A Dynamic Panel Data Framework for Identification and Estimation of Nonlinear Production Functions

Justin Doty and Suyong Song

September 2, 2020

Introduction

- Consider the simple random-coefficient production function

$$y_{it} = \beta_0(\eta_{it}) + \beta_k(\eta_{it})k_{it} + \beta_l(\eta_{it})l_{it} + \beta_m(\eta_{it})m_{it} + \omega_{it} \quad (1)$$

  where y_{it} denotes value-added output, l_{it} denotes labor input for firm i at time t, k_{it} denotes capital input, ω_{it} is unobserved productivity and η_{it} denotes an iid shock to production.