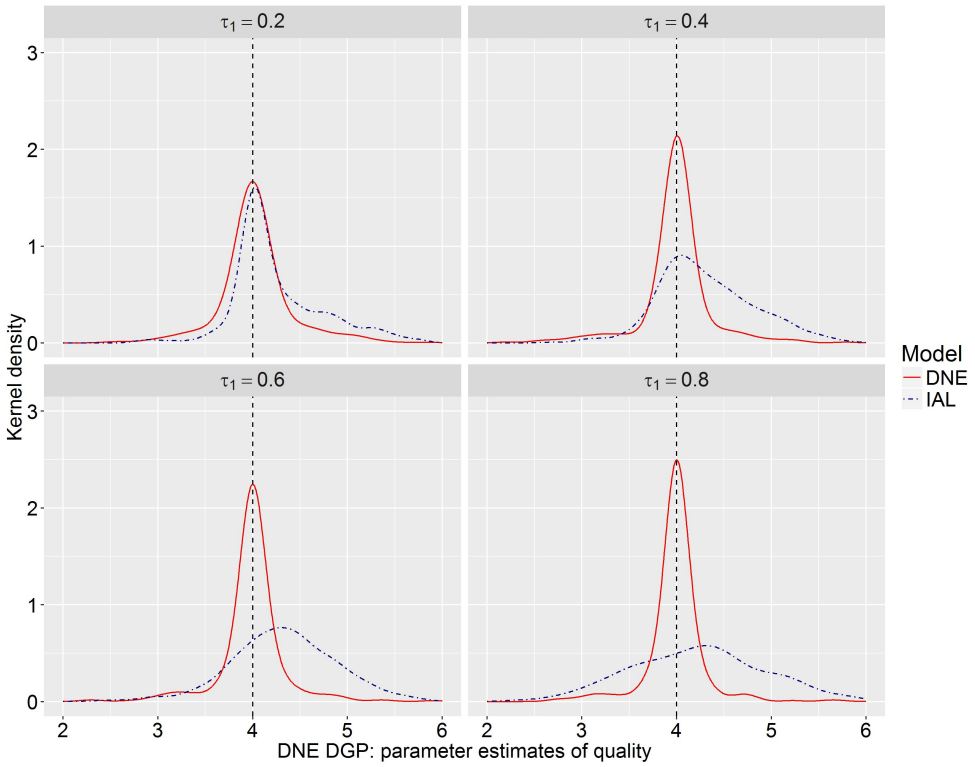

Figure S9. DNE DGP—Kernel density plot of parameter estimates for own quality (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$).

