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National Aggregate Statistic

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GROSS DOMESTIC EXPENDITURES (GDE): THE NEED FOR A NEW NATIONAL AGGREGATE STATISTIC

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In national income and product accounts, Gross Domestic Product (GDP) is widely recognized as the most common denominator of economic performance. However, because it measures final output only, GDP overemphasizes the role of consumer spending as a driver of economic growth rather than saving, business investment, and technological advances. In an effort to create a more balanced picture of the production/consumption process, I create Gross Domestic Expenditures (GDE), a new national aggregate statistic that measures sales at all stages of production. Drawing from the annual input-output data compiled by the Bureau of Economic Analysis, gross business receipts from the IRS, and other sources, GDE estimates gross spending patterns in intermediate production (goods-in-process) and final output. GDE should be the starting point for measuring aggregate spending in the economy, as it measures both the “make” economy (intermediate production), and the “use” economy (final use or GDP). It complements GDP and can easily be incorporated in standard national income accounting and macroeconomic analysis. In the United States, GDE appears to be more than twice the size of GDP, and has historically been three times more volatile than GDP, and serves as a better indicator of business cycle activity. I conclude that consumer spending represents approximately 30 percent of total economic activity (GDE), not 70 percent as often reported. This conclusion is more consistent with the

leading economic indicators published by the Conference Board.

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Financial journalists and economic analysts often emphasize consumption as the key factor in economic performance, rather than saving, capital investment, productivity, and technological advances. Here are a variety of recent examples:

"Consumer spending [is] the main driver of U. S. economic growth."
("Americans Are Saving More," Wall Street Journal, June 27, 2009)

"For decades, its [the American economy] growth has been led by consumer spending." ("Dropping the Shopping," Economist, July 25, 2009, p. 73)

"Consumer spending has in recent years accounted for 70 percent of the nation's economic activity." ("Consumer Thrift in US May Last After Recession," New York Times, August 29, 2009)

"Because consumer spending accounts for more than two-thirds of economic activity in the United States, economists and investors watch it closely."

(“Consumers' confidence in economy unexpectedly falls in June,”
Associated Press, June 30, 2009)

What is the source of this pro-consumption preference?

It appears to arise from a misunderstanding of the relative significance of Gross Domestic Product (GDP). Since World War II, Gross Domestic Product (GDP) has served as the most common denominator of economic performance. It estimates the total market value of all final goods and services produced within a country during the calendar year. GDP is updated quarterly either in current or constant value, and used to compute and compare the economic growth rate of countries (Landefeld et al. 2008:193).

Here's where the problem arises: By ignoring the important adjective *final* in the definition of GDP, journalists and economic commentators have mistakenly concluded that GDP is a measure of *total* economic activity in the economy. Since personal consumption expenditures are by far the biggest share of GDP, reporters and analysts conclude that the economy must be driven largely by consumer spending.

Even some textbook writers are moving in this direction. For example, Michael Parkin, in his popular *Economics* textbook, has at times dropped the term “final” in defining GDP: “Real GDP is the value of the total production of all the nation's farms, factories, shops, and offices measured in the prices of a single year” (Parkin 2005:89).

This omission has led to much mischief in identifying the driving forces in the economy.

GDP as a Measure of Final Output

Let us see why by examining the meaning and definition of GDP. From an expenditure approach, GDP measures the value of *final* output of goods and services. This can be shown graphically in figure 1.1.

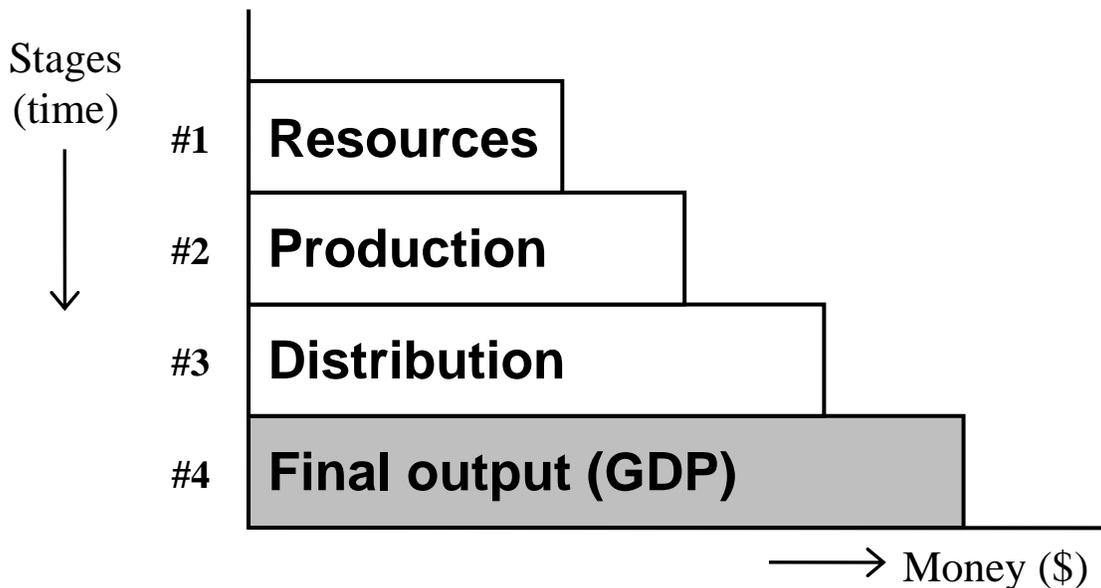


Figure 1.1. GDP (stage #4) as a measure of final output only.

