

## **Double Counting and Counter-Double Counting in Analysing the Value-Added Content of Bilateral Trade**

Topic:

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### **Abstract**

In this paper, we explicitly demonstrate that we must consider not only double counting (subtraction) but also counter-double counting (addition) of foreign value-added contents to capture the value-added content of bilateral trade in the world with multiple production network. First, we present a theoretical schema to simultaneously track double counts and counter-double counts of foreign value-added contents in converting from conventional gross trade to value-added trade, based on Trefler-Zhu's bilateral definition of factor content of trade. This schema shows that double counting (subtracting), which returns home as negative counts for bilateral trade, arises in the bilateral trade between a source/home country and its destination/partner country. It also shows that counter-double counting (adding), which returns home as positive counts for bilateral trade, occurs in trade between source or destination country and the third party countries, which is necessary to complete the bilateral trade. Second, we report empirical results by applying our schema to aggregated inter-country input-output data to capture value-added content of bilateral trade in the world with more than three countries. Our results exposes why a country's value-added trade with some destination can be greater or smaller than its gross trade or domestic value-added content, in a well-defined manner.