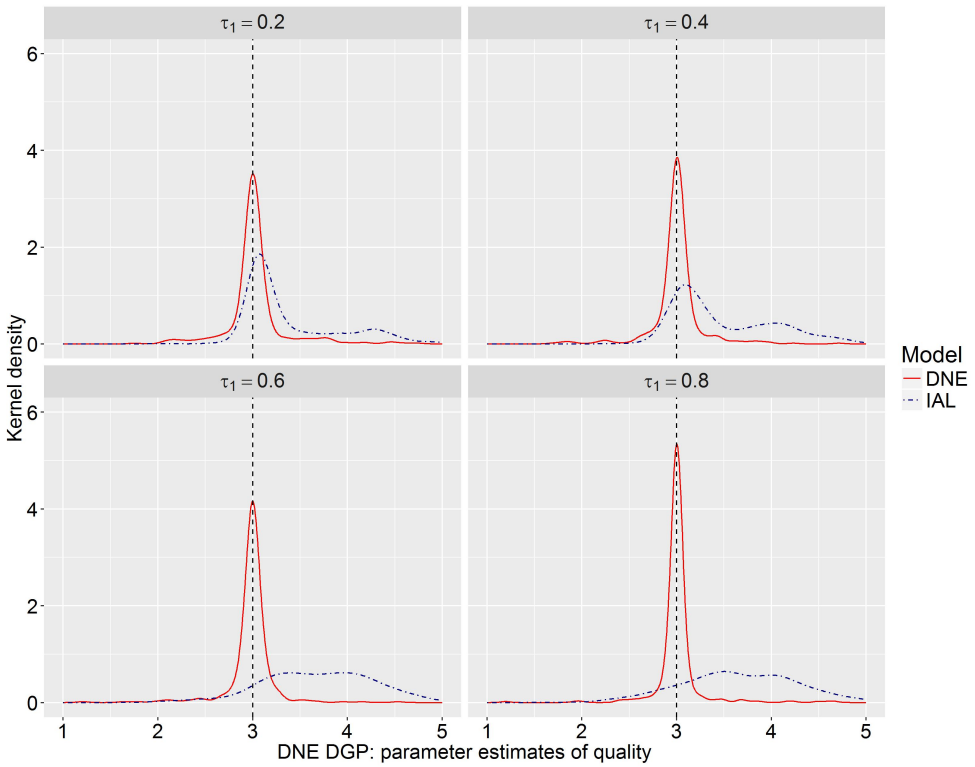

Figure S10. DNE DGP—Kernel density plot of parameter estimates for own quality (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

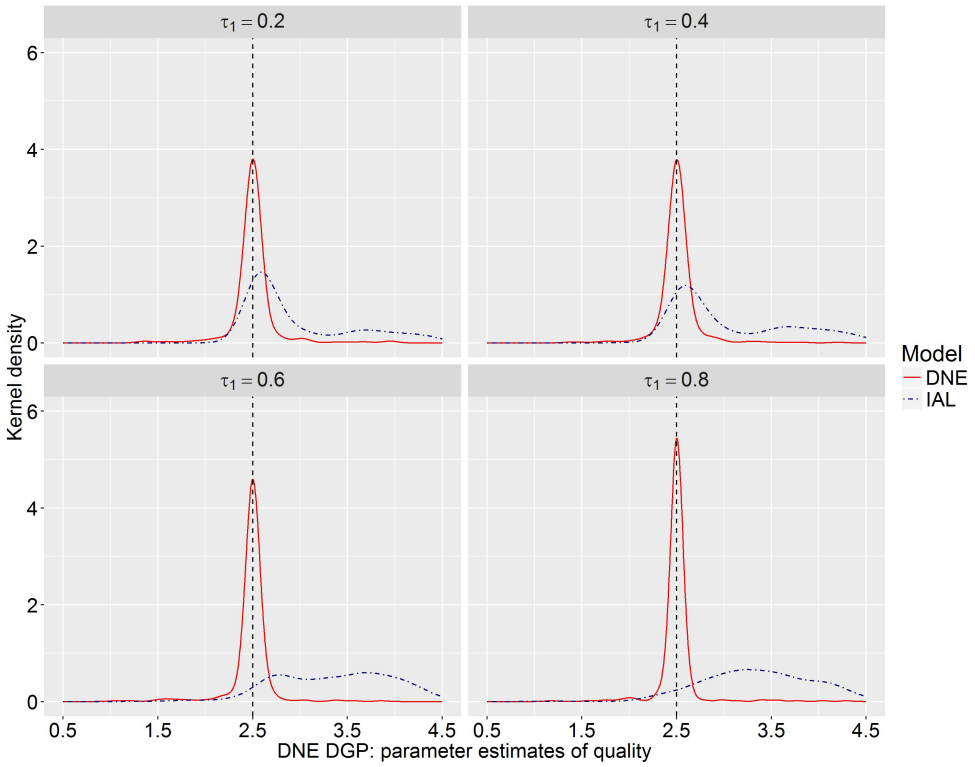

Figure S11. DNE DGP—Kernel density plot of parameter estimates for own quality (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

