

## International Fragmentation of Production and Insertion of Brazil in Global Value Chains

Topic: (8.8) Global Value Chain and Vertical Specialization (2)

Author: Inácio Fernandes de Araújo Jr

Co-Authors: Fernando Salgueiro Perobelli, Weslem Rodrigues Faria

The intensification of trade through global supply chains, with the processing steps distributed across countries, has enabled companies to relocate substantial parts of production to cheaper foreign locations. Thus, the production processes are increasingly split into separate activities and countries specialize increasingly in particular stages of assembly and processing. This international fragmentation has been defined by the specialization of the production process through vertically connected stages. So, global value chains are often analyzed by the identification of the origin of value added in international trade.

However, it is still unclear to what extent this international fragmentation is essentially occurring within groups of neighboring countries and regional trading blocks, or mainly global, involving countries from different regions. Thus, despite the fragmentation of production processes are commonly referred to as "global" production chains, empirical evidence suggests, however, that many of these chains can be described as "local" production chains, as they include geographically close countries. Therefore, vertical specialization would be marked by regional blocks, rather than the supply chains global. Hence, it can be expected increases in international fragmentation over time focusing of immediate commercial partners. Moreover, there are industrial differences in this regional concentration patterns. While some industries locate their assembly activities close to the final markets, with specialized suppliers tending to cluster around these assembly activities, other industries concentrate the activities required to produce increasingly dispersed around the world.

The main objective of this study, therefore, is to analyze Brazil's insertion in the international trade vertical specialization process. This analysis allowed understand the evolution of international fragmentation of Brazilian production from the participation of foreign content in production. Thereby, the degree of integration in production chains was identified by type of economic activity and the origin of foreign value added included in production. For this purpose, we use the input-output methodology and the GTAP 9 Data Base assembled by the Global Trade Analysis Project. The GTAP data includes bilateral trade statistics and input-output tables for 140 regions and 57 sectors. The analysis was carried out for the years 2004 and 2011.

Thus, from this analysis it was possible to trace the geographical origin of the trade networks in order to evaluate to what extent the inclusion of the Brazilian economy in production chains are truly global. Furthermore, since the intermediate inputs cross borders multiple times could have double counting in the trade statistics. In this way, we consider both the foreign value added and the importation of value added that Brazil may have insert the initial stages of the production process. Hence, this analysis allowed estimate the contribution of domestic value added in Brazilian exports.