

Impact of US tariffs on the Spanish economy

Topic: Input-Output Analysis: Trade and Global Value Chains policies (7)

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Impact of US tariffs on the Spanish economy: An analysis based on the "exposure" indicator and FIGARO data

The research question

In a context of growing protectionism and reconfiguration of international trade relations, the United States' tariff policy has become a systemic source of uncertainty for the global economy, prompting the central question of this analysis: What is the real impact of an increase in US tariffs on a particular economy (in this case in the Spanish economy) in terms of added value, considering not only direct trade but also its integration into Global Value Chains?

Unlike traditional analyses based on gross flows, this analysis focuses on the impact on Value Added in Spain. This involves investigating direct and indirect economic flows. The analysis of direct flows measures the Spanish value added contained in Spanish exports to the US (for example, lower exports of manufactured goods to the US result in lower value added in the services sector). Indirect flows measure the Spanish value added that, through other countries, ends up being imported by the US (for example, lower exports of automobiles from Germany to the US result in a loss of Spanish value added due to reduced activity in the production of automotive components).

The method used

To address the complexity of productive interdependencies, the methodology is structured in:

1. Leontief Model: The classic multi-regional input-output analysis structure is used. The core of the calculation is the Inverse Leontief Matrix, which allows capturing the direct and indirect effects of a change in final demand.
2. "Exposure" Indicator: The TiVA indicator of one economy's exposure to another is used. This indicator is broken down into the value added generated in Spain contained in Spanish exports to the US (differentiating between final use in the US as intermediate consumption or final demand) and the value added generated in Spain contained in exports to other countries that ultimately end up in US demand.
3. Price elasticity. The impact of tariffs translates into an increase in prices that affects quantities according to price elasticity, allowing for the recalculation of export flows and the corresponding added value once tariffs are applied.
4. Scenario comparison. The analysis concludes by comparing the initial scenarios with the resulting scenario after applying the tariffs.

The data used

The analysis is based on data from FIGARO (Full International and Global Accounts) for Research in Input-Output analysis), published by Eurostat . FIGARO has become a standard database that allows the development of macroeconomic models taking into account the interaction between economies.

The novelty of the research

The originality of this work lies in the convergence of a high-fidelity database with an advanced exposure metric. The model allows for the quantification of tariff policy impacts by assuming a set of reasonable hypotheses that are easily adaptable to analyze different scenarios. Furthermore, the necessary calculations are easily implemented in Python, so no proprietary software is required for its use.