

Regional Trade Dependencies in the EU: Analysing Industrial Risks Amidst Global Tensions Using FIGARO-REG

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In recent years, global trade has been significantly impacted by geopolitical shifts, wars, fluctuating energy prices, and protectionist measures from major economies like China and the United States. These developments have highlighted vulnerabilities in global value chains, affecting the European Union (EU) due to its complex trade interdependencies. This study investigates how US trade policies targeting goods with high Chinese value-added content influence EU exports, analysing three levels: EU-wide, national, and regional (NUTS2), with a particular focus on industrial details.

The key research question is: How does US trade policy affecting goods with substantial Chinese value-added impact EU exports at various levels, and what are the implications for industries within these regions?

The study utilises the CARMEN model, a tool developed by the European Commission's Joint Research Centre for versatile policy impact analyses. CARMEN employs a modular approach, providing detailed examinations of domestic and foreign value-added content within bilateral exports. It offers insights into 56 industries across 288 NUTS2 territories, evaluating the impact of US trade policies on EU exports with significant Chinese value-added content. One module of CARMEN calculates Tiva indicators at a very detailed level, allowing different levels of regional aggregation while maintaining industrial granularity. This analysis assesses the Chinese value-added embedded in US-bound exports for each industry, calculating exposure across industries and territories to trade wars.

The primary data source is the FIGARO-REG multi-regional input-output table, which includes economic data for 240 EU regions, 48 non-EU regions, and 16 major non-EU trading entities. This database enables CARMEN to analyse value-added contributions in exports in detail at the NUTS2 level.

The study provides a unique analysis of the EU's economic vulnerability to evolving geopolitical trade dynamics between the US and China. Using CARMEN, it explores the territorial and industrial dimensions of EU exports with high Chinese value-added content.

Results reveal substantial regional and industrial differences in contributions of Chinese value-added content to EU exports. Indicators at the EU, national, and regional levels demonstrate varying dependencies on foreign suppliers. Germany and France show considerable vulnerability in absolute terms due to economic size; however, Eastern European countries like Estonia, Hungary, Poland, and Czechia exhibit significant relative dependence on China. Industrially, sectors such as computers, electronics, textiles, and motor vehicles show increased sensitivity to Chinese value-added, indicating potential susceptibility to US protectionist measures. Regionally, areas like Stuttgart, Upper Bavaria, and Ile-de-France display concentrated vulnerabilities, necessitating targeted policy interventions.

The study concludes that strategic EU industries, particularly motor vehicles, machinery, and electronics, are prone to shifts in US policies targeting high Chinese value-added content. National and territorial data identify key regions and industries with high vulnerability, emphasising the need for timely economic and social risk assessments by policymakers. The granularity of FIGARO-REG

at industry level boosts CARMEN's analytical capabilities, enabling applied analysis. Understanding these dynamics is crucial for better understanding of the Global Value Chains at regional level in a globalised and interconnect world.