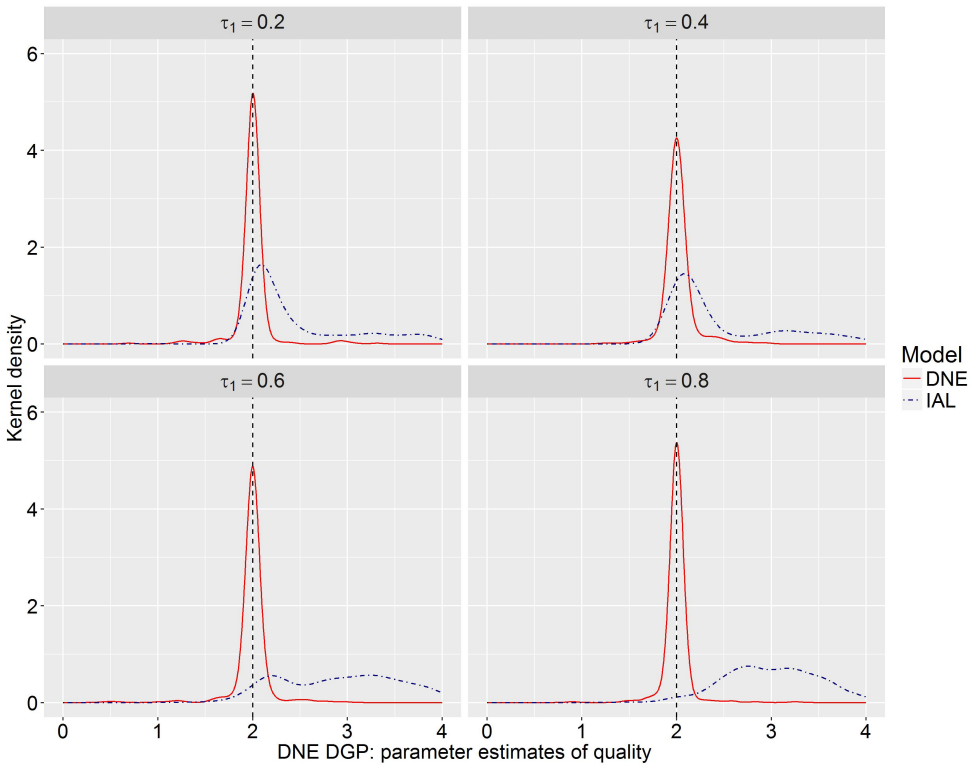

Figure S12. DNE DGP—Kernel density plot of parameter estimates for own quality (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$).

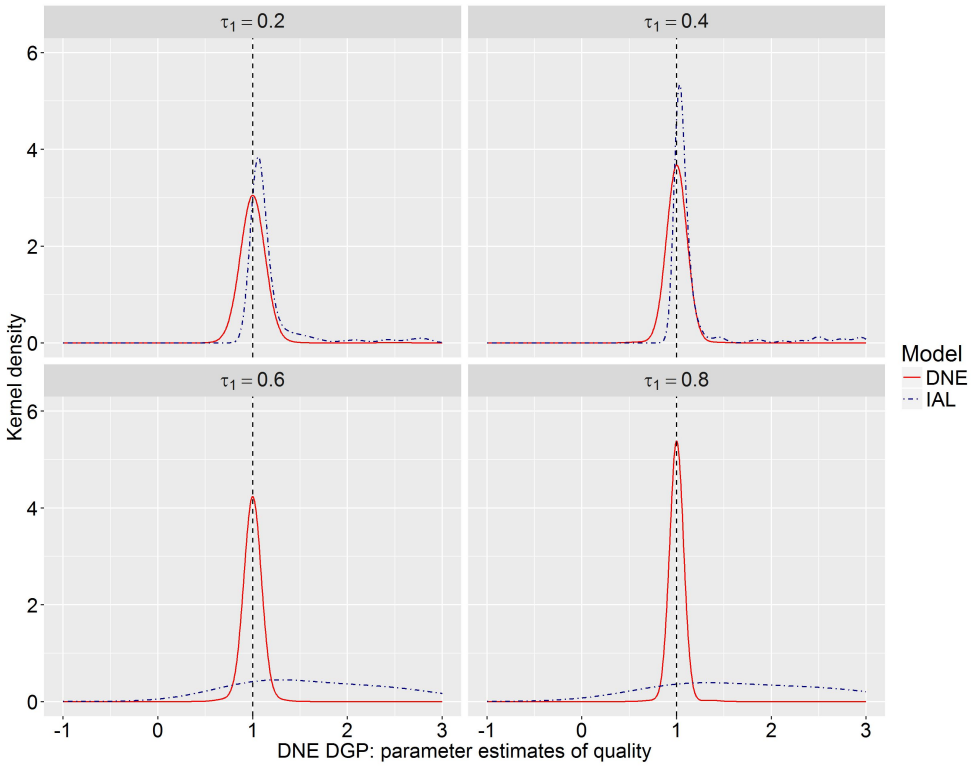

Figure S13. DNE DGP—Kernel density plot of parameter estimates for own quality (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

