



REPUBLICAN STAFF ANALYSIS

Measuring Gross Output

April 29, 2014

Introduction

Beginning April 25th, the Bureau of Economic Analysis (BEA) has debuted quarterly estimates of gross domestic product (GDP) generated by each of the 22 industries identified in the economy, which were previously reported on an annual basis only. GDP by industry is a measure of value added of final products for each industry group.

In addition, the BEA began measuring gross output on a quarterly basis. Gross output is the market value of goods and services produced by an industry. Its components include: commodity taxes, sales or receipts and other operating income, and inventory change.¹ In other words, gross output by industry is a measure of value added plus intermediate inputs.

Gross output has the potential to be a powerful complementary tool to GDP, but gross output is not a substitution for GDP. GDP measures all economic activities once, but only once; aggregate gross output counts some economic activities multiple times. Confusing these two very distinctive measures of economic activity would misinform rather than enlighten policymakers and the public on the breadth and scope of America's dynamic economy.

The quarterly industry-level GDP data begins the first quarter of 2005 and spans through the latest release, the fourth quarter of 2013. This data will not only provide more timely industry-level data for businesses and policymakers about turning points and trends within the economy, but will also help identify which industries are presenting the strongest and weakest economic growth, and whether the growth is broadly across industries or concentrated in just a few.¹ For example, in 2005, GDP grew 3.4 percent, and finance, insurance real estate, rental and leasing contributed to 1.3 percentage points of growth in that year, indicating just a handful of industries contributed significant growth.² Going forward, the data is expected to be released within 30 days after the "third" release of the latest quarterly data for GDP.

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GDP by industry measures value added of final products; gross output by industry also includes intermediate inputs. Aggregate gross output of all industries can count the same economic activity multiple times.

Gross output has the potential to be a powerful complementary tool to GDP in measuring economic activity, but it should not be considered a substitution for GDP.

Quarterly industry-level GDP will provide more timely data for businesses and policymakers about turning points and trends within the economy.

¹ For more detail information regarding the source data for estimating gross output, see Table K, "Principal Source Data for Estimating Gross Output," https://www.bea.gov/scb/account_articles/national/0600gpi/tablek1.htm. Both intermediate inputs and gross operating surplus are derived using an input-output framework.

A New Measure of Economic Activity

Gross output by industry provides a more detailed measure of the production activity in the economy and is the sum of value added and intermediate inputs. For the fourth quarter of 2013, aggregate gross output for all industries increased 2.3 percent to \$30.1 billion compared to a 2.6 percent increase to \$17.1 trillion GDP.³

Gross output measures how the economy works rather than standard of living and growth.

Originally developed by economist Wassily Leontieff based on input-output tables of individual industries rather than in aggregate, gross output had been largely ignored in the past because the annual release of the data was not timely, two or three years out of date. As Mark Skousen, a longtime advocate of the gross output statistic, notes in the *Wall Street Journal*, gross output measures how the economy works rather than standard of living and growth; while 2013 GDP indicated consumer spending was among the largest components (70 percent), gross output indicated that consumer spending was less than 40 percent of economic activity, and showed saving, business investment and entrepreneurship as the underlying major components.⁴ As Skousen noted in a recent *Forbes* article, “Consumer spending is largely the effect, not the cause, of prosperity.” The application of gross output as a complimentary measure thus can inform about what drives the economy, contrary to the oft overstated concern expressed in the media and by public officials for the GDP components of consumer and government spending as drivers of economic growth.⁵

How Gross Output Compares to GDP

Informally, GDP is referred to as a measurement of the “use” economy, while gross output is a measurement of the “make” economy.

