Indigenous Innovation, Structural Change and Dynamics of Shift for Growth Patterns in China

—Evidence from Guangdong Province

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Abstract

Structural reform and growth pattern transition are key issues for China's current economy. Improvements in the country's ability to innovate have been established as a key strategy for economic rebalance and sustainable development. This paper surveys the impact of independent innovation within the structure of industrial upgrades and productivity growth for Guangdong Province, China. In our research we have found that science and technology levels, R&D financial support, and competitive environments are all decisive factors in the capacity of independent innovation, as detailed in twenty-three indices of innovation activities documented by PCA methods. High-technology industries and deregulation services have become the engine that powers this upgrade structure, as based on the measurement of the coefficient of association and inductance from the input-output table. Economic growth patterns are gradually shifting from export-led processing in the manufacturing sector to large-scale industries and services. Our conclusions demonstrate that the independent innovation capacity of Guangdong has improved significantly over the last fifteen years, and R&D spending has increased eightfold, with the ratio of R&D to GDP increasing from 0.85 percent to 2.5 percent. The contribution rate for economic growth rose to 16.9 from 5.1 percent, and increased to 33.3 percent, from 11.6 percent, in terms of technological industrial growth. GDP will increase 3 percent if the output of high-technology industries increases by 1 percent. However, the manufacturing sector accounts for only 2.5 percent, and services and agriculture 1.17 percent, respectively. The resulting policy implications are that the cultivation of independent innovation and technological progress are the most important elements for navigating the bottleneck of structural adjustment and growth pattern transformation across "the middle-income trap" in China during the post-crisis era.

Keywords: Indigenous innovation capability, High-Technological industries, Productivity, Industrial structural, Economic growth model,