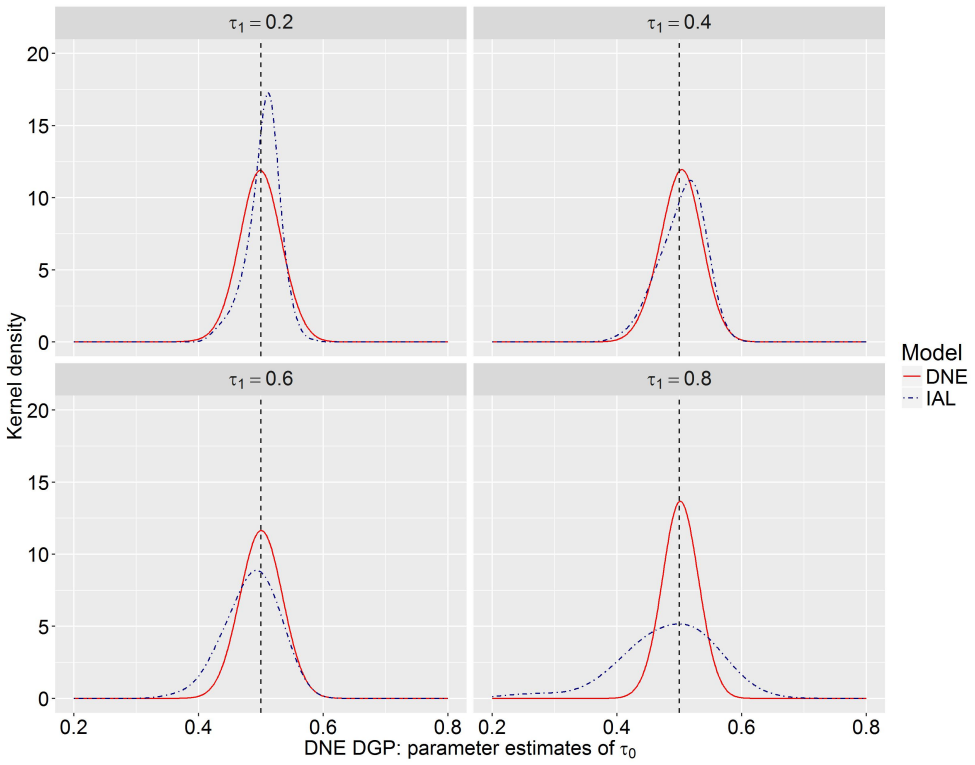

Figure S14. DNE DGP—Kernel density plot of parameter estimates for τ_0 (DGP with $\beta_{\text{OWN}} = 4$, $\beta_{\text{NET}} = 1$).