We can see from figure 1.1 that GDP deliberately leave out the gross sales of intermediate production or goods-in-process, i.e., the total sales of products and services in earlier stages of production, in determining final output (stages #1 through #3). GDP measures only stage #4 of the production process. Why? Because GDP is meant to measure only finished goods and services – usable end products and services in homes, businesses and

government.

Economists are quick to point out that to include total spending or sales at every stage of production would be “double” and “triple” counting. For example, in bread making, the economist would not want to count both the wheat and the flour in the value of the bread. GDP is only interested in the final usable product – the bread that people consume at home or work -- as a basic measure of living standards and economic performance. As Parkin explains, “If we were to add the value of intermediate goods and services produced to the value of final goods and services, we would count the same thing many times -- a problem called double counting. The value of an SUV already includes the value of the tires, and the value of a Dell PC already includes the value of the Pentium chip inside it” (Parkin 2005:108).

Thus, GDP is not meant to be a complete measure of all transactions or spending in the economy, but finished goods and services only. In early efforts to measure final output, Simon Kuznets and the National Bureau of Economic Research made every effort to measure “final sales” that “would exclude the value of intermediate products and would equal incomes earned by the factors of production” (Landefeld et al. 2008:195).

GDP as a Measure of “Value Added”

Another way of measuring GDP is from the value-added perspective. Here GDP is calculated as the “value added” of each sector of the economy, but not the total or gross value. See figure 1.2 below.

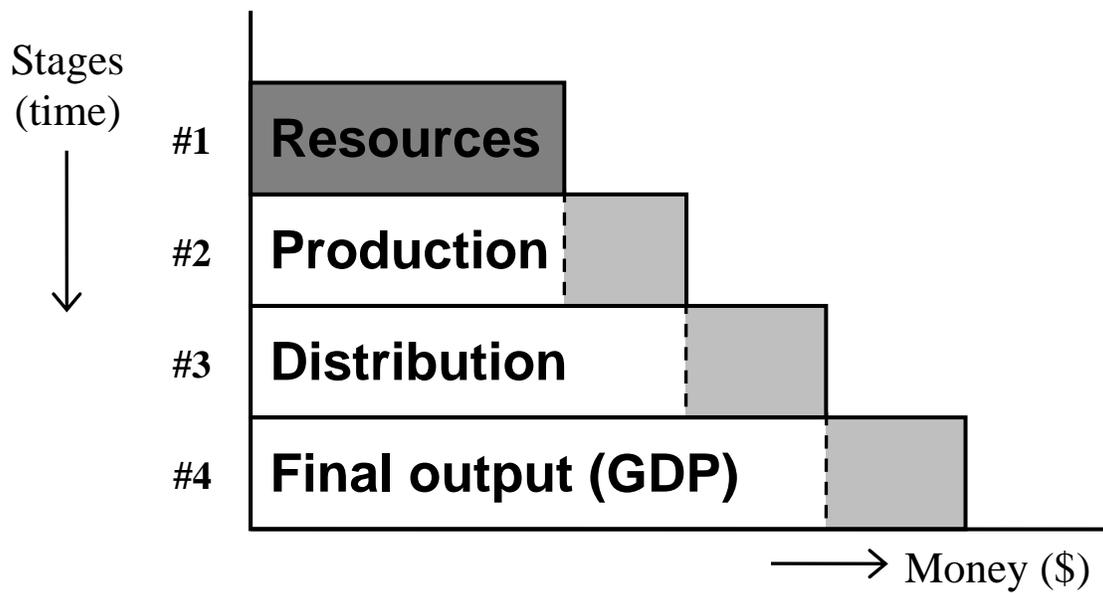


Figure 1.2. GDP as a Measure of “Value Added”

The shaded portions of each stage represent “value added” at each stage. Together they equal the value of stage #4 -- GDP.

Consumption, the Largest Part of GDP

Mathematically, GDP is represented as follows:

$$\text{GDP} = C + I + G + (X - M), \text{ where}$$

C = Personal consumption expenditures

I = Gross private domestic investment

G = Government consumption expenditures and gross investment

X = Exports

M = Imports.

In every developed nation, personal consumption expenditures (C) represent by far the largest sector of GDP. For example, in the United States, GDP for 2008 is divided as follows:

Personal consumption expenditures (C) = \$10,058 billion (70.4%)

Gross private investment (I) = \$2,004 billion (14.0%)

Government expenditures (G) = \$2,883 billion (20.2%)

Exports (X) minus Imports (M) = -\$665 billion (-4.6%)

GROSS DOMESTIC PRODUCT (GDP) = \$14,280 billion

In the U.S., consumption equals 70% of GDP; 65% in the UK; 58% in Germany; and 57% in Japan.

