

Give Credit where Credit is Due: Tracing Value Added in Global Production Chains

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Summary

Worldwide trade has become increasingly fragmented, as different stages of production are now regularly performed in different countries. As inputs cross borders multiple times, traditional statistics on trade values—measured in gross terms—becomes increasingly less reliable as a gauge of value contributed by any particular country. This paper integrates and generalizes the many attempts in the literature at tracing value added by country in international trade. We provide a conceptual framework that is more comprehensive than other measures in the literature. By design, this is an accounting exercise, and does not directly examine the causes and the consequences of global production chains. However, an accurate accounting of value added chains by source country is a necessary step toward a better understanding of all these issues. While official trade statistics “double count” intermediate goods, the framework presented in this paper allows for a new measure of trade in value-added terms that are still consistent with currently available official gross trade statistics.

Truly global analyses have become possible only recently, with the advent of global IRIO tables based on the GTAP database. Though usefully global in scope, the GTAP database does not separate imported intermediate and final goods trade flows, so some important parameters have to be estimated. This paper provides the first unified framework that integrates the older literature on vertical specialization with the newer literature on value added trade. It completely decomposes gross exports and connects official gross statistics to value-added measures of trade. The framework distributes all value-added in a country’s exports to its original sources, and it expresses individual sources and destinations of value added at either the country-wide or industry average level. Despite the breadth of the framework, it is also quite parsimonious, expressing major global value-added flows as the product of only three matrices. This paper also provides new detailed decompositions of each country’s value-added exports that highlight its upstream or downstream position in global value chains.