Trade and Investments through Global Value Chains (GVC) and Technology Transfer: A Panel Smooth Threshold Regression Approach (PSTR)

The objective of this paper is twice: providing a new indicator of export sophistication index that can be used as a proxy of the level of technology created at home and investigating the effect of interactions through Global Value Chains on technology transfer. Considering China’s growing but criticized presence in Africa over the last decades, this paper investigates the effect of the presence of China in Africa (through value-added trade and foreign direct investments) on the level of technological sophistication of African countries’ exports independently of the determinants of this presence. Using a panel smooth threshold regression model on 49 African countries from 1995 to 2015, we attempted to identify whether interactions between China and African countries through global value chains have led to technology transfer. Technology transfer was split into direct and indirect technology transfer. The results highlighted the absence of direct technology transfer from China to African countries except for those that are highly endowed with human capital and strong institutions. In addition, evidence existed of indirect technology transfer through imports of intermediate goods by African countries from China. Compared with relevant literature, we used a new approach focusing on domestic value-added export sophistication that allows to measure only technology coming from the value added effectively created by a country, thus withdrawing foreign technology contained in in the index. We also investigated technology transfer resulting from value added created in China and exported to African countries; this prevented us from capturing technology transfer that resulted from China in addition to its trade partners.