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The Role of Information and Communication Technology in China's Growth and Productivity
Performance from an International Perspective

Harry Wu

David Liang

Since the 1990s, the world economy has been driven by two most important engines—globalization through trade and direct investment and the information and communication technology (ICT) that is mature almost for every manufacturing industry. China has recently overtaken the US as the world largest manufacturer of ICT products. Yet, the lack of ICT asset data in official statistics is a major obstacle to a more accurate estimation of the role of the ICT in the Chinese economy. In order to tackle this problem, we first estimate China's ICT investment at the macro-level and the industry-level distribution of ICT capital stock and measure their services. Applying the Jorgensonian aggregate production possibility frontier (APPF) model to the China Industrial Productivity (CIP) data set constructed in the principle of KLEMS, we scrutinize the role of ICT in China's post-reform growth from 1980 to 2017. Based on our newly estimated ICT assets and their services, we group Chinese industries into ICT-specific groups and apply the APPF industry origin of productivity framework, incorporating Domar weights for industry aggregation, to the grouped CIP industry data. This allows us to decompose China's productivity growth into the contribution of the ICT-specific groups and the factor reallocation effect across the groups. Furthermore, to obtain insights on the productivity gap with those on the technological frontiers like the US and Japan, we conduct international comparisons at a detailed industry level to help us understand the relative positions of various sectors and generate policy implications for further improvement.