

Trade in value-added, employment and productivity

Topic: 809E Special session: SIC-OECD-IDE/JETRO Joint special sessions on Development, Employment and Inequality (3)

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This paper contributes to a better understanding of the impact of global value chains (GVCs) and trade in value added (TiVA) on jobs and productivity by providing some initial evidence based on the OECD Inter-Country Input-Output (ICIO) database 2015, as well as employment data from the OECD and WIOD project, covering 45 economies. Different indicators are calculated to assess the number of workers involved in GVCs and the evolution between 1995 and 2011, based on a value-added approach that includes both the employees of exporting firms and the workers of all the domestic firms providing inputs to exporters. These figures are however still underestimating the number of persons involved in global value chains as activities of foreign-owned firms producing for domestic consumers are not taken into account.

Using different decomposition techniques, differences across industries (both the producing industry and the industry supplying inputs) are analysed, as well as patterns across partner countries. There are important differences across industries in the share of jobs embodied in exports. Services industries, for example, are generally less export-oriented. In addition, depending on the role of labour as an input in each industry, the same value-added exported can have a lower or higher job content in each industry. But when looking at the industry of origin of jobs embodied in exports, the actual contribution of the service sector is revealed. The jobs embodied in exports are either dependent on imports from the country's partners in the region (e.g. Mexico within NAFTA) or spread more evenly across partners in different regions (e.g. China or the United States). It depends on the position and specialisation of the country in the value chain. The jobs embodied in exports follow the general pattern of trade flows in value-added terms.

Further analysis is then conducted by matching the TiVA data with disaggregated occupational data by industry obtained from labour force surveys, thus giving new insights on the skill composition of the workforce involved in GVCs, as well as the main activities the workers are involved in (business functions). In almost all countries, the jobs embodied in exports are shifting towards high-skill and medium-skill jobs. There is also a similar pattern in terms of business functions, with fewer jobs in the core operations of firms (the manufacturing, processing and assembling activities) and more jobs in R&D, design, distribution, logistics, marketing, sales and customer services. The famous "smile curve" is empirically verified when looking at the change in employment by business function. There are however different patterns of specialisation when it comes to other support business functions such as IT services, administrative support, engineering and related technical services. Some countries are specialising in such business services while others have offshored part of them.

Finally, some econometric analysis is proposed to analyse the relationship between GVCs and employment at the industry level. No simple relationship between the participation in GVCs and the level of employment is found and the results suggest that as a consequence of the fragmentation of production, there is a specialisation of countries and a reallocation of workers not specifically across industries but in different activities in the value chain that can belong to different industries depending on the way firms are organised. In addition, GVCs have an impact on productivity and while some jobs are lost as a consequence of the offshoring of some activities, others are created, either within the same industry (which has become more productive and increased its output) or in other industries (through an income effect). The overall impact of GVCs on employment depends on the relative strength of these factors.