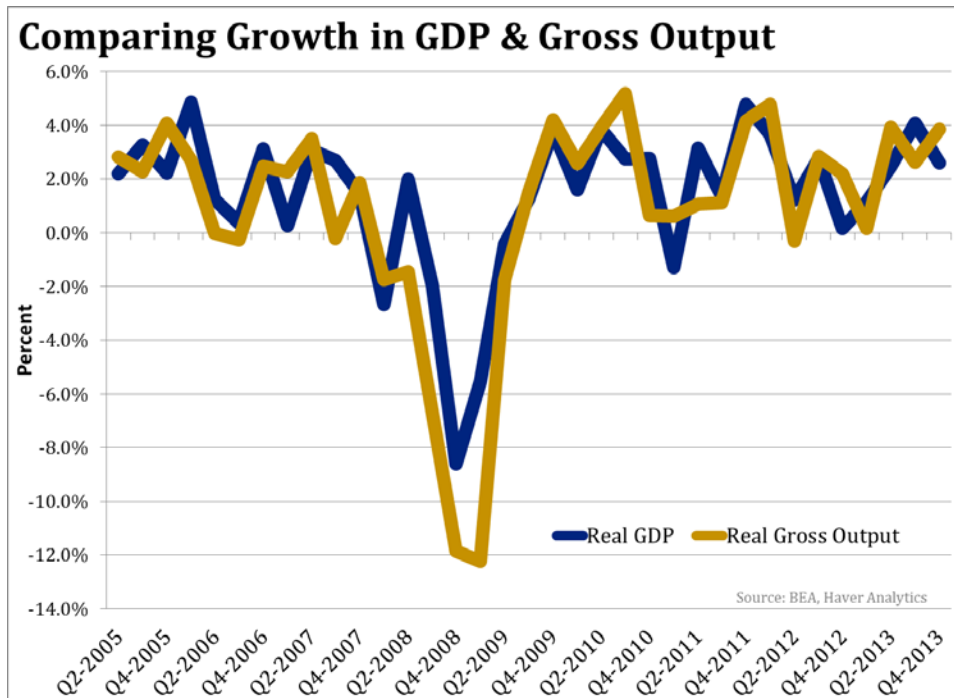
GDP and gross output measure the economy in notably different ways. Informally, GDP is referred to as a measurement of the “use” economy, while gross output is a measurement of the “make” economy. There are three different ways to measure GDP: the expenditures approach, which is total spending on all final goods and services; the income approach, in which GDP is a measure of national income, also known as gross domestic income (GDI); and the value-added or production approach, which measures the value of final goods and services. All measurements of GDP are meant to roughly equal each other, more or less some small statistical discrepancies.

Table 1: Three Ways to Measure GDP

<i>I. Value-added (or production) approach</i>		<i>2005 share (%)</i>
Gross Output (gross sales less change in inventories)		183.5
Less: Intermediate inputs		83.5
Equals: Value added for each industry		100
<i>II. Income (by type) approach</i>		
Sum of:	Compensation	56.6
	Rental income	0.3
	Profits and proprietors' income	17.6
	Taxes on production & imports	7.4
	Less: Subsidies	0.5
	Interest, miscellaneous payments	5.5
	Depreciation	12.9
Equals: Total domestic incomes earned		100
<i>III. Final demand (or expenditures) approach</i>		
Sum of:	Consumption of final goods and services by households	70
	Investment in plant, equipment, and software	16.7
	Government expenditures on goods and services	19
	Net exports of goods and services (exports - imports)	-5.7
Equals: Final sales of domestic product to purchasers		100

Source: Landefeld, Seskin, Fraumeni, JEP (Spring 2008), http://www.bea.gov/about/pdf/jep_spring2008.pdf

The value-added approach is the GDP measurement most directly comparable to gross output, as shown in Table 1 on the previous page. In this approach, GDP measures all of the value added to the economy, and does not measure intermediate inputs like gross output does. Skousen argues that gross output is the final missing piece to national accounts data, accounting for production in the timely way that consumption and income are already measured every quarter.⁶



Recalling that aggregate gross output is nearly double GDP, the figure above shows the percent change in real GDP growth compared to real gross output from the second quarter of 2005 through the final quarter of 2013.