Knowing this fact, reporters and commentators often stress retail spending patterns and consumer expectations over various business indicators, as the key to future economic behavior and the stock market because, noting that in the U. S., “consumer spending represents more than two-thirds of the economy.”

At the same time, the media often ignores or downplays more significant business factors in economic growth -- productivity of labor and capital, technological advances and innovation, productive savings and investment--

because I (Gross private investment) appears to come in as a poor third (only 14%) compared to the size of C and G.

Leading Economic Indicators

Each month the Conference Board releases its Ten Leading Economic Indicators (www.conferenceboard.org). The ten leading indicators are:¹

- manufacturers' new orders,
- building permits,
- unemployment claims,
- average weekly manufacturing hours,
- real money supply,
- stock prices,
- the yield curve,
- new orders for non-defense capital goods
- vender performance,
- index of consumer expectations

Despite the fact that almost all of the leading indicators are linked to business activity and earlier stages of production, the media highlights the Consumer Expectations Index each month.

The Consumer Confidence Index

¹ It should be noted that corporate profits is considered a highly reliable leading indicator but excluded from the Conference Board's list because corporate profits are released quarterly, and the Conference Board's leading economic indicator index comes out monthly.

But upon examining the Consumer Confidence Index, it turns out that the index is not much of a consumer spending indicator. The questions asked consumers are more about business conditions than retail spending attitudes. Here are the questions consumers are asked to determine their “expectations” (<http://www.conference-board.org/economics/ConsumerConfidence.cfm>):

1. Are current business conditions good, bad or normal?
2. Do you expect business conditions to be good, bad or normal over the next six months?
3. Are jobs currently plentiful, not so plentiful or hard to get?
4. Do you expect jobs to be more plentiful, not so plentiful or hard to get over the next six months?
5. Do you plan to buy a new/used automobile/home/major appliance [note: these are all durable consumer goods, not unlike durable capital goods] within the next six months?
6. Are you planning a U. S. or foreign vacation within the next six months?

In other words, the “consumer” confidence index is more a forecast on the consumer outlook for business, employment and durable goods than “retail sales” and consumer spending. It does not ask any questions about

current consumption patterns other than potential spending on durable goods and vacations. It asks nothing about food, clothing, entertainment, and other short-term buying patterns.

Leading Economic Indicators in Other Countries

The Conference Board also publishes indexes for eight other countries. Here are the results:

- Of the nine leading indicators of Germany compiled by the Conference Board, two are linked to consumer spending: the consumer confidence index and the consumer price index for services. The rest are connected to earlier-stage production, such as inventory changes, new purchases of capital equipment, and new construction orders.
- Among France's 10 leading indicators, two are consumer related, and the remainder are tied to commercial measures such as stock prices, productivity, building permits, the yield spread and new industrial orders.
- The UK's leading indicators are linked to export volume, new orders in engineering industries, inventories, housing starts and money supply. Consumer Confidence Index is the lone consumer indicator.
- None of Japan's leading indicators are consumer related: overtime worked in manufacturing, business conditions survey, labor productivity, real operating profits, and new orders for machinery and construction.

– Mexico’s six indicators include a monthly survey of inventories, industrial construction, stock prices, interest rates and the cost of crude oil. Retail sales is a coincident indicator in Mexico.

Despite this evidence, the media continues to emphasize consumption because, without any measure of total economic activity, the media falls back on GDP as the aggregate statistic of choice, and we have seen the distorted results.

Introducing a New National Aggregate Statistic

In an effort to resolve this misapplication of GDP statistics, and to create a more balanced picture of production/consumption process, I propose the creation of a new national aggregate statistic that attempts to measure total spending in the economy, defined as Gross Domestic Expenditures (Skousen 1990, 2007). Gross Domestic Expenditures (GDE) does not replace GDP, but is an additional national aggregate statistic that can easily be integrated into standard macroeconomic analysis.

GDE is defined as the value of all transactions (sales) in the production of new goods and services, both finished and unfinished, at all stages of production inside a country during a calendar year.

Graphically, figure 1.3 seeks to measure the combined spending of all four stages of production.

