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International Supply Chains: The Good, the Bad and the COVID-19 Pandemic

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By Jason Dunn

Picture this: It's the fall of 2020, and you're cooped up in your small apartment, working from home to avoid the coronavirus. A stimulus payment just cleared in your checking account, and you decide to treat yourself with a little online shopping. So you hop on the web and find an ottoman you like that is manufactured in Asia, and you place the order.

Flash forward to the summer of 2021, and a package arrives at your doorstep. You're surprised to see it's that ottoman you ordered last fall, a purchase you had completely forgotten about because it had taken so long to arrive.

Does this experience seem familiar? You may be surprised to know that this has not been uncommon since the start of the COVID-19 pandemic, but is rather an outcome of larger economic forces. Factors such as infection outbreaks and port shutdowns have disrupted supply chains and tremendously increased international shipping times.

A Simple Model Economy

Let's think about the relation between international supply chains and trade. Let us begin with the simplest example of a model economy—the closed-market economy, in which a country does not import or export goods or services. This would likely be the first model you would encounter in any macroeconomic principles course. Equilibrium in this economy is defined by the following formula:

$$Y = C + I + G$$

Y refers to the national level of income, which in equilibrium is also equal to aggregate expenditures, or the level of supplied goods and services. This supply is equal to the total level of demand in the economy, which is made up of the sum of consumption (C), investment (I) and government spending (G).

International Trade and an Open-Market Economy

Now, let's expand this model to allow for international trade, something most countries will typically engage in. The simplest way to expand this model would be to make it an open-market economy, whose equilibrium is defined as the following:

$$Y = C + I + G + NX$$

This equation is identical to that of the closed-market economy, with the exception of the term *NX*. This denotes net exports, or the total goods and services a country exports less the goods and services it imports. Note that *NX* could be either positive or negative. A positive value means the country exports more than it imports, referred to as a trade surplus. A negative value, whereby the country imports more than it exports, is a trade deficit.

Benefits of Global Trade

The model is fairly simple with just one country, but it gets interesting with many countries and international supply chains.

To motivate this exploration, let's consider the benefits and costs of international trade from a global scale.

So what is the "good" of global trade? One clear benefit comes from comparative advantage. Comparative advantage is an economic principle that states that an individual or country should produce a good or service that it can produce relatively cheaply. In other words, a country has a comparative advantage in a good if it can produce that good with a lower opportunity cost than can its trading partners.