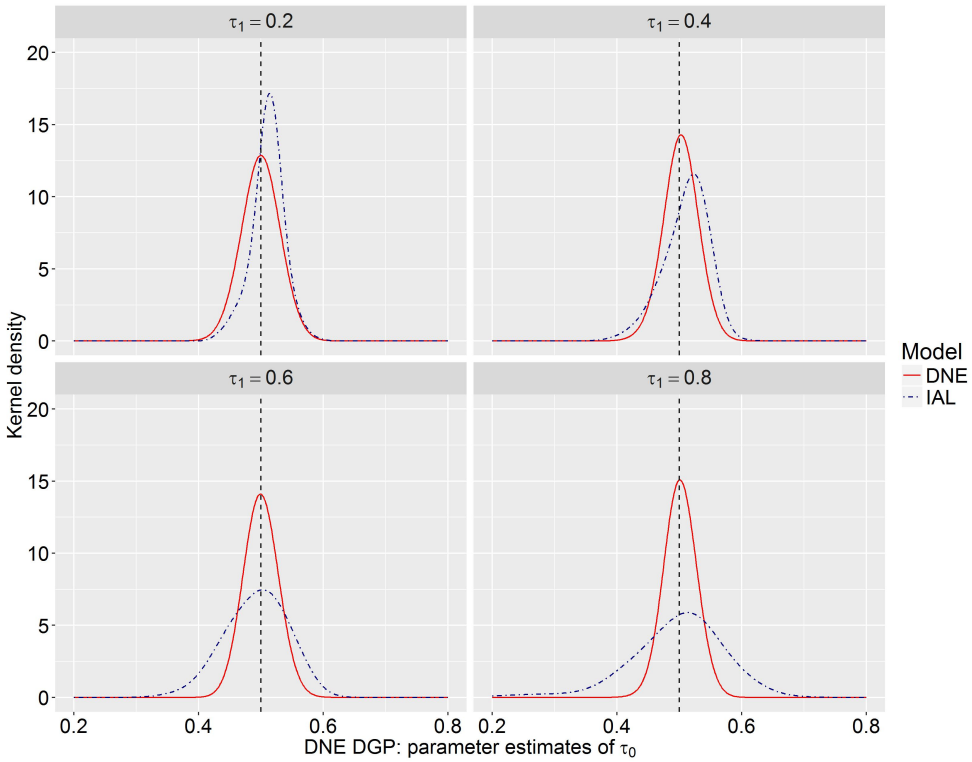

Figure S15. DNE DGP—Kernel density plot of parameter estimates for τ_0 (DGP with $\beta_{\text{OWN}} = 3$, $\beta_{\text{NET}} = 2$).

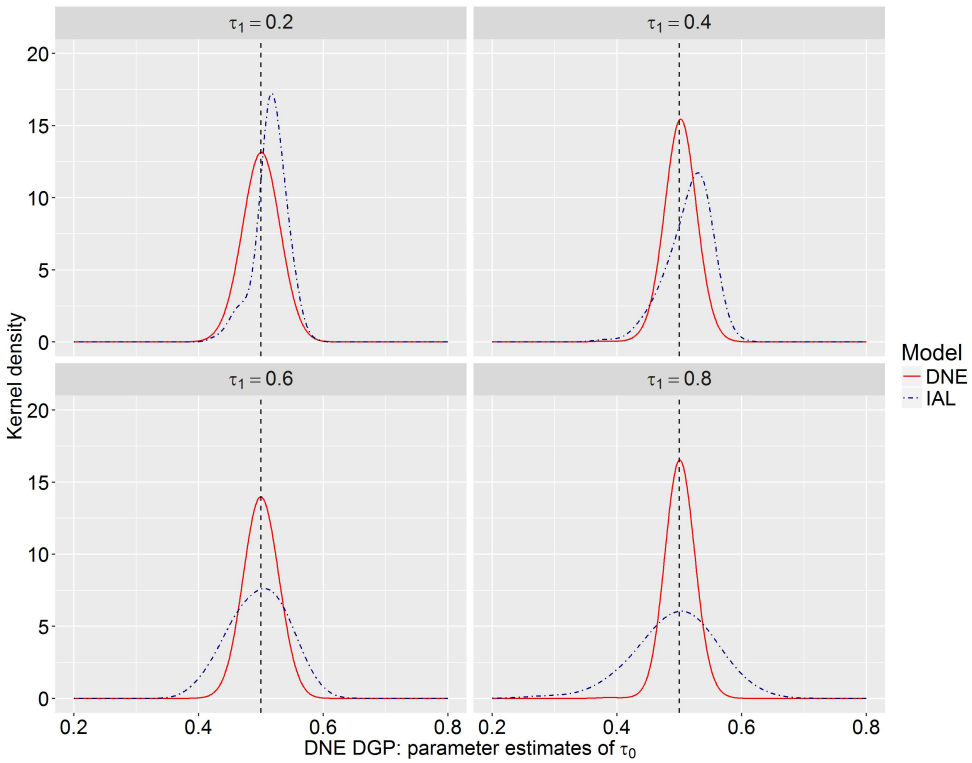

Figure S16. DNE DGP—Kernel density plot of parameter estimates for τ_0 (DGP with $\beta_{\text{OWN}} = 2.5$, $\beta_{\text{NET}} = 2.5$).