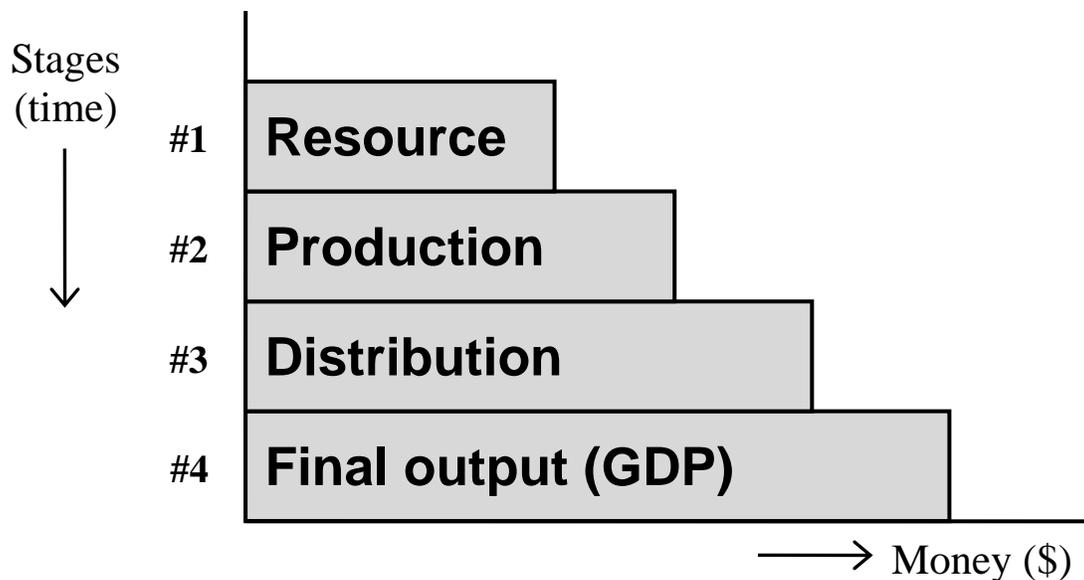


Figure 1.3. GDE measures spending at all stages of production.

Gross Output and the Input-Output Accounts

To obtain total annual transactions or sales in the economy, the most up-to-date source is the annual input-output (I-O) data collected by the Bureau of Economic Analysis (BEA). I draw in particular from the aggregate statistic “gross output” (GO), taken from the I-O accounts, with some revisions (see below), to estimate GDE for 2008.

Gross Output in the I-O accounts measures the value of what is produced by each industry, known as the “make table,” roughly equivalent to the value of goods-in-process or Intermediate Expenditures (IE), and the value of what is consumed by each industry and final user in the economy, known as the “use table,” or GDP.

The two combined is defined as “gross output” (GO), sometimes referred to

as “gross duplicated domestic output” (BEA 2009:5-1). I developed a similar concept in my work, *The Structure of Production*, using the term “gross national output” (Skousen 2007[1990]:191-192). With the development of I-O accounts, BEA has developed Gross Output data measuring the combination of both “final product and the industry output that is purchased by other industries for use as inputs to their production...., so the I-O measure includes the value of shipments at all stages of production” (BEA 2009:5-1).

The Issue of Double Counting

BEA correctly notes that GO involves double and triple counting. It uses the example of a new car: “Thus, in gross output, the value of the tires is counted twice—once in the value of the car shipment and once in the value of the tire shipment. Further, including the value of the rubber and metal that were shipped to the tire plant would constitute triple counting, and so on.” On the other hand, value added is a “nonduplicative measure of production that when aggregated across all industries equals gross domestic product (GDP) for the economy” (BEA 2009:5-1).

While double counting should rightly be excluded from the value of final output, it is appropriately included in measuring economic activity that covers the entire production process. In order to add value, firms must raise sufficient investment capital, either through its own retained earnings, bank loans and credit lines, to fund *gross* expenses, including employee compensation, rents and leasing, plants and equipment, inventories, administrative services, and inputs (goods-in-process). Full weight should

be given to the vital financial decision-making made at each stage of production, and therefore should not be ignored as simple double counting.

Defining Gross Output

Unfortunately, Gross Output (GO) is not a precise measure of total spending in the economy, just as GDP is only an estimate of the nation's final out and is unable to count all areas of production. In defining output, the BEA alerts us to the fact that it includes some forms of "nonmarket" output, such as the output of nonprofit institutions and government, that do not involve actual transactions, while it also excludes some activities, such as gambling, prostitution, and other largely illegal activities, that do. Most activities in the home, such as housework, hobbies, and do-it-yourself projects, are not counted because they do not usually involve monetary exchanges (BEA 2009:5-2, 5-3).

Financial transactions, such as the buying and selling of securities, are also excluded from gross output and our measure of economic activity, except to value the work of brokerage houses and securities firms involved in the financial marketplace. The sale of used goods are also excluded.

In one major area, however, there is a significant difference between GO and GDE as a measure of total economic activity. In both the wholesale and retail trade figures (stages #3 and #4), GO only measures margin output, that is, the difference between receipts and the cost of the goods sold. "For the I-O accounts, the output for industries that buy and resell merchandise but do not provide any additional fabrication is measured as margin. By I-O

convention, this margin is measured as sales receipts less the cost of goods sold” (BEA 2009:5-4).

BEA justifies this margin accounting at the wholesale and retail level as follows: “The use of this margin treatment enables the I-O accounts to focus on the commodity-producing sectors of the economy and on the use of these commodities by other industries and by final users. Otherwise, all or most of the commodities in the economy would appear to emanate from the distributive industries (trade and transportation)” (BEA 2009:5-4).