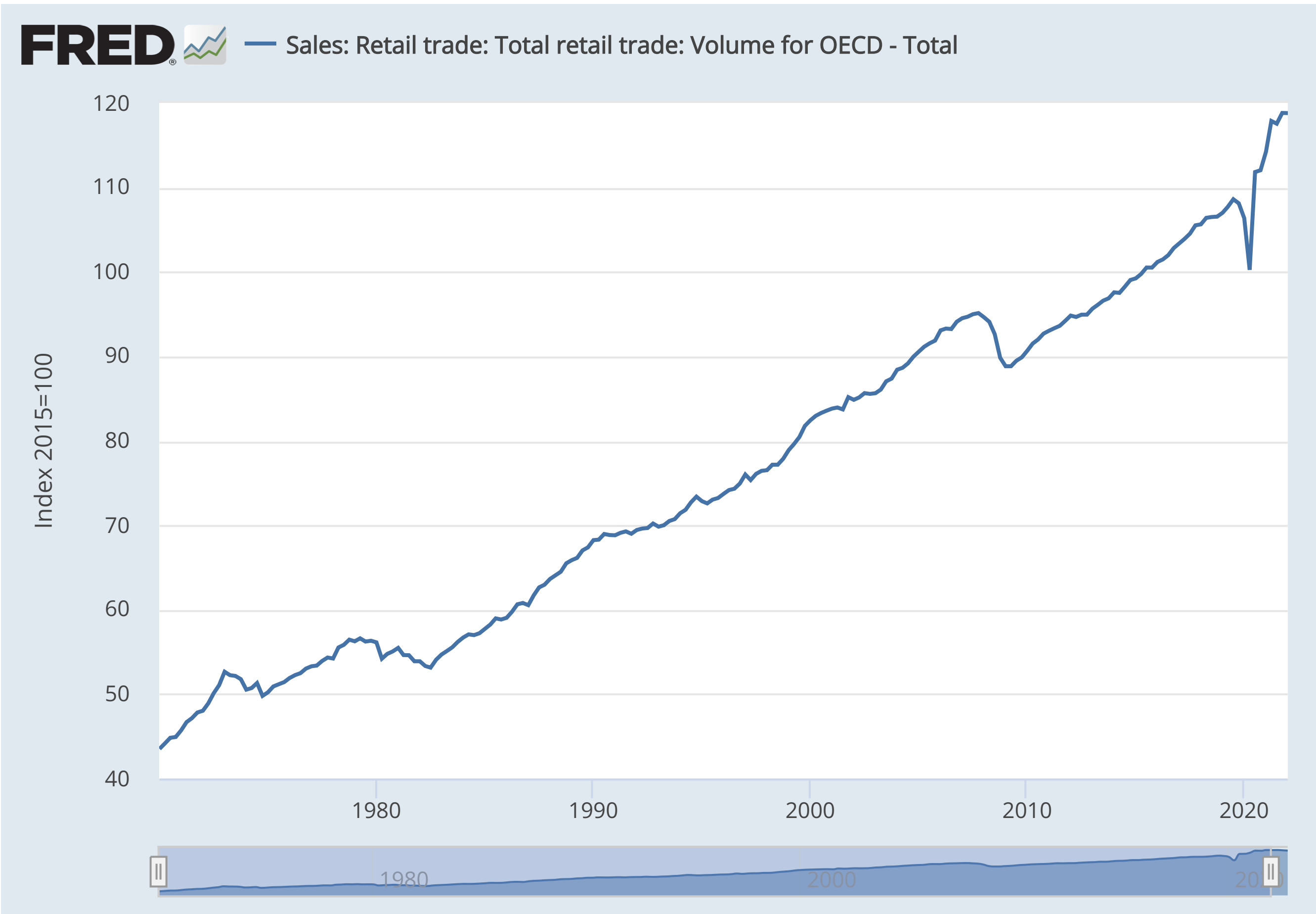
Comparative advantage minimizes opportunity cost. The opportunity cost is the loss of the next-best option when deciding what goods or services to produce. For example, if a country produces a crop for export, the opportunity cost is an alternate use of the resources (land and farm equipment).

So if a country, let's call it Cropia, produces both wheat and corn more efficiently than its trading partners—that is, with less labor, land and capital—but is relatively better at producing wheat, it may make sense for Cropia to focus on the production of wheat to maximize its overall basket of goods.[1]

With more efficient production, the individual consumers of Cropia should generally be better off. This is because with a larger supply of goods, prices of those goods will lower (assuming, of course, that demand has remained constant).

goods each country consumes. The graphs show how trade and world gross domestic product (GDP) have grown over the past 50 years.

