

The Average Propagation Length: An Extended Analysis

Topic:

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The Average Propagation Length (APL) is a powerful tool in production chain analysis. It measures the average steps taken by the final demand increase in an industry to affect the output of another industry. The APL and its variant have been applied to many areas, such as important production chains identification, upstreamness measurement and fragmentation measurement. This study investigates the APL and its variant from a double counting perspective. It shows that the APL is equivalent to the double counting ratio (or times of double counting) of the primary input of an industry in the production of another industry's final product. Based on this point, we show that the APL can be easily extended to answer many other interesting questions in a clear manner. For instance, the APL can be extended to separately measure the average time of each industry visited by the primary input of a specific industry before it reaches the final product of another industry. The APL can be extended to measure the upstreamness of each country in the world production network of a specific product based on the world input-output table.