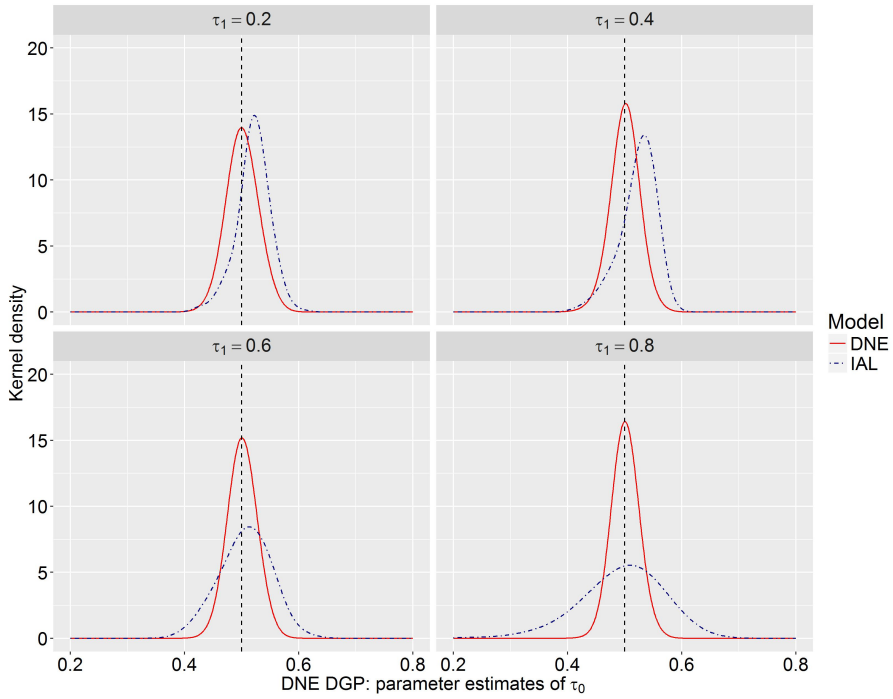

Figure S17. DNE DGP—Kernel density plot of parameter estimates for τ_0 (DGP with $\beta_{\text{OWN}} = 2$, $\beta_{\text{NET}} = 3$) .

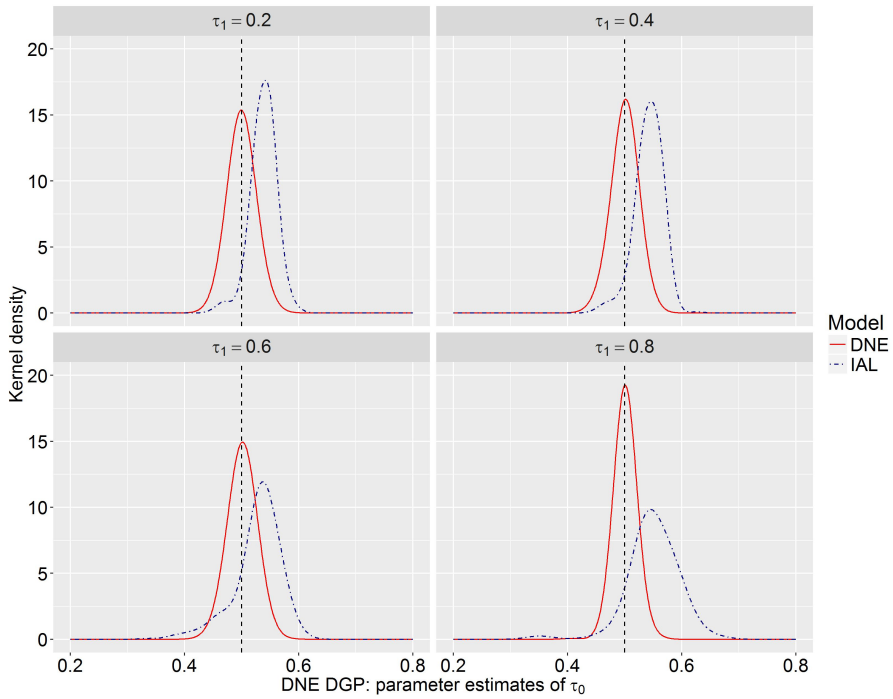

Figure S18. DNE DGP—Kernel density plot of parameter estimates for τ_0 (DGP with $\beta_{\text{OWN}} = 1$, $\beta_{\text{NET}} = 4$).

References

1. Draganska, M.; Klapper, D. Choice set heterogeneity and the role of advertising: An analysis with micro and macro data. *J. Mark. Res.* **2011**, *48*, 653–669.