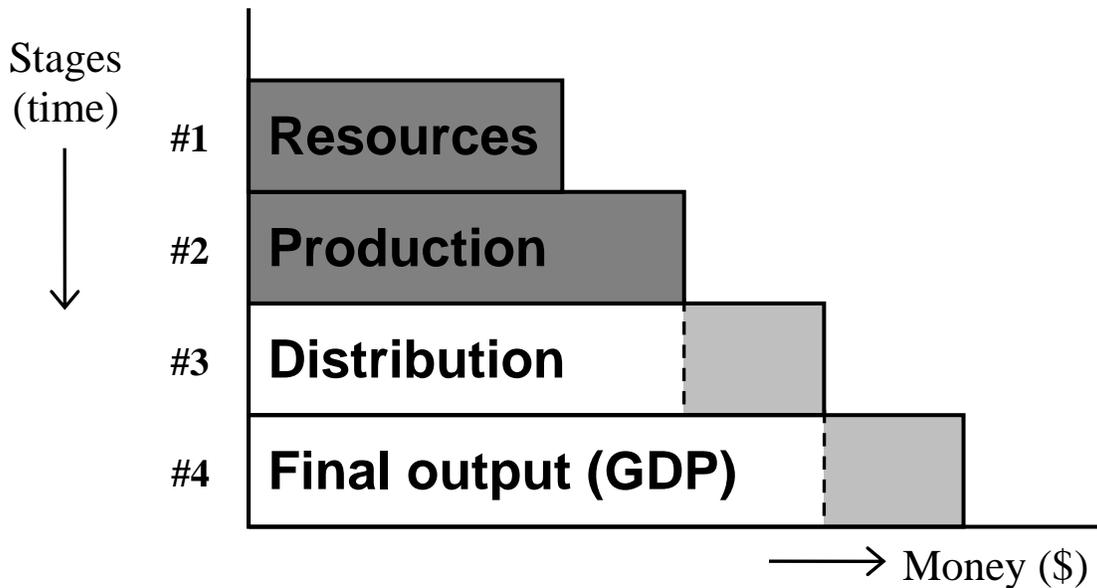


Figure 1.4. Gross Output includes spending at the resource and production stage, but only value added at the wholesale and retail trade levels.

We can therefore recognize that Gross Output is a move in the right direction but does not fully quantify total spending in the economy on new goods and services.

Measuring GDE

A more complete source for measuring GDE is business receipt data collected annually by the Internal Revenue Service. The IRS collects “gross business receipts” for sole proprietorships, partnerships, corporations, and farm enterprises involved in business in intermediate and final production. Thus, in Table 1.1 below GDE is equivalent to gross business receipts from the IRS data.

Year	GDP	Gross Output	Gross Domestic Expenditures
		(in billions of current dollars)	
1998	\$8,747	\$15,905	\$18,995
1999	9,268	16,908	20,807
2000	9,817	18,187	22,930
2001	10,128	18,403	23,094
2002	10,470	18,788	22,743
2003	10,961	19,757	23,838
2004	11,686	21,309	26,237

2005	12,422	23,103	29,258
2006	13,178	24,616	31,733
2007	13,808	25,809 (est)	33,300 (est)
2008	14,265	26,000 (est)	33,000 (est)

Table 1.1. GDP, Gross Output (GO), and Gross Domestic Expenditures (GDE). Source: Bureau of Economic Analysis (www.bea.org); Table 722. “Number of Tax Returns, Receipts, and Net Income by Type of Business,” IRS data; and table 800, “Farm Sector: Output and Value Added.” Statistical Abstract of the United States 2010.

In comparing Gross Domestic Expenditures to Gross Output, we see that the difference is largely due the fact that GO measures wholesale and retail trade at the margin only. If GO included gross sales figures from the annual wholesale survey

(http://www2.census.gov/wholesale/xls/awts/2007_awts_salesinv_nomsbo.xls) and the annual retail survey

(<http://www2.census.gov/retail/releases/current/arts/sales.xls>), GO should approximate the IRS’s Gross Business Receipts and GDE.

Based on data compiled for annual Gross Output and Business Receipts, I estimate the Gross Domestic Expenditures (GDE) for 2008 to be approximately \$33 trillion. This assumes a decline in GDE in 2008 due to

the recession (as was the case in 2001-02).

