

THE PRODUCTIVITY EFFECTS OF INNOVATION: An Empirical Study of the Manufacturing Industry of Information and Communication Technology in China

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Keywords : productivity, innovation, endogenous growth model, ICT manufacturing industry, economy of China

1 目的

Since 1978, China has experienced an enormous increase in the gross domestic product (GDP) and a soaring growth in the industry of information and communication technology (ICT). China's economic growth over the past 40 years mainly comes from the large-scale investment in capital, labor, land, and resources. However, investment in R&D is increasing annually. This study investigates the role of innovation in the growth and productivity of the manufacturing industries of ICT and other high technologies in China.

2 方法

This research explores the contribution of innovation and technological progress on productivity in the ICT manufacturing sectors and other high technology manufacturing sectors of China through empirical analysis. The empirical analysis adopts the endogenous growth production function in a Cobb–Douglas format and examines the cross-provincial panel data over the period from 1995 to 2016.

3 結果

The empirical estimated results show that the effect of R&D expenditure on productivity is positive and significant in all four high technology sectors in China. A 1% increase in R&D expenditure leads to a 0.362%, 0.280%, 0.240%, and 0.174% revenue increases separately in the medical equipment and meters sector (MEM), the electronic and telecommunications equipment sector (ETE), the pharmaceuticals sector (Ps), and the aircraft and spacecraft sector (AS). The regional imbalance of economic growth is severe. The elasticity of R&D expenditure in the ETE in the Eastern Coastal Region is 0.291, 1.39 times that in the Inner Region.

4 結論

The manufacturing industry of ICT is an industry which less rely on natural resources, but strongly rely on technology and human resource. The analysis and study certify the value of innovation, the effect of R&D expenditure on productivity is positive and significant in high technology sectors in China. Furthermore, it shows that market-oriented innovation decisions and activities are the sources of innovation efficiency.

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