

Stacking Graph for the GDP¹

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

GDP: real gross domestic product

C: real personal consumption expenditures

I: real gross private domestic investment

G: real government consumption expenditures and gross investment

NX: net exports = [real exports of goods and services – real imports of goods and services]

1. Navigate to the FRED web site.

2. Getting the Data:

- a. **C: real personal consumption expenditures.**
 - i. Search the FRED for “real personal consumption expenditures”
 - ii. Click the box next to “Billions of Chained 2009 Dollars, Quarterly, Seasonally Adjusted Annual Rate”
 - iii. Click on this data series, which will now be displayed as a graph
- b. Now you will **add the other GDP components data series** to this graph.
 - i. Under the graph, select the “Graph” tab;
 - ii. Under the “Graph” tab, select “Add Data Series”;
In the search box there, you will need to type components of the GDP.
- c. **I: real gross private domestic investment.**
 - i. Type “real gross private domestic investment” in the search box of the “Add Data Series” section;
 - ii. As the options for data series appear, select “Real Gross Private Domestic Investment, Billions of Chained 2009 Dollars, Seasonally Adjusted Annual Rate”;
 - iii. Click “Add Series” – it will be now displayed on the graph as a second line;
 - iv. Make sure that the “frequency” of your data is “Quarterly”.
- d. **G: real government consumption expenditures and gross investment.**
 - i. Type “real government consumption expenditures” in the search box of the “Add Data Series” section;
 - ii. As the options for data series appear, select “Real Government Consumption Expenditures and Gross Investment, Billions of Chained 2009 Dollars, Seasonally Adjusted Annual Rate”;
 - iii. Click “Add Series” – it will be now displayed on the graph as a third line;
 - iv. Make sure that the “frequency” of your data is “Quarterly”.

¹ This is the summary of the activity “Analyzing the Elements of Real GDP in FRED® Using Stacking” available on the EconLowDown: <https://www.stlouisfed.org/~media/Education/Lessons/pdf/FRED-GDP-Stacking.pdf>

- e. **NX: net exports** = [real exports of goods and services – real imports of goods and services].
- i. Type “real exports” in the search box of the “**Add Data Series**” section;
 - ii. As the options for data series appear, select “Real Exports of Goods and Services, Billions of Chained 2009 Dollars, Seasonally Adjusted Annual Rate”;
 - iii. Click “**Add Series**” – it will be now displayed on the graph as a fourth line.
 - iv. Make sure that the “frequency” of your data is “Quarterly”.
 - v. To create **net exports** from this series, you need to make a **transformation**:
 1. Go to “**Add Data Series**”
 2. Type “real imports” in the search box of the “Add Data Series” section;
 3. As the data comes up, select “Real Imports of Goods and Services, Billions of Chained 2009 Dollars, Seasonally Adjusted Annual Rate”;
 4. Click “**Modify Existing Series**” option;
 5. Click “**Add Series**”
 6. Click “**Create your own data transformation**”
 7. In the formula bar that appears, type “**a-b**”, making sure that your “a” series is “exports” and your “b” series is “imports”.
 8. Click “**Apply**”. Now you will have the fourth line on the graph displaying NX, which should be “real exports of goods and services – real imports of goods and services”.

3. Stacking the Data:

- a. Under the “Graph” tab, click “Graph Settings”;
- b. In the “Graph Type” drop-down menu, select “**Area**” – now the line graph changes to an area graph. But your values are not yet **combined**;
- c. In the “Stacking” drop-down menu, select “**Normal**” – now your graph shows the **total** (combined) value of the four GDP components. Notice the change in the **y-axis** values.

Now you created a graph showing total real GDP and the values of each of its components: C, I, G, NX.

4. Save your graph.