Aggregate gross output measures all of the activity that occurred, which can include value added, or sales to final users in the economy (GDP), and sales to other industries (intermediate inputs), and it is greater than all of the value added. Though it sheds light on the interrelationships of industries that make up the economy as a whole, the BEA cautions that gross output is not a good objective measure of the overall health of the economy or any given industry or sector.

A Word of Caution on Using Gross Output

As the BEA explains, aggregate gross output reflects “double-counting,” which is the sales of both intermediate and final products, and thus double counts sales that are between industries. Aggregate gross output is also known as gross duplicated output, thus it is a complimentary measure to non-duplicative, final sales, or GDP. Gross output is also considered a more volatile and less reliable measure of aggregate business cycles and economic growth as it is likely to exaggerate the economy cycle and components most sensitive to cyclicalities, like manufacturing. As an example, the BEA points to a 15 percent drop in value added for durable goods manufacturing for 2009 compared to a 19 percent drop when measuring gross output for durable goods manufacturing for the same year.⁷

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Aggregate gross output reflects “double-counting,” which is the sales of both intermediate and final products, and thus double counts sales that are between industries.

Gross output can be a very useful tool for identifying activity, trends, sources of growth and relationships in the underlying industry data on a timely basis.

As the available data on quarterly gross output and industry level data currently spans just under a decade, it may take some time to fully incorporate and interpret the relationship of quarterly gross output to quarterly GDP in future analyses. Its place as a measurement of economic activity should not be misconstrued. For example, it would be terribly imprudent to use it as a yardstick for government spending, debt and especially taxation, for the aforementioned reasons that it double counts the sales of goods and services. One point of concern has been that policymakers may look at gross output as an opportunity to introduce additional taxation given that gross output is so much larger than GDP.⁸ Another point of caution regards how outsourcing and mergers affect gross output, with the former increasing gross output and the latter reducing it, but the magnitude of this issue remains to be seen. Yet as long as it is not incorrectly substituted or conflated with GDP, it can be a very useful tool for identifying activity, trends, sources of growth and relationships in the underlying industry data on a timely basis.

In future, the BEA anticipates expanding the industry detail from the current 22 categories to 69, as well as moving up the quarterly GDP by industry release, and gross output data with it, to coincide with the third release of GDP.

¹ Carol E. Moylan, "An Introduction to a New BEA Product: U.S. Quarterly GDP by Industry Statistics," Bureau of Economic Analysis, March 11, 2014, <http://www.bea.gov/industry/pdf/presentations/an-introduction-to-a-new-bea-product-us-quarterly-gdp-by-industry-statistics.pdf>

² "New Statistics Will Provide More Timely Snapshot of How Industries are Performing," Bureau of Economic Analysis Blog, March 10, 2014, <http://blog.bea.gov/2014/03/10/new-statistics-industries/>

³ "Gross Domestic Product by Industry Data," Bureau of Economic Analysis, http://www.bea.gov/industry/gdpbyind_data.htm

⁴ Mark Skousen, "At Last, a Better Economic Measure," *The Wall Street Journal*, April 22, 2014, <http://online.wsj.com/news/articles/SB10001424052702303532704579483870616640230>

⁵ Mark Skousen, "Beyond GDP: Get Ready For a New Way To Measure The Economy," *Forbes*, November 29, 2013, <http://www.forbes.com/sites/realspin/2013/11/29/beyond-gdp-get-ready-for-a-new-way-to-measure-the-economy/>

⁶ Mark Skousen, "My 'Gross Output' Statistic is Adopted by the Government," *Eagle Daily Investor*, December 5, 2013, <http://www.eagledailyinvestor.com/13472/my-gross-output-statistic-is-adopted-by-the-government/>

⁷ "Guidelines for Citing BEA Information," Bureau of Economic Analysis, April 22, 2014, http://www.bea.gov/faq/index.cfm?faq_id=1034

⁸ Gary D. Halbert, "Consumer Confidence Up, But Concerns Remain," *Value Walk*, April 1, 2014, <http://www.valuewalk.com/2014/04/consumer-confidence-concerns-remain/>