

Determinants of country positioning in global value chains

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Available evidence confirms that global value chains (GVCs) can be an important avenue for developing countries to build productive capacity and to integrate in the world economy at lower costs. But the gains from GVC participation are not automatic and require careful policy-making. According to the OECD, WTO and UNCTAD, “For policy makers, a starting point for the incorporation of GVCs in a development strategy is an understanding of where their countries and their industrial structures stand in relation to GVCs”.

Naturally, countries differ in where they are located in the value chain. Position upstream in the value chain means that production requires mostly primary inputs, and outputs are supplied to intermediate users. This is typical for producers of raw materials or knowledge (e.g. research, design) that are required at the beginning of the production process. Position downstream means that production requires more intermediate inputs, and outputs are supplied to final rather than intermediate users. Producers located downstream often specialise in assembling processed goods and providing customer services. The relative position in the GVC can change over time.

Positioning closer to the beginning of the production process is generally believed to secure higher value added shares and increase technological sophistication. Therefore, moving upstream or upgrading country position in GVCs are current policy priorities for many countries.

This paper refines a technique to identify country and industry positions in GVCs and explores how and why these positions evolve over time. Production, trade and consumption in the global economy are described in an inter-country input-output framework. Technically, the author isolates global value chain from domestic value chain and measures its length with respect to a country or an industry in two directions, forwards to the destination of outputs and backwards to the origin of inputs. Length corresponds to the average number of production stages a typical product has to undergo along this value chain. The key analytical indicator is a modified GVC position index that relates the average number of production stages that link output to final users to the average number of production stages that link the same output to primary producers through GVCs.

The paper goes further than Z.Wang, S.-j.Weil, X.Yu and K.Zhu who first proposed the GVC production line position index in 2016. First, the length components of the index are normalised with respect to total output. This means that total output serves as a common denominator ensuring that all lengths are entirely comparable. This also ensures that the GVC position index at the global level, i.e. after aggregation across all countries and industries, is exactly 1. Second, it is shown that GVCs are an equilibrium system where some countries can be positioned upstream only if other countries are positioned downstream. Country positions in GVCs are not independent from each other, and upgrading the position of one country will most likely cause downgrading the positions of some other countries. Third, a structural decomposition of the modified GVC position index is performed to isolate the impact of such factors as domestic input requirements, imported input requirements, structure of final demand and total value of final demand.

For an empirical application of the proposed analytical indicators, the paper utilises the 2015 edition of the OECD Inter-Country Input-Output (ICIO) tables. Calculations cover 61 countries plus rest of the world, 34 industries and the years 2000, 2005, 2008 and 2011.

Relative positions in GVCs appear rather stable for industries, but fluctuating for countries over time.

Global changes in imported input requirements and total value of final demand are found to have the largest impact on country positions in GVCs. Meanwhile, the sector composition of output largely explains cross-country variation in GVC positions.

The results clearly illustrate that while some countries move upstream, other countries move downstream in GVCs. Although there is pronounced growth in overall complexity of cross-border value chains, it is unlikely that all countries simultaneously upgrade their positions as measured by the proposed index.