

# Learning by Doing and the Choice of Technology<sup>1</sup>

by

Boyan Jovanovic<sup>†</sup>

and

Yaw Nyarko<sup>†</sup>

August 4, 1996

## Abstract

This is a one-agent model of learning by doing and technology choice. The more the agent uses a technology, the better he learns its parameters, and the more productive he gets. This expertise is a form of human capital.

Any given technology has bounded productivity, which therefore can grow in the long run only if the agent keeps switching to better technologies. But a switch of technologies temporarily reduces expertise: The bigger is the technological leap, the bigger the loss in expertise. The prospect of a productivity drop may prevent the agent from climbing the technological ladder as quickly as he might. Indeed, an agent may be so skilled at some technology that he will never switch again, so that he will experience no long run growth. In contrast, someone who is less skilled (and therefore less productive) at that technology may find it optimal to switch technologies over and over again, and therefore enjoy long-run growth in output. Thus the model can give rise to overtaking.

Keywords: Human Capital, growth, overtaking.

Journal of Economic Literature No's: C11, D8, O12, O3

<sup>†</sup> Department of Economics, New York University

<sup>1</sup>We thank the C.V. Starr Center for Applied Economics at New York University for technical and financial help, and Chung Tse for help with the research.