

Identification and Estimation of Production Function with Unobserved Heterogeneity

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November 26, 2014

Preliminary and Incomplete. Please Do Not Circulate.

Abstract

This paper examines non-parametric identifiability of production function when production functions are heterogenous across firms beyond Hicks-neutral technology terms. Using a finite mixture specification to capture permanent unobserved heterogeneity in production technology, we shows that production function for each unobserved type is non-parametrically identified under regularity conditions. We also propose an estimation procedure for production function with random coefficients based on EM algorithm. We estimate a random coefficients production function using the panel data of Japanese publicly-traded manufacturing firms and compare it with the estimate of production function with fixed coefficients estimated by the method of Gandhi, Navarro, and Rivers (2013).

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