

The Information and Communication Technology Cluster in the Global Value Chain Network

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Abstract

Global value chains (GVCs) are among the critical factors shaping the world economy nowadays. Within cross-border production networks an increasingly important role has been played by the information and communication technology (ICT) sectors. Based on the multi-country input-output database recently developed by the Vienna Institute for International Economic Studies, covering the period 2005–2018, this policy brief examines the structure and the dynamics of global value chains associated with the ICT sectors. To this end we use complex network analysis techniques to characterise the overall topology of the international ICT cluster in the GVC network, identify the key countries and sectors therein from the perspective of their connectivity. The analysis shows that the ICT GVC network is dominated by the mutual value-added trade linkages between China, South Korea and Taiwan in the Computers and electronics manufacturing sector. These sectors are heavily interlinked via backward and forward GVC linkages with a large number of ICT and non-ICT sectors, many of which are located in the USA, China and Germany. In the recent decade, there has been a major shift in terms of importance to the GVC network from ICT manufacturing towards ICT services, especially prominent for the ICT services sector in Ireland, which has become among the most interconnected sectors in the global ICT cluster.

Keywords: global value chains; ICT sector; network analysis; digitalisation

JEL classification: F10, F14, F15

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