

Data Watch 7-1: Implications of Global Value Chains for the Measurement of Trade Flows

While international trade and foreign direct investment have been growing rapidly for decades, recent advances in information technology along with improving industrial capabilities in emerging markets have made it profitable to segment production processes and relocate them throughout the world, creating global value chains. This shift has made it increasingly difficult to interpret international trade statistics. In the past, it was safe to assume that most if not all of the value of a traded product was created in the country that exported it. Thus, a country's industrial capabilities could be judged by the content of exports, trade rules could be tied to gross levels of trade in specific products, and exports could be directly related to domestic job creation. With the rise of global value chains, however, one can no longer be sure how much of the value of a product or service is added in the country that declares it as an export. For example, in 2009, between one-third to one-half of the total value of exports of transport parts and equipment from most major producing countries originated in a different country. Similar patterns emerge in the electronics sector: in China and Japan, the world's largest exporters of electronic goods in 2009, the foreign content of electronics exports was about 40 percent. In Mexico, the share was over 60 percent (OECD 2013).

Official trade statistics are measured in gross terms—the amount the importer pays the exporter for the good. That approach is appropriate for adding up a country's balance of payments made to, and received from, the rest of the world. To determine how much value an exporter adds to a good or service traded internationally, however, one must subtract the value of intermediate inputs supplied by other countries, including the country importing it. Removing these intermediate flows from exports gives a measure of "value-added" trade.

Measuring value-added trade reveals a number of surprising facts. For example, according to Koopman et al. (2010), in 2004 about 8 percent of total gross U.S. imports was U.S. value added in the form of U.S. intermediate inputs used in foreign production. About 25 percent of the value of U.S. gross exports was made up of imported intermediate inputs; however, about half the value of those inputs originated in the United States, so only about 13 percent of U.S. gross exports were not U.S. value added. By contrast, about 37 percent of China's exports were value added somewhere else. Johnson and Noguera (2012) estimate that, while still large, the U.S.-China imbalance is approximately 40 percent smaller when measured on a value-added basis, and the U.S.-Japan imbalance is approximately 33 percent higher. They also show that domestic value

added in gross exports for the world as a whole has fallen dramatically in recent years, indicating the rise of global value chains.

The Organisation for Economic Co-operation and Development and the World Trade Organization recently released a new data set containing estimates of value-added trade for 40 countries and 18 industries for 2005, 2008, and 2009 (OECD 2013). Future releases will see an expansion in the number of countries, industries, and time periods, dating back to 1995. This effort represents a substantial improvement in the availability of information about global value chains.

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