Reindustrialization and Resource-Based Industries: Productive, Occupational, and Emission Linkages

Topic: Industrial Policies
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In the last decade, industrial development and industrial policies have once again taken center stage in discussions. In the Brazilian context, the debate on industrial policy has gained traction under the aegis of the neoindustrialization proposed by the federal government, based on three premises: (i) strengthening the Brazilian industry is key to the sustainable development of Brazil from social, economic, and environmental perspectives; (ii) Brazil has been undergoing a process of early and accelerated deindustrialization since the 1980s, with a primarization of the production structure and shortening and weakening of supply chain links; and (iii) the country's exports are concentrated in low-technology complexity products, limiting Brazil's trade gains. (MDIC, 2024)

On the other hand, this discussion within the Brazilian context must be considered in light of the abundance of natural resources, the country's competitive advantages in these activities, and the industrial base related to these activities. In this perspective, the literature discussing the development trajectories of Latin America based on Natural Resource-Based Development (NRBD) strategies stands out. According to this literature (PÃ©rez, 2010; MarÃ-n et al, 2015 Andersen et al, 2016), considering the revolution in technological patterns driven by ICTs and changes in the international scenario with the emergence of China, there would be a "window of opportunity" for Latin American countries to specialize and develop through the exploitation of their natural resources.

One central aspect for assessing the role of a productive sector within the economic system is the evaluation of its production linkages, as outlined by Hirschman (1958) and Rasmussen (1958). The use of these indices is relevant because they can analyze the direct and indirect impacts of the Leontief input-output matrix in terms of the dispersion of its linkages and the sensitivity of these sectors to stimuli from the rest of the economy. However, this analysis alone cannot provide the patterns of interdependence among sectors, merely representing the effect of that sector on the entire economy. Therefore, it is important to understand not only their linkage effects but also their patterns of sectorial interdependence, allowing for a deeper understanding of the dynamics of this bloc and its potential in a reindustrialization scenario. Thus, it is useful to comprehend the relationships within the NRBIs bloc and also with other productive blocs in the economy, understanding their spillover effects and, given the circular flow of income, their feedback patterns.

Research Questions:

The present project aims to understand the production, occupational, and emission linkages within the analytical framework of NRBIs in order to contribute to the discussion on a reindustrialization strategy based on NRBIs. Associated with this question, we worked with the following hypotheses: (i) NRBIs exhibit similar linkage characteristics to the rest of the manufacturing industries in terms of interindustry production linkages; (ii) however, they constitute a more heterogeneous block than other industrial activities; (iii) the pattern of interdependence within this block carries greater weight for external effects beyond the block.

Data and Methods

The construction of three-dimensional linkage indicatorsâ€”productive, occupational, and emissionsâ€”is based on the methodological framework of Pyatt and Round (1979), Stone (1985), Miller and Blair (2009), Costa and Freitas (2018), and Costa (2023). This involves decomposing the matrix block into different activity blocks capable of representing analytical linkages within NRBIs, as well as other industrial sectors and the remaining sectors. Furthermore, for occupation and emission data, SCN/IBGE and SEEG data will be processed and utilized in the I-O tables. Given that existing sectoral classifications for Brazilian activities do not precisely address the category of NRBIs, it became necessary to construct a definition considering the relative importance of natural resources for their intermediate consumption. In this regard, one of the contributions of this work was the classification of NRBIs based on the Intermediate Consumption of activities, grouping them into four categories: Agriculture, NRBIs, Manufacturing Industries excluding NRBIs (MIeNRBs), and Services and Public Utilities (S&PU).

Novelty of Research

This work not only presents a new classification for NRBIs but also innovates in the form of estimating the production linkages of sectors in the Brazilian economy. It employs a methodology that isolates different blocks within the economy, enabling the analysis of distinct patterns of interdependence among sectorial aggregates for dimensions that go beyond purely productive spheres.