The Division of Economics and the Economic Growth Centre cordially invite you to a seminar by Dr Zhang Hongsong

Speaker : Dr Zhang Hongsong  
Assistant Professor  
University of Hong Kong

Topic : "Non-neutral Technology and Labor Demand: Firm-level Evidence"

Chairperson : Assistant Professor Chen Xiaoping  
Division of Economics  
School of Humanities & Social Sciences  
Nanyang Technological University

Date : Monday, 3 November 2014
Time : 2:30 pm - 4:00 pm
Venue : HSS Meeting Room 5 (HSS 04-89)  
Nanyang Technological University  
School of Humanities and Social Sciences  
14, Nanyang Drive  
Singapore 637332

About the Speaker:

Dr. Zhang Hongsong is Assistant Professor from the University of Hong Kong. His research interests cover topics in both industrial organization and international trade, with an emphasis on measurement of productivity, research and development (R&D), innovation, and the interaction between firm heterogeneity and firm activities. He emphasizes firm heterogeneity in productivity, technology usage, and demand shocks when analyzing firm activities such as participation in importing/exporting, R&D, entry/exit decisions, and investment decisions.

Abstract:

The neutrality (non-neutrality) nature of technology is the key to understanding of many firm activities. This paper investigates the non-neutrality nature of technology heterogeneity across firms, and that of technology change over time. I develop a method to estimate the production function with non-neutral technology heterogeneity at the firm level, which is captured by a firm-specific multidimensional productivity measure allowing for a capital-augmenting efficiency, a labor-augmenting efficiency, and a material-augmenting efficiency. This method combines both parametric and nonparametric ways to control for the unobserved multidimensional factor-augmenting efficiencies, based on firms’ optimal choices of both static and dynamic inputs. In the empirical application to Chinese steel industry, I first find that there is large heterogeneity of non-neutral technology across firms, both in efficiency levels and technological non-neutrality. Second, technology change over time is non-neutral --- labor efficiency grows much faster than capital efficiency, while the change of material efficiency is marginal. As a result, technology change is labor-saving given that the estimated elasticity of substitution is smaller than one (0.4358). The evolution of non-neutral technology, both in levels and technological non-neutrality, differs systematically across firms of different size. Third, while capital and labor efficiency levels are converging slowly during the sample period, I found no obvious converging trend of the technological non-neutrality over time in the data period. Finally, I apply the recovered non-neutral productivity measures to analyse labor demand at the firm level. I find that non-neutral technology explains a large portion of the cross-firm variation in labor demand (15%), labor-material ratio (over 70%), and labor share (70%). I also find that restricting technology to be Hicks-neutral will substantially overestimate the elasticity of substitution and underestimate the wage rate effect on labor demand.

Reservation:

Admission is free. Please reply to Director-EGC, e-mail: d-egc@ntu.edu.sg to confirm your attendance.