MEASURING PARTICIPATION AND IMPROVEMENTS IN THE BRAZILIAN PORT SECTOR

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Transport is one of the pillars of a country's economy, being a key element for the development and expansion of productive capacity. Brazil occupies position 9 in the ranking of the largest economies in the world in terms of Gross Domestic Product (GDP), around US$ 3.21 trillion, representing a share of the world economy of 2.49%. In contrast, according to the 2017-2018 Global Competitiveness Index, developed by the World Economic Forum, the quality of Brazilian port infrastructure ranks 106th among a total of 137 countries. Therefore, the objective of this paper is to analyze the participation of the port sector and improvements in logistics infrastructure in Brazil, based on the disaggregation of port activities from the national Input-Output Matrix of 2015, using data from the National Input-Output Matrix and microdata from the Ministry of Labor and Employment for the year 2015. The methodology used to disaggregate the sector from the rest of the economy was the bi-proportional adjustment method (RAS). In turn, the impacts of investments were measured using Leontief's open and closed models. The contribution of the research is the development of a matrix estimation method that combines labor market microdata and complex networks. The results indicated that in Brazil the port economy represented 2.15% of the national GDP in 2015, equivalent to R$ 129 billion. Soon after, three investment scenarios in port infrastructure were constructed. In the most feasible scenario, investments of around R$ 195.9 billion generate an increase of R$ 320 billion in production, R$ 253.5 billion in Value Added, R$ 118.2 billion in exports and 3.7 million jobs direct and indirect effects on the national economy. The most impacted sectors in addition to the port subsectors themselves were: oil refining and coking plants, financial intermediation, insurance and supplementary pensions; oil and gas extraction, wholesale and retail trade and agriculture, support and post-harvest, which have higher levels of linkage with the port subsectors. In this way, improvements in the quality of port water transport; in land port transport; in port operations such as loading, unloading and agency; and in construction and infrastructure for the port sector, they provide competitiveness gains and positively affect sectors dependent on logistics.
Taking into account the interconnections (through complex networks) that the sector has in the production matrix, it was possible to verify that the segments in the service area were those that suffered the greatest impacts from investment shocks, a normal result as Leontief's production model is demand-driven. However, to a greater or lesser extent, all sectors of the economy end up being influenced by shocks, indirectly or induced.
In sectoral terms, oil refining and coke plants; financial intermediation, insurance and pensions; wholesale and retail trade, except vehicles; oil and gas extraction and support activities; ground transportation; legal activities; storage, transport and mail were the sectors most impacted in the three simulated scenarios, due to having a higher level of intersectoral relations with the port sector.
Considering the relevance of the national port sector for carrying out foreign trade, generating income and employment. The conclusions obtained are in accordance with the literature on Port Economics, which states that the sector is extremely important for the economic development of countries and that investments in this sector generate several economic benefits. It is expected that the methodology implemented in this study will contribute to the assessment of the main economic impacts of improvements in the sector, and can serve as a support in making economic and political decisions that seek greater efficiency in port activities.