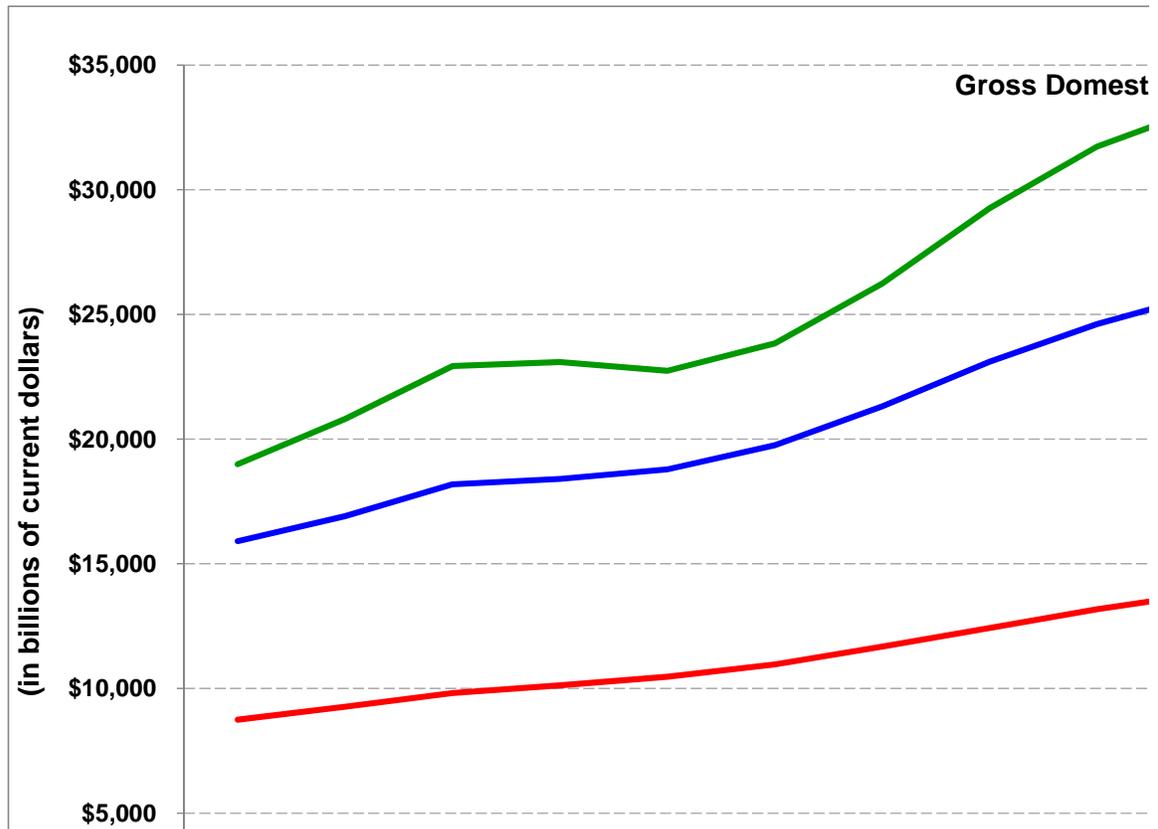


Figure 1.5. GDP, GO, and GDE, 1998-2008 (est.)

GDE is Three Times More Volatile than GDP

In running a regression analysis of GDE, GO, and GDP over the 11 year period, 1998-2008, we conclude:

- (1) Over the above time frame, 1998-2008, GDE is 3.66 times more volatile than GDP and 1.74 times more volatile than GO.

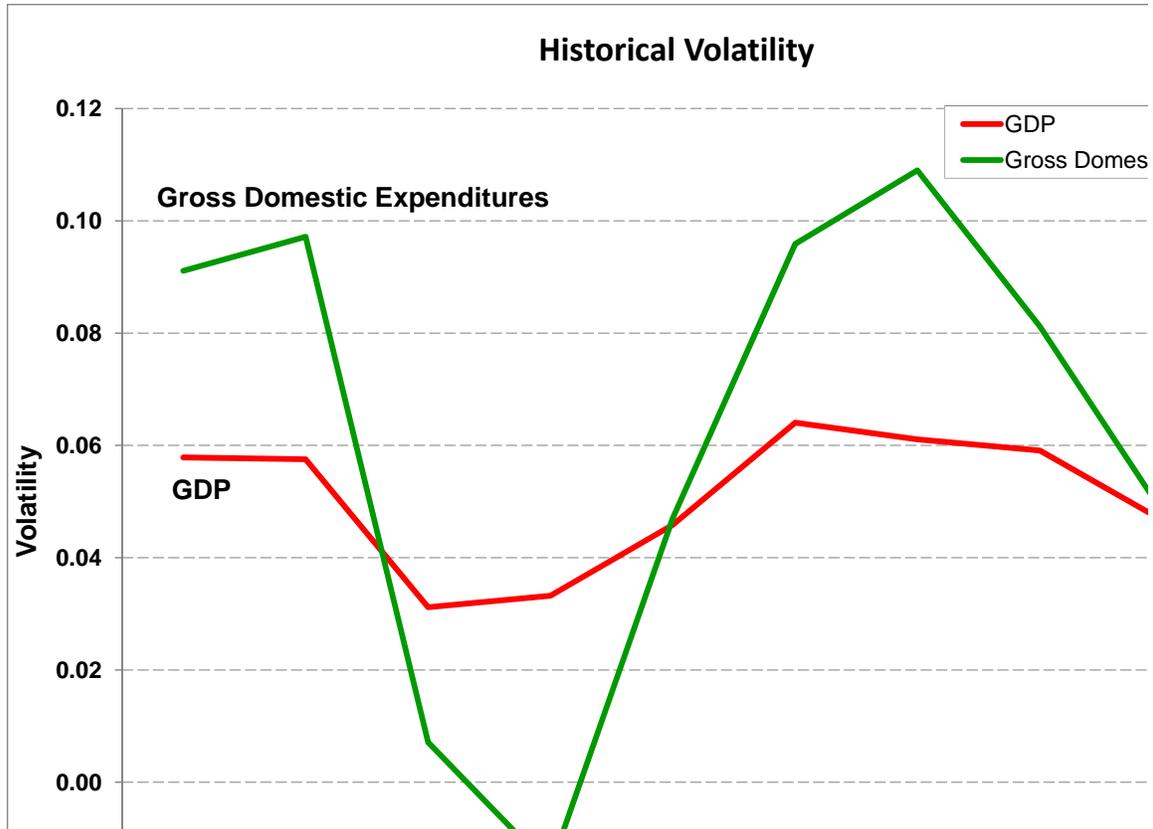


Figure 1.6. Volatility of GDE and GDP, 1998-2008.

