

Appendix 1. Feeding Families in COVID-19 Quarantined Wuhan1Appendix

Model 1 is

$$\text{logit}(\text{Difficulty}) = \ln \frac{P(\text{Difficulty})}{1-P(\text{Difficulty})} = \beta_0 + \beta_1 \cdot \text{Gender} + \beta_2 \cdot \text{Age} + \beta_3 \cdot \text{Education} + \beta_4 \cdot \text{Wuhan Registration} + \beta_5 \cdot \text{Dependent Children} + \beta_6 \cdot \text{Rent} + \varepsilon$$

In Model 2 we include the interacting effect of Gender and Age. Model 2 is

$$\text{logit}(\text{Difficulty}) = \ln \frac{P(\text{Difficulty})}{1-P(\text{Difficulty})} = \beta_0 + \beta_1 \cdot \text{Gender} + \beta_2 \cdot \text{Age} + \beta_3 \cdot \text{Education} + \beta_4 \cdot \text{Wuhan Registration} + \beta_5 \cdot \text{Dependent Children} + \beta_6 \cdot \text{Rent} + \beta_7 \cdot \text{Gender} \cdot \text{Age} + \varepsilon$$

Therefore, the marginal effect of Gender on the probability of experiencing Difficulty is

$$\left(\frac{\partial \text{Difficulty}}{\partial \text{Gender}} \right) = \beta_1 + \beta_7 \cdot \text{Age}$$

And the standard error of the marginal effect of Gender is

$$s.e. \left(\frac{\partial \text{Difficulty}}{\partial \text{Gender}} \right) = \sqrt{V(\beta_1) + V(\beta_7) \cdot (\text{Age})^2 + 2 \cdot \text{Cov}(\beta_1, \beta_7) \cdot \text{Age}}$$

In Model 3 we include the interacting effect of Gender and Education. Model 3 is

$$\text{logit}(\text{Difficulty}) = \ln \frac{P(\text{Difficulty})}{1-P(\text{Difficulty})} = \beta_0 + \beta_1 \cdot \text{gender} + \beta_2 \cdot \text{Age} + \beta_3 \cdot \text{Education} + \beta_4 \cdot \text{Wuhan registration} + \beta_5 \cdot \text{Dependent Children} + \beta_6 \cdot \text{Rent} + \beta_7 \cdot \text{Gender} \cdot \text{Education} + \varepsilon$$

Therefore, the marginal effect of Gender on the probability of experiencing Difficulty is

$$\left(\frac{\partial \text{Difficulty}}{\partial \text{Gender}} \right) = \beta_1 + \beta_7 \cdot \text{Education}$$

And the standard error of the marginal effect of Gender is

$$s.e. \left(\frac{\partial \text{Difficulty}}{\partial \text{Gender}} \right) = \sqrt{V(\beta_1) + V(\beta_7) \cdot (\text{Education})^2 + 2 \cdot \text{Cov}(\beta_1, \beta_7) \cdot \text{Education}}$$

In Model 4, we include the interacting effect of Gender and Dependent Children. Model 4 is

$$\text{logit}(\text{Difficulty}) = \ln \frac{P(\text{Difficulty})}{1-P(\text{Difficulty})} = \beta_0 + \beta_1 \cdot \text{Gender} + \beta_2 \cdot \text{Age} + \beta_3 \cdot \text{Education} + \beta_4 \cdot \text{Wuhan Registration} + \beta_5 \cdot \text{Dependent Children} + \beta_6 \cdot \text{Rent} + \beta_7 \cdot \text{Gender} \cdot \text{Dependent Children} + \varepsilon$$

Therefore, the marginal effect of Gender on the probability of experiencing Difficulty is

$$\left(\frac{\partial \text{Difficulty}}{\partial \text{Gender}} \right) = \beta_1 + \beta_7 \cdot \text{Dependent Children}$$

And the standard error of the marginal effect of Gender is

$$s.e. \left(\frac{\partial \text{Difficulty}}{\partial \text{Gender}} \right) = \sqrt{V(\beta_1) + V(\beta_7) \cdot (\text{Age})^2 + 2 \cdot \text{Cov}(\beta_1, \beta_7) \cdot \text{Dependent Children}}$$