

Identifying hubs and spokes in global supply chains using redirected trade in value added

Topic: Trade, global value chains and foreign direct investment: measurement issues and impact evaluation

Author: Hugo Rojas-Romagosa

Co-Authors: Arjan M. Lejour, Paul J J Veenendaal

Production of goods and services is becoming more complex because of increasing trade in intermediate inputs. This not only entails a growing number of traded intermediated inputs, but also that these intermediates are increasingly located at various countries. As a result, production is increasingly organized along global supply chains in which the tasks required to produce goods and services are performed at many locations all over the world. Traditional trade statistics no longer provide sufficient information on where exports of intermediate inputs are used and in which part of the production process the country's firms are actually most active. This has prompted the use of analytical tools based on trade in value added – instead of traditional measures in gross value. We use this analytical framework to develop indicators that identify hubs and spokes in international supply chains. Using these indicators and the Global Trade Analysis Project (GTAP) databases, which combine input-output tables with integrated trade flows for the global economy, we identify the importance of redirected value added trade and the hub and spoke relationships at the aggregate level and for specific highly integrated industries. Hubs are those industry-country pairs that use a relatively large share of imported value added in producing output for final use abroad. Spokes are the regions that are important suppliers of the intermediate inputs to the hubs –the incoming spokes– or the final destinations that are important receivers of the value added that is redirected by the hubs– the outgoing spokes. Thus, our study sheds light on how different countries and regions integrate (or not) into them and the role these countries play within particular global supply chains.