$$u_{i,d,t,j,h} = \underbrace{\delta\left(Z_{i,d,t}\right) Dist_{i,h}}_{\text{Distance}} + \underbrace{\gamma\left(Z_{i,d,t}\right) X_h + \eta_h}_{\text{Hospital Characteristics}} + \underbrace{\lambda \cdot PastUse_{i,h}}_{\text{Past Use Dummy}} - \underbrace{\kappa_j \cdot 1\left\{h \notin N_{j,t}\right\}}_{\text{Out-of-Network Hassle Cost}} + \varepsilon_{i,d,t,h}$$

$$HospEU_{i,d,t,j}\left(N_{j,t}\right) \equiv E \max_h \left\{\hat{u}_{i,d,t,j,h}\left(N_{j,t}\right) + \varepsilon_{i,d,t,j,h}\right\} = \log\left(\sum_h \exp\left(\hat{u}_{i,d,t,j,h}\left(N_{j,t}\right)\right)\right)$$

$$NetworkUtil_{i,j,t}\left(N_{j,t}\right) \equiv \sum_d freq_{i,d,t} \cdot HospEU_{i,d,t,j}\left(N_{j,t}\right)$$

$$U_{ijt} = \underbrace{\alpha\left(Z_i\right) \cdot Prem_{j,t,Reg_i,Inc_i}}_{\text{Plan Premium}} + \underbrace{Network_{ijt}}_{\text{Hospital Network Vars.}} + \underbrace{\xi_{ijt}}_{\text{Unobs. Quality}} + \underbrace{\varepsilon_{ijt}^{Plan}}_{\text{Logit Error}}$$

$$Network_{ijt} = \beta_1\left(Z_i\right) \cdot NetworkUtil_{ijt} + \beta_2\left(Z_i\right) \cdot CoverPastUsed_{ijt}$$

$$\xi_{ijt} = \xi_{j,Reg_i,Inc_i} + \xi_{j,t,Reg_i}$$