

Knowledge Intensive and Manufacturing Activities: Regional Concentration Patterns in the State of Paraná (Brazil)

The objective of the research is to study the distribution and concentration of employment in Knowledge Intensive Activities (KIA) and the Manufacturing Activities in Paraná State, focusing on the five most employment-intensive activities in each category. The discussion is anchored in the broader debate on the industrial decentralization process in Brazil and the extent to which Knowledge-Intensive Activities (KIA) can serve as an alternative for economic diversification. Methodologically, the research relies on data from the Annual Social Information Report (RAIS/MTE - 2023), with employment figures analyzed for all 399 municipalities. The selection of the top five KIA was based on Eurostat's (2025) definition, considering the highest employment volumes, and these were compared with the five most representative industrial activities, using the same criteria. The analysis incorporated data normalization per 100 inhabitants and evaluated concentration levels using the Hirschman-Herfindahl (HH) Index and the CR10 Index. To avoid biases related to universal public-sector employment, "Public administration, defense, and social security" and "Education" Activities were excluded from the KIA dataset. The exclusion of education is particularly relevant, as state universities register employment data in their headquarters' municipalities, which could distort the real geographical distribution of higher-education employment. Findings reveal that while the Manufacturing Activities accounts for 11.26% of total formal employment, KIA contribute 4.24%. However, KIA exhibit greater spatial dispersion, with only two municipalities without employment in these activities, as opposed to 19 municipalities without industrial employment. A key structural asymmetry is the high concentration of KIAs in Curitiba, which alone accounts for 38.68% of employment in the top five KIA activities, positioning the state capital as an outlier in the dataset. By excluding Curitiba, the HH and CR10 measures became significantly adjusted. In addition, employment in the manufacturing sector remains highly concentrated, with only 1 in 5 municipalities having a significant presence. The standard deviation of industrial employment per 100 inhabitants (5.6939) far exceeds that of KIA (0.4398), highlighting the polarized distribution of manufacturing jobs, where certain locations concentrate employment while others are excluded from the manufacturing activities in question. The main contribution of this study lies in the analysis of dispersion and concentration patterns of Knowledge-Intensive Activities (KIA) and the Manufacturing Activities in the state of Paraná. This is a preliminary study, and near-future research will focus on developing more robust spatial indicators that will allow a more accurate assessment of KIA dispersion and its potential role in statewide economic diversification.