GLOBALIZATION CHALLENGE AND MANAGEMENT TRANSFORMATION

Proceedings of ICM' 2007

The 6 th International Conference on Management

August 3-5, 2007 Wuhan, China

Zhang Jinlong, Zhang Wei, Xia Xinping, Liao Jianqiao (Eds.)

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ABSTRACT

This book is the proceedings of the 6th International Conference on Management (ICM'2007). ICM'2007 is a conference organized by Department of Management Science, National Natural Science Foundation of China (NSFC) with Huazhong University of Science and Technology, which is held on August 3-5, 2007, in Wuhan, China.

About 300 papers are selected in the proceedings. These papers, submitted from 11 countries and areas, cover three key issues in management science: basic theories and methods, business administration, and macroeconomic management. The proceeding is a precious reference to those people who wish to either understand the new trends and new requirements on management sciences in the foreseeable future, or familiarize with the status and development of management sciences.

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Preface

The International Conference on Management (ICM) is a conference in series organized by Department of Management Science, National Natural Science Foundation of China (NSFC) with a local partner. The first to five of this conference were successfully held in Beijing (1994), Hong Kong (1996), Shanghai (1998), Xi'an (2001), and Macao (2004).

A common sense is that the scope of management sciences is dramatically expanding and developing with the globalization of the world economy. Hence, the theme of this conference, i.e., the 6th ICM to be held in Wuhan, is determined as "Globalization Challenge and Management Transformation". The conference provides an international academy forum for various management professionals to share and exchange new ideas, theories, methods, and fruits on the theory and practice of management studies, and promotes the communion and innovation of the management science between China and the world.

About 300 papers will be presented at this conference and are selected in the proceedings. These papers, submitted from 11 countries and areas, cover three key issues in management science: basic theories and methods, business administration, and macroeconomic management. I believe that this proceeding is a precious reference to those people who wish to either understand the new trends and new requirements on management sciences in the foreseeable future, or familiarize with the status and development of management sciences in China. I would like hereby to thank Science Press for the timely and elegant publication of the proceedings.

All members of the program committee and organizing committee contributed to the success of the conference. Particularly, several faculty members of Huazhong University of Science and Technology and National Natural Science Foundation volunteered their time and efforts in organizing the conference and editing the papers. Their helpful works are greatly appreciated.

Meanwhile, I would like to express my gratitude to many organizations domestic and abroad for their sponsorships. The names of these organizations are listed at the front page of this proceeding.

Finally, I wish the conference successful and valuable to all involved.

Guo Chongqing
Director General, Department of Management Sciences, NSFC
August 2007

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Globalization Challenge and Management Transformation

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Technological Innovation

Effect of Biased Technical Change on Factor Demand: An Investigation into Chinese Manufacturing Panel Data 1980-1994*

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Abstract This article applies recent advances in productivity and efficiency measurement to evaluate technological biases, and gauge the impacts on factor demand in Chinese manufacturing for 1980 through 1994. By using the translog cost function and Proxy approach, we establish an explicit path for biased technical change. Empirical analyses confirm that technical change was capital-using and labor-saving. Further investigation rejects the skill-neutrality hypothesis, revealing a skill-biased technical change phenomenon during that period. By decomposing the causes of changes in factor-cost shares we find that price effect tended to increase the cost shares of both labors and decrease that of capital. Technical change effect and scale effect had the opposite impact. Furthermore, the residual may hurt the employment prospect of low-skilled labor and need further investigation.
Key words Non-neutral technical change, Factor bias, Skill-biased technical change

1. Introduction

For many problems in macroeconomics, development economics, labor economics, and international trade, whether technical change is biased towards particular factors is of central importance (Acemoglu, 2003) [1]. In most situations, technical change is not neutral as it benefits some factors of production more than others. For example, Michl (1999)[2] observed productivity growth patterns in selected countries during 1973-1992 and found that it was consistent with technical change of a capital-using, labor-saving variety.

An earlier literature was devoted to biased technical change. Hicks in *The Theory of Wages* (1932) [3] first discussed the determinants of equilibrium bias. He wrote: "A change in the relative prices of the factors of production is itself a spur to invention, and to invention of a particular kind—directed to economizing the use of a factor which has become relatively expensive." (pp. 124-125). Marx also touched on this issue. He argued that labor scarcity would induce the capitalist to substitute machinery for labor and spur growth. Since 1960, with the advancement of empirically evaluation methods and the improvement of data quality, extensive empirical literature analyzed different aspects of the production technology using cost function approaches, especially the translog method, to reveal technical bias and its impact on factor demand. More recently, skill-biased technical change (SBTC) literature emerged as an important strand, which is regarded as the main reason in the enlarging gap of employment and wage inequality between high-skilled labor and low-skilled labor in most advanced countries. (Binswanger, 1974; Stevenson, 1980; and Baltagi, 2005 etc)[4][5][6]

Compared with achievements abroad, Chinese academy has been keen on the study of technical change, especially its impact on different factor inputs. As Prof. Zhang Jun demonstrated (2002) [7], domestic industries especially manufacturing industries have been showing an ever increasing capital-deepening character in practice. Many other studies also prove this point. Yet, most studies focus on the measurement of technical change (Wang, etc., 2006) [8]. The earlier studies on biased technical change came from Liu (1999, etc). Zheng and Liu (2004)[9] employed macro data to estimate the bias of technical change of three inputs — capital, labor and energy, stating that neutrality is the main characteristics of technical change in China. Yao etc (2005) [10] got further by using panel data to test skill-neutrality and reveal its impact on different labor. Yet the data came from a survey of 311 manufacturing firms in Zhejiang province from 2000 to 2002, so their findings can't represent the overall situation in China.

Based on panel data of Chinese manufacturing from 1980 to 1994, the main objectives of this paper are: (1)

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