(2) GDE grew faster (73%) than GDP (63%) during this time.

And (3) GDE is approximately 130% larger than GDP in 2008.

The Relative Importance of Consumption and Business Investment

Now that we have quantified total expenditures at all stages of production with GRE, let us go back to the question of how significant consumer spending and business investment are in the economy.

We noted earlier that consumption (C) represents 70% of GDP, while private investment (I) amounts to 14%. The breakdown is as follows:

$$\text{GDP} = C + I + G + \text{NX},$$

Where

Personal consumption expenditures (C) = \$10,058 billion (70.4%)

Gross private investment (I) = \$2,004 billion (14.0%)

Government expenditures (G) = \$2,883 billion (20.2%)

Exports (X) minus Imports (M) = -\$665 billion (-4.6%)

GROSS DOMESTIC PRODUCT (GDP) = \$14,280 billion

In calculating GDE, I begin by combining the first three stages (#1, 2, and 3 of figure 1.3) into an aggregate number called Intermediate Expenditures (IE), or goods-in-process before reaching the final output stage (#4).

Thus,

$$\text{GDE} = \text{IE} + \text{GDP}, \text{ where}$$

GDE = Gross Domestic Expenditures

IE = value of intermediate sales or expenditures

and

GDP = Gross Domestic Product.

Graphically, the relationship is illustrated in figure 1.6.

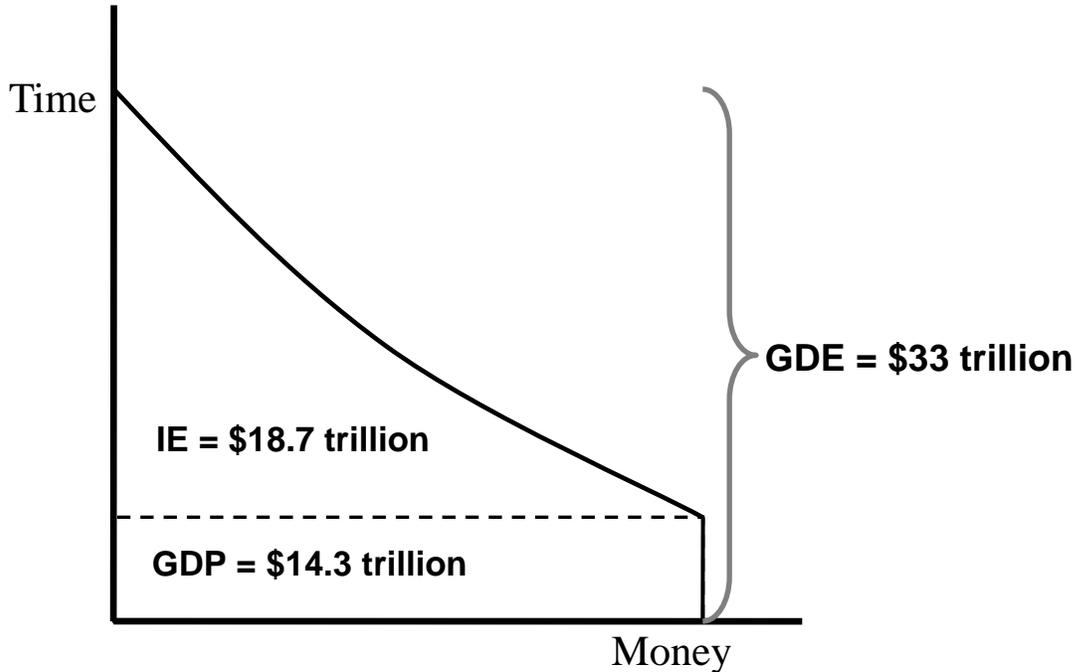


Figure 1.7. Relationship between GDE, IE, and GDP for 2008 (est).

IE is the difference between GDE and GDP, estimated to be \$18.7 trillion for 2008.

Inserting the equation for GDP, we now have

$$\text{GDE} = \text{IE} + (\text{C} + \text{I} + \text{G} + \text{NX}).$$

Now because IE measures business spending for goods-in-process, I rearrange the equation combining IE and I.

$$\text{GDE} = \text{C} + (\text{I} + \text{IE}) + \text{G} + \text{NX}.$$

Thus, we now have a complete picture of the breakdown of spending in the economy:

Consumer expenditures = C

Gross business expenditures = I + IE

Government expenditures = G

Trade = X – M, or NX.

Applying this new formula to estimated GDE for 2008, we see the following results:

Personal consumption expenditures (C) = \$10,058 billion (30.5%)

Gross business expenditures (I + IE) = \$2,004 billion + \$18,700 billion = \$20.7 trillion (62.8%)

Government expenditures (G) = \$2,883 billion (8.7%)

Exports (X) minus Imports (M) = -\$665 billion (-0.2%)

GROSS DOMESTIC EXPENDITURES (GDE) = \$33 trillion (est)

Conclusions

We can now make the following observations.

