

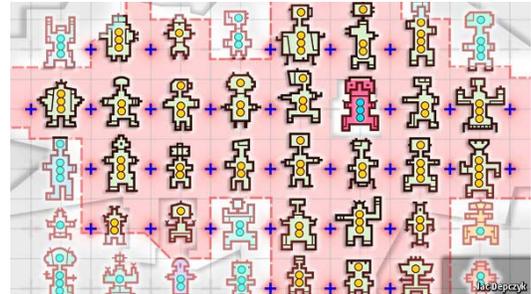
## Free exchange

# Boundary problems

**America has changed the way it measures GDP**

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ECONOMICS is a messy discipline: too fluid to be a science, too rigorous to be an art. Perhaps it is fitting that economists' most-used metric, gross domestic product (GDP), is a tangle too. GDP measures the total value of output in an economic territory. Its apparent simplicity explains why it is scrutinised down to tenths of a percentage point every month. But as a foundation for analysis it is highly subjective: it rests on difficult decisions about what counts as a territory, what counts as output and how to value it. Indeed, economists are still tweaking it. This week America's GDP rose by \$560 billion, or 3.6%, mainly because the "boundary" that defines what counts as an economic asset was moved.



The modern history of GDP starts with America's Depression. The set of measures available to those battling the slump that started in 1929 was scarily narrow. Policymakers used stock prices, industrial production and transport data, and little else. The detail needed to diagnose economic problems properly was provided in a 1934 report by Simon Kuznets (see sources below). The new national-income and product accounts that resulted measured income by industry and production by sector; they also introduced lots of new metrics, including GDP. Richard Stone of Cambridge University developed a similar system for Britain, adopted by the UN in 1947 as the first "System of National Accounts" (SNA), a set of international standards for measuring economic activity.

Since these first big steps to make GDP measurement systematic and international, improvements have been more gradual. The big problems are what to measure and how to measure it. Answering the first question involves defining a set of "boundaries": activities inside the ropes are included, those outside are not. Even the geographical boundary—how to define a nation—can be thorny. A country's territorial waters are within its national boundary, but foreign crews of ships working in those waters contribute to their home country's output. Smugglers, whose activity crosses borders and is hard to track, are a real headache.

Defining other boundaries is even harder. Since investment (activity that creates assets) is part of GDP, it is vital to define "assets". Here practicalities can trump principles. Economists have long thought of spending on research and development, or on making artwork, as types of investment. These efforts create things—patents, for example—that are a lot like fixed assets. They are durable, they give rise to a future stream of income and they help generate future output. But the previous SNA system, set up in 1993, regarded such assets as too difficult to measure. For this reason they were set outside the asset boundary. And so spending to produce them did not count as investment, part of GDP.

But the latest SNA system, agreed upon in 2008, shifted the asset boundary to include these innovative activities, prompting the changes to America's statistics this week. A new investment class called "intellectual-property products" has been created by America's Bureau of Economic Analysis (BEA). Ideally, the value of private firms' R&D would be based on the future income it generates, discounted to today's values. But since future products, and their related prices, are unobservable, those calculations are tricky. So the BEA is measuring R&D investment using firms' innovation-related costs. Government R&D, mainly spending on health, defence and aerospace, is now measured in the same way.

The BEA faces an even fiddlier task with original artwork, a category that includes films, books, music and TV shows. (Newspaper articles have no lasting value, according to the BEA, but what do they know?) The problem is that there is scant information on investment costs. Moreover, the asset—the right to the music, manuscript or TV format—is rarely sold. Rather it is used to create a future stream of products, like books and TV shows. So the BEA must estimate likely future royalty fees, and translate them into today's money to value the investment. Since artistic assets can last a long time ("The Simpsons" has been running since 1989) that is a tough task.

In the short term America's new GDP measure makes international comparisons more difficult. The BEA is not the first mover: Australia made the change in 2009, leapfrogging Canada in the OECD's country rankings of GDP per person. Canada switched in 2012, making back some of the ground. For the moment, America, Australia and Canada are the only G20 countries on the new system. By 2014 many other countries, including those in the EU, will have joined them.

#### Carrots and statistics

But GDP is still far from perfect. One problem is how to treat goods and services that are produced and consumed in the home. To do this the SNA defines another boundary. All goods produced and consumed at home are included in GDP: if more fruit and vegetables are grown in the garden the economy gets bigger. The logic is that home-grown produce could be sold at a market, obtain a price and be measurable. But services—cleaning a home, caring for a relative—are excluded from GDP. The logic is that services are produced as they are consumed: since they could not be sold they are outside the market.

But the assumption that there are no market prices for services delivered at home is 1940s thinking. It is easy to put a price on cleaning and caring—far simpler than working out how to price future film royalties. And excluding home-provided health care and education creates an ever-widening faultline under GDP. The market values of these services are rising much more quickly than the general rate of inflation. That means the value of the activity outside the boundary is changing rapidly over time. To stay relevant national accounts may have to change again.

#### Sources

"Taking the Pulse of the Economy: Measuring GDP (<http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.22.2.193>)", Landefeld J. Steven, Eugene P. Seskin and Barbara M. Fraumeni. (2008). *Journal of Economic Perspectives*, 22(2): 193-216

"National Income 1929–1932", Kuznets, Simon. (1934). Senate Document No. 124, 73<sup>rd</sup> Congress, 2nd Session. Washington, DC: U.S. Government Printing Office. Available at <http://library.bea.gov> (<http://library.bea.gov/>)

"Measurement of National Income and the Construction of Social Accounts ([//unstats.un.org/unsd/nationalaccount/hsna.asp](http://unstats.un.org/unsd/nationalaccount/hsna.asp))", United

Nations (1947)

["System of National Accounts 2008 \(http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf\)](http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf) ", United Nations (2008)

["The Impact of R&D Capitalization on GDP and Productivity Growth in Canada \(http://www.statcan.gc.ca/pub/11-626-x/11-626-x2012016-eng.pdf\)](http://www.statcan.gc.ca/pub/11-626-x/11-626-x2012016-eng.pdf) ", Wulong Gu, Berouk Terefe and Weimin Wang, Statistics Canada

["An incurable disease \(http://www.economist.com/node/21563714\)](http://www.economist.com/node/21563714) ", The Economist (2012)

["Results of the 2013 Comprehensive Revision of the National Income and Product Accounts \(http://www.bea.gov/national/pdf/2013briefingslides%20for%20web.pdf\)](http://www.bea.gov/national/pdf/2013briefingslides%20for%20web.pdf) ", Bureau of Economic Analysis (2013)

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