

# The U.S.–China trade deficit—a value-added perspective

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With the world economy becoming increasingly globalized, companies from multiple countries now participate in the development of a given product, with each country leveraging its specialization in developing the product's components. Traditionally, international trade flows are determined by attributing the full value of an imported or exported good to the country in which the manufacturer responsible for the product's final stage of production is located; this is true regardless of the value added by that manufacturer. As a result of this approach to measuring the value of traded goods, China maintains a substantial trade surplus with the United States.

In their article titled “Value-added data recast the U.S.–China trade deficit” (*Economic Letter*, Federal Reserve Bank of Dallas, July 2013, <http://www.dallasfed.org/assets/documents/research/eclett/2013/el1305.pdf>), Michael Sposi and Janet Koech indicate that, since 2000, the U.S. trade deficit with China has increased by more than \$200 billion to almost 2 percent of U.S. gross domestic product. The trade gap between the U.S. and China seems to imply that the countries are increasingly interdependent—a characterization that Sposi and Koech claim is unjustified because the manner in which trade is accounted for “fails to identify the contribution of different countries in the intermediate production of the final good and is not representative of actual interdependence.”

The authors assert that, instead of allocating the full value of a finished product to the country from which it was delivered, trade data should allocate the value on a value-added basis; that is, the final value should be divided into its various parts, each one representing “the amount by which the value of a good or service increases at a specific step in a production process.” Sposi and Koech concede that tracking the value added by each country involved in the production of a good is certainly difficult if not impossible. However, the authors indicate that economists have discovered a way to combine value-added data and trade-composition data to more accurately assess a country's contribution to the value of a final product. Overall, 2005 data from the Organization for Economic Cooperation and Development (OECD) indicate that, on average, China employs low value-added production (35 percent of value added to gross output), while U.S. production is characteristic of high value-added activities (53 percent of value added to gross output).

From the standpoint of trade composition, 2009 OECD data reflect that final goods represent a total of 50 percent of U.S. imports compared with about 25 percent for China. As for exports, final goods represent 60 percent of Chinese exports compared with 45 percent for the United States. When evaluating trade specifically between the United States and China, 70 percent of all U.S. exports to China are intermediate goods, while final goods represent 75 percent of Chinese exports to the United States; these data support the notion that Chinese production is typically at the end of the product supply chain in global production networks. According to the

authors, using a value-added approach to measure bilateral trade interdependence reduces the U.S.–China trade imbalance by 33 percent.

To illustrate that a value-added approach to measuring international trade results in a more accurate picture of U.S.–China trade, Sposi and Koech discuss a scenario in which companies in Japan, the United States, and China collaborate to manufacture computers. In this scenario, Japan exports \$350 worth of computer components to China while the U.S. exports a \$100 monitor assembly to China. China assembles the intermediate goods it imports from Japan and the United States and then exports the assembled computer to the United States for a total of \$500—adding a total of \$50 to the value of the intermediate goods it imported. When conventional measures are used, although Japan, the United States, and China each participated in developing the computer, the entire value of the computer (\$500) is attributed to China. The initial \$100 U.S. export to China, offset by the \$500 export from China to the United States, results in a trade deficit of \$400 for the United States. Using value-added measurement, China would only be allocated a value of \$50 compared with \$350 for Japan and \$100 for the United States. The initial \$100 U.S. export to China, offset by a \$50 export from China to the United States, results in a trade surplus of \$50.

Note that this is a simplified scenario as the \$350 of Japanese computer components may incorporate parts manufactured in a variety of countries. However, this example makes clear that a value-added approach presents a very different analysis of trade interdependence than does the commonly used finished-product approach.