Retail Trade Has Grown over 50 Years



Source: Organization for Economic Co-operation and Development

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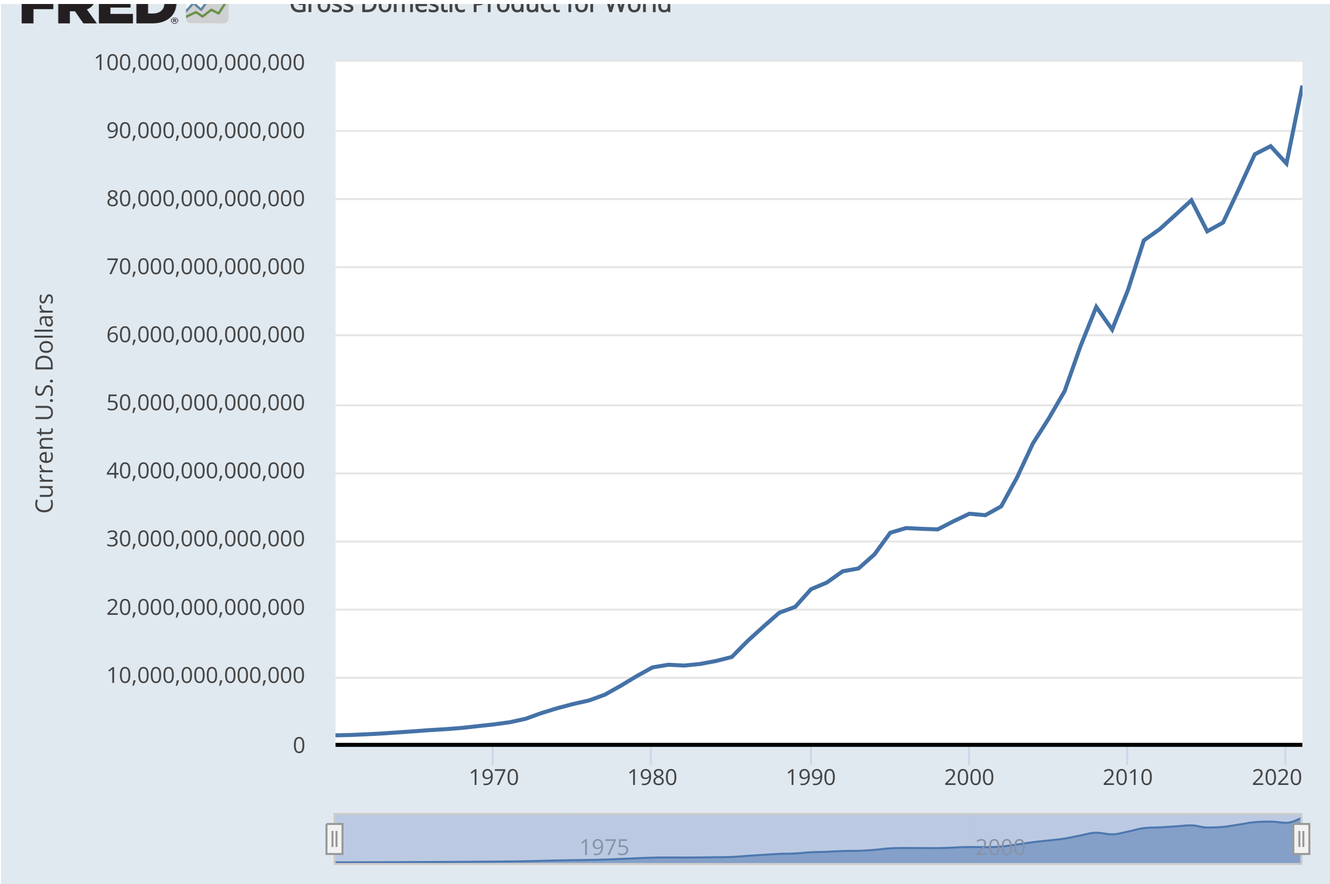

Source: World Bank

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NOTE: GDP is the total market value, expressed in dollars, of all final goods and services produced in an economy in a given year.

Drawbacks of Trading with Other Countries

While opening a country's economy usually increases its people's consumption, trade can also bring drawbacks, some of which became especially apparent during the COVID-19 pandemic. Specifically, trade can bring exposure to disruptive demand shocks from trading partners.

If the U.S. economy was closed, for example, and Canada experienced a strike in its manufacturing industry, this would have no effect on the U.S. because the U.S. would not be engaging in any trade with Canada. The U.S. would not experience any economic effects due to this shock.

How Foreign Demand Shocks Affect Domestic Economies

more susceptible to foreign shocks. This was especially apparent through financial linkages in the Great Depression of the 1930s and the Great Recession of 2007-09.

During the COVID-19 pandemic, both demand and supply shocks in many different countries reverberated throughout the world, and are still being felt. The shutdowns of Chinese ports due to COVID-19 outbreaks, for example, significantly increased shipping delays and the cost of shipping goods. With increased international interdependency, localized events have ever larger effects on foreign economies.

While international supply linkages have made the average consumer better off through specialization in production, they also make countries more vulnerable to foreign shocks. While international trade goes smoothly most of the time, the rare disruption of production processes on the other side of the world means that your ottoman can take a long time to get to you.

Note

1. This is, of course, given the preferences in the world for wheat and corn, respectively. Should there be any demand for wheat in the world, Cropia would certainly produce some of it.

About the Author

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