

Purchasing Power Parity: Weights Matter

At what rate would the currency of one country have to be converted into that of another to buy the same goods and services in each country?

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HOW FAST IS THE GLOBAL ECONOMY growing? Is China contributing more to global growth than the United States? Is the average person richer in France or in Japan? These types of questions are of great interest to economists and others, and at first blush it appears reasonable to assume that each has a clear-cut answer. But, as with many things in economics, the reality is different.

To answer the questions, one must compare the value of the output from different countries. But each country reports its data in its own currency. That means that to compare the data, each country's statistics must be converted into a common currency. However, there are several ways to do that conversion and each can give a markedly different answer.

Two different yardsticks

International financial institutions produce a wide range of regional and global statistics. The IMF, one of these institutions, publishes many of its statistics—such as real GDP growth, inflation, and current account balances—twice a year in its *World Economic Outlook* (WEO). These statistics combine, or aggregate, the results from many countries into an average. The importance, or weight, of an individual country's data in the overall result depends on the size of its economy relative to the others being compared. To derive these weights, one converts the GDP of a country in national currency terms to a common currency (in practice, the US dollar).

One of the two main methods of conversion uses market exchange rates—the rate prevailing in the foreign exchange market (using either the rate at the end of the period or an average over the period). The other uses the purchasing power parity (PPP) exchange rate—the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country.

To understand PPP, let's take a commonly used example, the price of a hamburger. If a hamburger is selling in London for £2 and in New York for \$4, this would imply a PPP exchange rate

of 1 pound to 2 US dollars. This PPP exchange rate may well be different from that prevailing in financial markets (so that the actual dollar cost of a hamburger in London may be either more or less than the \$4 it sells for in New York). This type of cross-country comparison is the basis for the well-known “Big Mac” index, which is published by *The Economist* magazine and calculates PPP exchange rates based on the McDonald's sandwich that sells in nearly identical form in many countries around the world.

Of course, any meaningful comparison of prices across countries must consider a wide range of goods and services. This is not an easy task, because of the amount of data that must be collected and the complexities in the comparison process. To facilitate price comparisons across countries, the International Comparisons Program (ICP) was established by the United Nations and the University of Pennsylvania in 1968. PPPs generated by the ICP are based on a global survey of prices. In the last round (2011), each of the participating countries (about 199) provided national average prices for about 1,000 closely specified products.

PPP versus market rates

So which method is better? The appropriate way to aggregate economic data across countries depends on the issue being considered. **Market exchange rates are the logical choice when financial flows are involved.** For example, the current account balance represents a flow of financial resources across countries. It is appropriate to use the market exchange rate to convert these flows into dollars when aggregating across regions or calculating the global current account discrepancy. But **for other variables, the decision is less clear-cut.** Take real GDP growth. International organizations use different approaches. The World Bank uses market-based rates to determine the weights in its regional and global aggregations of real GDP, whereas the IMF and the Organization for Economic Cooperation and Development use weights based on PPP

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rates (although the IMF also publishes a global growth aggregate based on market rates in the WEO). Each methodology has its advantages and disadvantages.

Advantages of PPP. A main one is that PPP exchange rates are relatively stable over time. By contrast, market rates are more volatile, and using them could produce quite large swings in aggregate measures of growth even when growth rates in individual countries are stable. Another drawback of market-based rates is that they are relevant only for internationally traded goods. Nontraded goods and services tend to be cheaper in low-income than in high-income countries. A haircut in New York is more expensive than in Dhaka; the price of a taxi ride of the same distance is higher in Paris than in Jakarta; and a ticket to a cricket game costs more in London than in Lahore. Indeed, because wages tend to be lower in poorer countries, and services are often relatively labor intensive, the price of a haircut in Lima is likely to be cheaper than in New York even when the

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cost of making tradable goods, such as machinery, is the same in both countries. Any analysis that fails to take into account these differences in the prices of nontraded goods across countries will underestimate the purchasing power of consumers in emerging market and developing countries and, consequently, their overall welfare. For this reason, PPP is generally regarded as a better measure of overall well-being.

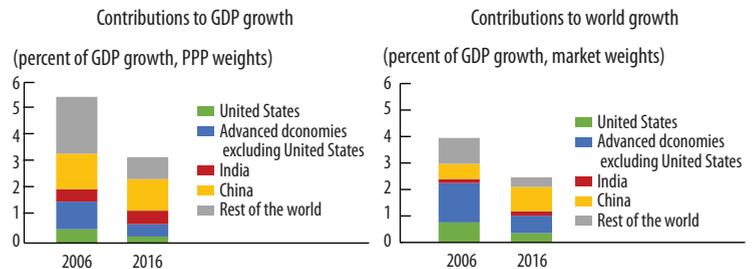
Drawbacks of PPP. The biggest one is that PPP is harder to measure than market-based rates. The ICP is a huge statistical undertaking, and new price comparisons are available only at infrequent intervals. Methodological questions have also been raised about earlier surveys. In between survey dates, the PPP rates have to be estimated, which can introduce inaccuracies into the measurement. Also, the ICP does not cover all countries, which means that data for missing countries have to be estimated.

Does it make a difference?

It depends. There is a large gap between market and PPP-based rates in emerging market and developing economies. But for advanced countries, the market and PPP rates tend to be much closer. As a result, developing economies get a much higher

Who contributes most to global growth?

Contributions to world growth have changed significantly over the past 10 years.



Source: IMF, *World Economic Outlook*, September 2017.

weight in aggregations that use PPP exchange rates than they do using market exchange rates. China's weight in the global economy is about 18 percent using PPP exchange rates, but about 15 percent with market-based weights. For India, the figures are about 7 percent and 3 percent, respectively.

Thus, the choice of exchange rates makes a big difference in calculations of global growth, but little difference to estimates of aggregate growth in advanced economies. The per capita income gap between the richest and poorest countries is modestly reduced under PPP exchange rates (although it remains exceptionally large), and some countries jump up or down the income scale depending on the exchange rate conversion used.

So how fast is the global economy growing? Using PPP, the latest WEO estimates that global growth was 3.2 percent in 2016, but only 2.4 percent at market rates.

Who contributes more to global growth, China or the United States? Using both PPP and market-based weights it's China in 2016 but the situation was much different in 2006. At market rates GDP in China exceeded the combined GDP of the next 12 emerging market and developing economies ranked by size (India, Brazil, Russia, Mexico, Indonesia, Turkey, Saudi Arabia, Argentina, Poland, Iran, Thailand, and Nigeria). In fact, in PPP rates China contributes more to global growth than all advanced economies combined (see chart).

Which country is richer, France or Japan? Even among advanced economies, the choice of exchange rate can matter. Using market rates, per capita income in Japan exceeds that in France, but when PPP rates are used, the situation is reversed. [FD](#)

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