The regional smile curves and their role in the European value chains

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The increasing role of global value chains (GVCs) and their impact in the international trade have significantly changed the nature and structure of global production processes. Tow concepts arise around GVCs; participation and position. Previous literature has study the impact of these variables, that show the evolvement of countries in GVCs, on economic development. They find lineal relations showing that both are positively correlated with economic development. In this context, the concept of â€œsmile curvesâ€• has gained importance in recent years and has been widely analyzed in case studies of relevant firms. The concept of the smile curve was first proposed around 1996 by Stan Shih. Shih (1996) observed that in the personal computer industry, both ends of the value chain command higher values added to the product than the middle part of the value chain. Thus, if this phenomenon is presented in a graph, the resulting curve appears in the shape of smile (Meng et al., 2020). In other words, authors find a u-shaped relationship between GDP growth and position, showing that companies can benefit from an upstream position.

Up to now, there are some works at more macro level that investigated the phenomenon of smile curves at the sectoral or country level using real data for cross-country analysis, obtaining results in favor of this relation. However, in this framework, relatively little attention has been directed so far to the regional (sub-national) dimension. In this line, this paper aims to study whether the â€œsmile curvesâ€• also keeps for all the European regions or, on the contrary, if it depends on other structural and economic factors. That is, whether we can find clusters of countries in function of this relation.

Empirically, we focus on a set of NUTS2 European regions of the database EUREGIO for the period 2000 to 2010. Using econometrics techniques, we relate value added and compensation of employees with position. To calculate position, we follow the measure of upstreamness proposed by AntrÃ s et al. (2013), showing the higher is its value, the more upstream a region is. That is, it is more focus on the production of intermediate products.

Our empirical results show a non-lineal relation, particularly concave, between position and value added, which is the opposite to previous findings at national level. We should note that most part of regions are situated in the increasing part. After that we clustered the sample in function of the economic development of these regions, getting four different groups of regions and finding important differences between them. Indeed, only in one of the four clusters we obtain the â€œsmile curveâ€• (convex relation) and corresponds to the one formed by high-income regions (for instance Inner London, Madrid, or CataluÃ±a, among others). Controlling by other factors such as the productive structure, our findings suggest that, depending on factors such as the degree of participation in the GVCs or the specialization in high-technology industries, the gains and losses vary significantly. Finally, these results confirm the hypothesis of the growing gap between countries and regions due to the recent globalization process, situating the design of economic policies more focused on reducing these differences.