The Restructuring of Global Supply Chains and Inter-Country Value Transfer

Topic: YSI and Development Programme (4) (Discussants: Satoshi INOMATA and Kailan Tian)
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ABSTRACT

1. Research Question

Mainstream trade theories assume that specialization fosters economic convergence, yet divergence remains the norm. These frameworks, relying on a subjective utility-based conception of value, fail to explain the structural mechanisms governing global value distribution. Dependency theory and Global Value Chain (GVC) analysis recognize trade asymmetries but do not differentiate between value produced and value captured, reducing policy solutions to industrial upgrading while overlooking systemic value transfer.

Recent global supply chain restructuring, driven by geopolitical shifts, automation, and regionalization, has intensified these patterns, altering the distribution of production and value capture. This study examines how evolving supply chain structures reshape inter-country value transfer, challenging the assumption that production shifts inherently lead to more equitable trade outcomes.

This paper introduces a Marxian framework to reconceptualize global economic divergence by distinguishing value produced from value captured. Under this approach, value produced is determined by the socially necessary labor time required for production, encompassing both direct and indirect labor. Socially necessary labor is validated through market exchange and recognized by society as essential for a commodityâ€™s production. In contrast, the value realized through the sale of a commodity is influenced by multiple factors, including labor intensity variations across industries, market structures, monopoly power, unproductive activities, and exchange rate dynamics. These factors create deviations between the value produced and the value captured, forming the basis for value transfer across industries and countries through international trade. This study investigates the mechanisms that give rise to these transfers and how recent changes in global supply chain structures have intensified or altered these patterns.

2. Methodology

The Marxian concept of value producedâ€”measured as socially necessary labor timeâ€”aligns closely with the OECDâ€™s employment-embodied output measure from the Trade in Employment (TiM) database. Thus, the vector of value produced across different commodities is computed by left-multiplying the Leontief Inverse matrix by a row vector of direct labor input requirements. However, three critical adjustments are necessary:

1) Labor input should be measured in labor hours, rather than simply counting employed persons, to reflect the actual labor expended in production.

2) Labor time must be adjusted for complexity, as highly skilled labor should be weighted differently from simple labor in accordance with its contribution to value creation.

3) A standardized international value measure should be derived by eliminating country-specific labor productivity differences, establishing a globally averaged labor standard that reflects international labor intensity and efficiency.

The value captured in the market is then determined by the actual sale price of commodities, converted into labor-hour equivalents under the assumption of value conservationâ€”that is, total value in the system equals total price. The deviation between value produced and value captured forms the foundation for analyzing inter-country value transfer.

3. Data

The study draws on four major datasets to construct the value measures:

1) Inter-Country Input-Output Tables â€“ used to compute the Leontief Inverse.

2) Trade in Employment Database â€“ provides employment data by country and industry, essential for measuring labor input.

3) Trade in Employment by Workforce Characteristics Database â€“ includes skill-level indicators(education and occupation), enabling us to convert complex labor into simple labor equivalents for more precise labor value estimation.

4) Penn World Table â€“ supplies data on annual hours worked per employed person across countries, allowing conversion of employment figures into labor-hour units.

4. Novelty of the Research

This study makes several key contributions to the understanding of global value distribution and trade-driven divergence:

1) Reframing Global Trade through a Marxian Lens: Unlike neoclassical and GVC-based approaches, this study explicitly distinguishes between value produced and value captured. It provides a systematic measure of inter-country value transfer, offering a novel way to assess how production and exchange dynamics shape global inequality.

2) Assessing the Impact of Global Supply Chain Restructuring: This study goes beyond static trade models by analyzing how supply chain realignmentsâ€”such as reshoring, regionalization, and automationâ€”affect inter-country value transfer.

3) Providing a Structural Explanation for Economic Divergence: Rather than attributing inequality to low industrial upgrading, this study reveals how systemic valu