

The Strategic Importance of Technology in the International Production: Beyond the Global Value Chains Approach

Authors : Marcelo Pereira Introini

Abstract : The global value chains (GVC) approach contributes to a better understanding of the international production organization amid globalization's second unbundling from the 1970s on. Mainly due to the tools that help to understand the importance of critical competences, technological capabilities, and functions performed by each player, GVC research flourished in recent years, rooted in discussing the possibilities of integration and repositioning along regional and global value chains. Regarding this context, part of the literature endorsed a more optimistic view that engaging in fragmented production networks could represent learning opportunities for developing countries' firms, since the relationship with transnational corporations could allow them build skills and competences. Increasing recognition that GVCs are based on asymmetric power relations provided another sight about benefits, costs, and development possibilities though. Once leading companies tend to restrict the replication of their technologies and capabilities by their suppliers, alternative strategies beyond the functional specialization, seen as a way to integrate value chains, began to be broadly highlighted. This paper organizes a coherent narrative about the shortcomings of the GVC analytical framework, while recognizing its multidimensional contributions and recent developments. We adopt two different and complementary perspectives to explore the idea of integration in the international production. On one hand, we emphasize obstacles beyond production components, analyzing the role played by intangible assets and intellectual property regimes. On the other hand, we consider the importance of domestic production and innovation systems for technological development. In order to provide a deeper understanding of the restrictions on technological learning of developing countries' firms, we firstly build from the notion of intellectual monopoly to analyze how flagship companies can prevent subordinated firms from improving their positions in fragmented production networks. Based on intellectual property protection regimes we discuss the increasing asymmetries between these players and the decreasing access of part of them to strategic intangible assets. Second, we debate the role of productive-technological ecosystems and of interactive and systemic technological development processes, as concepts of the Innovation Systems approach. Supporting the idea that not only endogenous advantages are important for international competition of developing countries' firms, but also that the building of these advantages itself can be a source of technological learning, we focus on local efforts as a crucial element, which is not replaceable for technology imported from abroad. Finally, the paper contributes to the discussion about technological development as a two-dimensional dynamic. If GVC analysis tends to underline a company-based perspective, stressing the learning opportunities associated to GVC integration, historical involvement of national States brings up the debate about technology as a central aspect of interstate disputes. In this sense, technology is seen as part of military modernization before being also used in civil contexts, what presupposes its role for national security and productive autonomy strategies. From this outlook, it is important to consider it as an asset that, incorporated in sophisticated machinery, can be the target of state policies besides the protection provided by intellectual property regimes, such as in export controls and inward-investment restrictions.

Keywords : global value chains, innovation systems, intellectual monopoly, technological development

Conference Title : ICDCIE 2023 : International Conference on Developing Countries and Innovation Engineering

Conference Location : Sydney, Australia

Conference Dates : January 30-31, 2023