Does Output double-count and how does it differ from GDP?

Gross Output and Gross Domestic Product (GDP) are both highly useful economic statistics that are published as part of the BEA's industry accounts.

## Output

Output is the value an industry's production. It can be measured in two ways: from the sales (income) perspective or the expenditures perspective.

1. From the sales (income) perspective, output is the sum of sales to final users in the economy (GDP) + sales to other industries (intermediate inputs) + inventory change.
2. From the expenditures perspective, output is the sum of an industry's value-added + intermediate inputs.

## GDP

GDP is defined as the total [market value](http://en.wikipedia.org/wiki/Market_value) of all final goods and services produced within a region in a given period of time (usually a quarter or year). GDP is the sum of value added at every stage of production (the intermediate stages) of all final goods and services produced within a country in a given period of time. In other words, GDP is the wealth created by industry activity. In a social accounting matrix (SAM) model such as IMPLAN, this is the sum of value added. Furthermore, in a balanced SAM model, total value-added = total final demand.

## Output vs. GDP

Total value-added (GDP) is a useful measure of wealth created by an economy[[1]](#footnote-1). Output, on the other hand, is simply a measure of the total value of all goods produced. Value-added is a subset of output. An industry buys goods and services from other industries and remanufactures those goods and services to create a product of greater value (output) than the sum of the goods that goes into its product (intermediate expenditures). That increase in value is the *value* that the producer *adds* to the inputs as a result of the production process. This added value is then used to pay labor and taxes with hopefully some remainder for profit.

## Does Output Double-Count?

Analysts sometimes focus on output because it is bigger than value-added. However, because the output of an industry requires output from other industries, output double-counts if one attempts to use it as a measure of aggregate production.  For example, suppose an entrepreneur named Doug sets up a shop called “Doug’s Windows Service” to install the Windows operating system onto customers’ computers, as well as give some instruction on how to use Windows. For this service he charges $100. If he services 100 customers:

Revenue (output) = $10,000

Shop costs (electricity, rent, etc.) = $2,000

Value-added = $8,000 (from this he pays property taxes, production taxes, and has net profit)

Based on needs of his customers, Doug decides that he will order the computer for them and turn over to them a complete system with Windows installed. The computer costs him $950 and he will tack on $50 for the additional hassle of buying the computer. Thus, for each unit the customer now pays $1,100 ($1,000 for the computer plus $100 for the service). This time, if he services 100 customers:

Revenue (output) = $110,000

Computer costs = $95,000

Other shop costs = $2,000

Value Added = $13,000

Doug’s output has gone up 1000% but value-added only grew by 63%. His store’s huge increase in output would be very misleading as an indicator of how the local economy is doing. If the computer is manufactured locally, then the manufacturer’s output will show up as an indirect effect, which will double count its contribution to the economy if it is also included in Doug’s store’s overall direct output effect. Thus, while output is an essential statistical tool needed to study and understand the interrelationships of the industries that underlie the overall economy, because of its duplicative nature it may not be a good stand-alone indicator of the overall health or contribution of an industry or sector[[2]](#footnote-2).

1. Note, however, that GDP misses some aspects of a region’s economic performance. See this article for more: <http://www.foreignaffairs.com/articles/140790/diane-coyle/beyond-gdp> [↑](#footnote-ref-1)
2. For more, see: <http://www.bea.gov/faq/index.cfm?faq_id=1034&searchQuery#sthash.U1eMBclU.dpuf> [↑](#footnote-ref-2)