First, consumer spending represents only about a third, not two thirds, of the economy, as is commonly believed. Consumption is a significant sector of the economy that should be carefully monitored, but it is far from being the most important part of the American economy.

Second, business investment, broadly defined to include private investment of final capital goods and spending to produce goods-in-process, is by far the largest sector of the economy, representing approximately 62% of the economy, twice the size of consumption.

I believe this reversal of fortunes between consumption and business investment is more consistent with leading economic indicators and business cycle analysis.

It should be noted that the absolute size of government spending is substantially reduced in GDE. While government represents 20% of final output (GDP), it denotes only 8.7% of GDE. For analysis purposes, it would be appropriate to divide up G into government consumption expenditures and government investment expenditures, as a more accurate view of the size of consumption and investment in the economy, but neither part is officially separated that way at the present time.

Net exports (NX) are also diminished by this new aggregate statistic, though it should be noted that goods-in-process performed before being imported into the country are not counted in GDE.

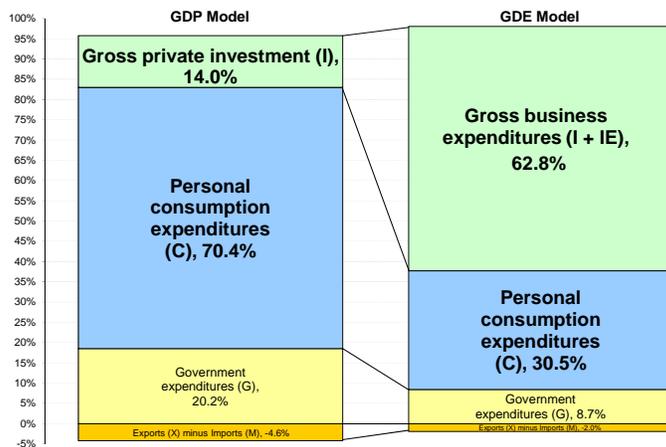


Figure 1.8. Relative Importance of Consumption, Investment, Government and Trade in GDP and GDE, 2008 (est).

Third, GDE appears to be more sensitive to the business cycle than GDP. GDE and IP are far more cyclical than GDP. (Figure 1.6 above).

Finally, figure 1.9 below demonstrates GDE can be successfully integrated into standard macroeconomic analyst and the various national income statistics. Standard textbooks start with GDP, but we see here that it is more appropriate to start with GDE, followed by GDP, Net National Product (NNP), National Income (NI), and Personal Income (PI).

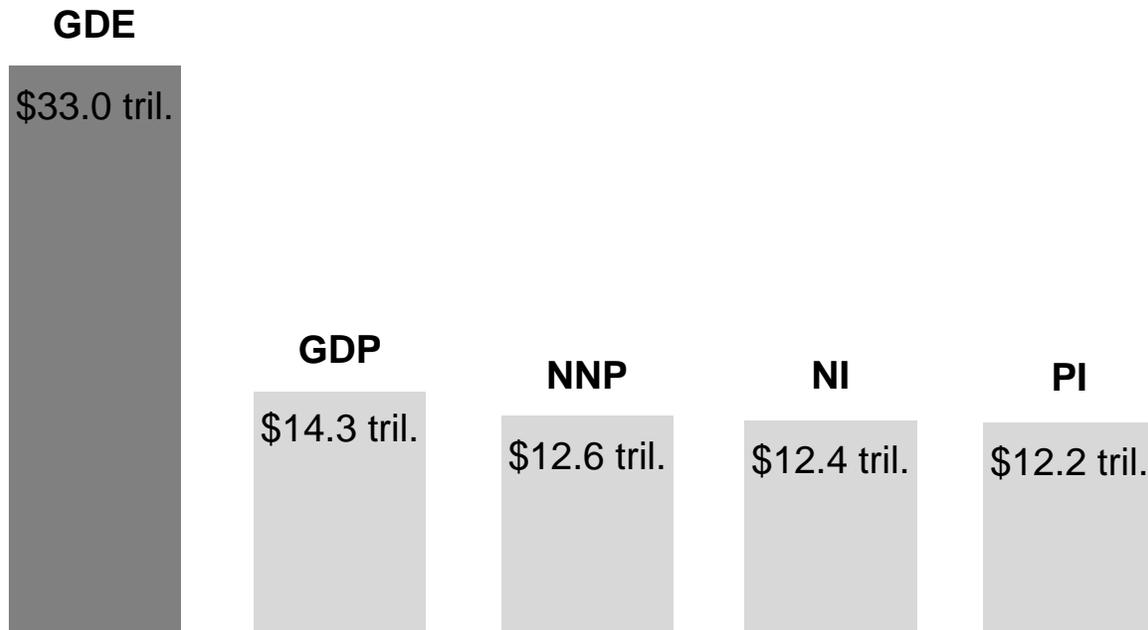


Figure 1.9. Relationship between GDE, GDP, et National Product (NNP) National Income (NI) and Personal Income (PI) for 2008 (estimated).

In sum, the introduction of a four-stage-model of the economy and its aggregate statistic, Gross Domestic Expenditures, give a more complete and accurate picture of the production/consumption process that is more consistent with growth theory and business cycle analysis.

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