

Second, the interpretation of a trade deficit or surplus is problematic when we focus on the bilateral trade balance between two countries, such as the United States and China. To see what the problem is, think about the U.S. import of a particular good from China, such as the iPod (see **Headlines: An iPod Has Global Value. Ask the (Many) Countries That Make It**).

HEADLINES

An iPod Has Global Value. Ask the (Many) Countries That Make It.

Although the iPod sold in the United States is assembled in China, most of its value comes from parts made in other countries.

Who makes the Apple iPod? Here's a hint: It is not Apple. The company outsources the entire manufacture of the device to a number of Asian enterprises, among them Asustek, Inventec Appliances and Foxconn. But this list of companies isn't a satisfactory answer either: They only do final assembly. What about the 451 parts that go into the iPod? Where are they made and by whom?

The retail value of the 30-gigabyte video iPod . . . was \$299. The most expensive component in it was the hard drive, which was manufactured by Toshiba and costs about \$73. The next most costly components were the display module (about \$20), the video/multimedia processor chip (\$8) and the controller chip (\$5). . . . [T]he final assembly, done in China, costs only about \$4 a unit.

One approach to tracing supply chain geography might be to attribute the cost of each component to the country of origin of its maker. So \$73 of the cost of the iPod would be attributed to Japan since Toshiba is a Japanese company, and the \$13 cost of the two chips would be attributed to the United

States, since the suppliers, Broadcom and PortalPlayer, are American companies, and so on.

But this method hides some of the most important details. Toshiba may be a Japanese company, but it makes most of its hard drives in the Philippines and China. So perhaps we should also allocate part of the cost of that hard drive to one of those countries. The same problem arises regarding the Broadcom chips, with most of them manufactured in Taiwan. So how can one distribute the costs of the iPod components across the countries where they are manufactured in a meaningful way?

To answer this question, let us look at the production process as a sequence of steps, each possibly performed by a different company operating in a different country. At each step, inputs like computer chips and a bare circuit board are converted into outputs like an assembled circuit board. The difference between the cost of the inputs and the value of the outputs is the "value added" at that step, which can then be attributed to the country where that value was added. . . .

This value added calculation illustrates the futility of summarizing such a complex manufacturing process by using conventional trade statistics. Even though Chinese workers contribute only about 1 percent of the value of the iPod, the export of a finished iPod to the United States directly contributes about \$150 to our bilateral trade deficit with the Chinese.

Ultimately, there is no simple answer to who makes the iPod or where it is made. The iPod, like many other products, is made in several countries by dozens of companies, with each stage of production contributing a different amount to the final value.

The real value of the iPod doesn't lie in its parts or even in putting those parts together. The bulk of the iPod's value is in the conception and design of the iPod. That is why Apple gets \$80 for each of these video iPods it sells, which is by far the largest piece of value added in the entire supply chain. Those clever folks at Apple figured out how to combine 451 mostly generic parts into a valuable product. They may not make the iPod, but they created it. In the end, that's what really matters.

Source: Hal R. Varian, "An iPod Has Global Value. Ask the (Many) Countries That Make It," *Economic Scene*, The New York Times, June 28, 2007, electronic edition.