

Econ 675 Assignment 6

Nathan Mather

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1 Section 1: Binary choice model

1.1 Part 1

Here are the results of my model

1.2 Part 6

Let

$$m_1 = -\frac{1}{\sigma_w^2} \rho(x_{2i} - (\theta_3 + \theta_4 x_{1i} + \theta_5 z_i))$$

and

$$v_1 = 1 - \frac{\rho^2}{\sigma_w^2}$$

$$L(\theta) = \sum_{i=0}^n y_i \text{Log}(\Phi_{m_1, v_1}(\theta_0 + \theta_1 x_{1i} + \theta_2 x_{2i})) + (1 - y_i) \log(\Phi_{m_1, v_1}(\theta_0 + \theta_1 x_{1i} + \theta_2 x_{2i})) + \log(\phi_{0, \sigma_w^2}(x_{2i} - \theta_3 - \theta_4 x_{1i} - \theta_5 z_i))$$

2 Question 2

2.1 Part 1

$$s_j = P(\mu_{ij} \geq \mu_{ij'} \quad \forall \quad j' = 0, \dots, J | \boldsymbol{\beta}, \alpha) = \frac{\exp(\mathbf{x}_{jt}\boldsymbol{\beta} - \alpha p_{jct} + \xi_{jct})}{1 - \sum_{j'} \exp(\mathbf{x}_{j't}\boldsymbol{\beta} - \alpha p_{j'ct} + \xi_{j'ct})}$$

2.2 part 2

$$\delta_j = \log(s_j) - \lambda \log(s_0)$$

3 Appendix

3.1 R Code

3.2 STATA Code