

Structural Signatures of Income Upgrading: Global Value Chain Participation, Diversification, and the Resource Curse in an Input-Output Perspective

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Recent decades have seen major divergence in development trajectories. While some economies successfully transition across income groups, others remain persistently “stuck.” Classic structuralist economists such as Prebisch and Hirschman argued that development depends on diversification and the creation of strong forward and backward production linkages. Economies specialized in primary commodities face structural constraints that limit technological learning and productivity growth, making diversification into higher value-added sectors central to long-run development. More recent research, including the product space framework of Hidalgo and Hausmann, emphasizes that development depends on the accumulation of productive capabilities and path-dependent diversification into related economic activities.

This paper asks whether identifiable structural signatures in global production networks precede successful income upgrading. Using Trade in Value Added (TiVA) indicators derived from the OECD Inter-Country Input-Output (ICIO) database covering 1995–2022, the study examines how countries participate in global value chains as upstream suppliers of intermediate inputs, downstream assemblers, or producers of final goods and services. These structural positions may leave measurable patterns in the data that appear before income transitions occur.

Building on earlier work that identified common patterns among upgrading economies—such as rising domestic value added embodied in exports, deeper participation in intermediate trade networks, and expanding services linkages—the paper investigates the mechanisms underlying these transitions. The analysis examines countries that successfully moved between income groups, including Bangladesh and India (low to lower-middle), Thailand and Turkey (lower-middle to upper-middle), and Chile and Slovenia (upper-middle to high income), alongside multi-stage transitions such as China and Indonesia.

To identify the drivers of structural change, the study applies structural decomposition analysis (SDA) within the input-output framework. Changes in key TiVA indicators are decomposed into technological change reflected in the input-output coefficient matrix, shifts in final demand composition, and reorientation of trade patterns. This approach allows us to determine whether upgrading is driven primarily by domestic production deepening, greater integration into intermediate trade networks, or changing demand structures across sectors.

A central focus is the resource curse hypothesis. Many economies that remain stuck are resource-rich, yet several resource-abundant countries—including Chile, Kazakhstan, and Indonesia—have successfully upgraded. The paper investigates whether resource-based upgrading follows identifiable structural patterns, such as stronger domestic processing of extractive outputs, increasing forward and backward linkages between resource sectors and manufacturing or services, and declining dependence on raw commodity exports.

By combining TiVA indicators, structural decomposition, and network analysis within the input-output framework, this study proposes a new empirical approach to identifying the structural conditions that enable sustained income upgrading and to distinguishing “resource-led upgrading” from persistent resource dependence.